



**Small
patterns.**



ASML

**Big
impact.**

Annual Report
2023

We are over 42,400 individuals – thinkers, innovators, problem solvers, planners, movers and makers.

As a team, working together with our partners and customers, we help feed the world's ever-growing demand for faster and more efficient microchips.

We create impact by pushing technology to new limits, unlocking the potential of society and enabling people to tackle some of humanity's biggest challenges.

Together we create impact.



Delivering for our customers

See page 18 >



Embracing change, driving innovation

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A sustainability mindset

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Making a difference

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Helping our teams thrive

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Working together, growing together

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Impact through collaboration

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STRATEGIC REPORT

Together we create impact

Throughout this year's report we feature ASML colleagues and look at the impact they are having on ASML and society.

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Our 2023 online report highlights key information from this pdf with additional links to relevant information on our corporate website.

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A definition or explanation of abbreviations, technical terms and other terms used throughout this Annual Report can be found in the Definitions section. In some cases, numbers have been rounded for readers' convenience.

This report comprises regulated information within the meaning of articles 1:1 and 5:25c of the Dutch Financial Markets Supervision Act (Wet op het Financieel Toezicht).

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In this report the name 'ASML' is sometimes used for convenience in contexts where reference is made to ASML Holding NV and/or any of its subsidiaries, as the context may require.

References to our website and/or video presentations in this Annual Report are for reference only and none nor any portion thereof are incorporated by reference in this report.

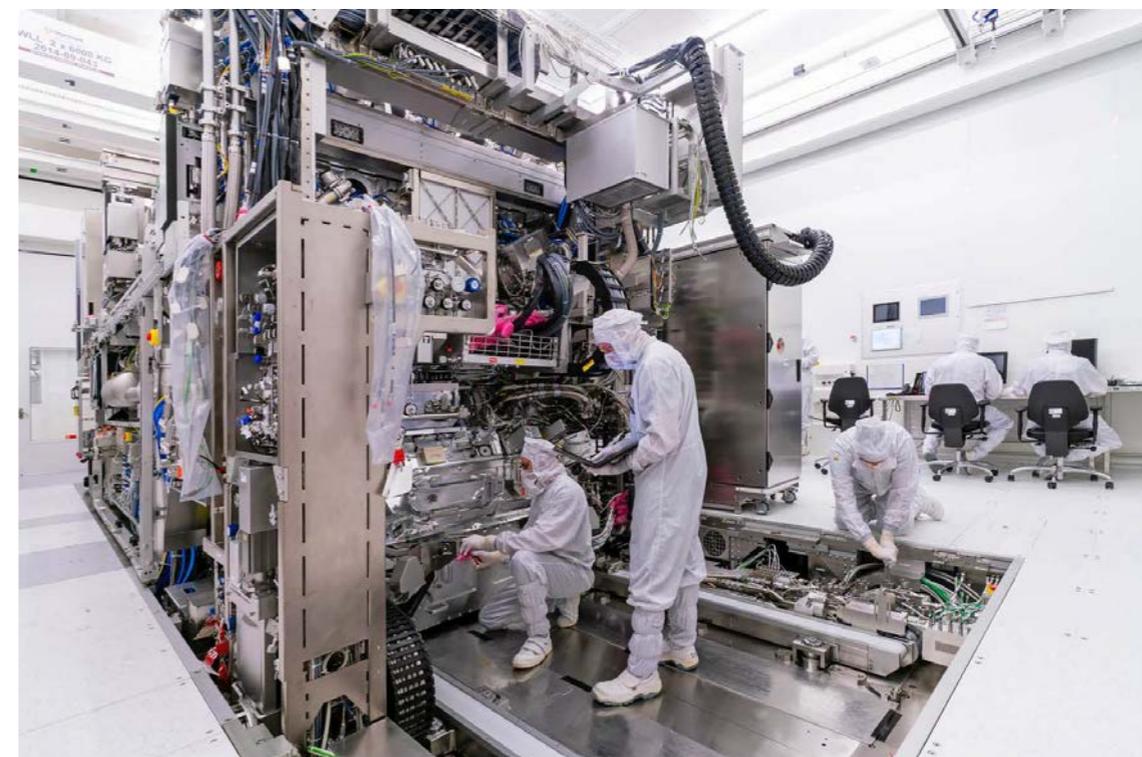
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Special note regarding forward-looking statements

This Annual Report contains statements relating to our business, expected results, business and industry trends and other matters that are “forward-looking” within the meaning of the Private Securities Litigation Reform Act of 1995. You can generally identify these statements by the use of words like “may”, “will”, “opportunity”, “potential”, “could”, “should”, “project”, “believe”, “anticipate”, “expect”, “plan”, “estimate”, “forecast”, “model”, “aim”, “seek”, “intend”, “continue”, “target”, “future”, “progress”, “goal” and variations of these words or comparable words. They appear in a number of places throughout this Annual Report and include statements with respect to expected trends, plans, expectations, strategies, priorities, goals, outlook, expected financial results for Q1 2024, including expected sales, gross margin, R&D costs and SG&A costs, expected results for full year 2024, including expectations with respect to revenue, gross margin and estimated annualized effective tax rate, expectations with respect to sales by market segment and EUV, non-EUV and IBM sales and expected drivers thereof, and other full year 2024 expectations and outlook, expectations with respect to revenue growth in 2025 and other statements with respect to outlook for 2024 and beyond and expected drivers thereof and other statements under “Long-term growth opportunities”, bookings, backlog, expected capital expenditures, R&D

spending targets, statements made at our 2022 Investor Day, including revenue and gross margin opportunity, model and potential for 2025 and 2030, expected business and industry trends and outlook, including expected semiconductor industry trends and trends in markets served by our customers, business environment trends, including expected demand, utilization, inventory levels, expected recovery in the semiconductor industry and expected timing thereof, expected growth in semiconductor end markets and market opportunity for 2025 and 2030 and key drivers and global trends expected to fuel semiconductor growth in the longer term, plans to increase global semiconductor capacity and expected growth in semiconductor ecosystem, statements with respect to Moore’s Law and continuation of shrink, expected trends in customer demand, export control policy and regulations and expected impact on us, our plans to increase capacity, and expected or planned production capacity, expected timing of shipments, assumptions and expectations with respect to fast shipments, expectations with respect to systems being operational in customer factories and high-volume production of High NA systems, product roadmaps including EUV goals and roadmaps, customer roadmaps, expected productivity and other attributes and benefits of our tools, expected growth opportunities in holistic lithography, our ESG and

sustainability strategy, plans, commitments and targets, including emissions and waste reduction commitments and targets, recycling and refurbishment initiatives, energy-saving strategies and targets, including plans and targets to achieve net zero carbon emissions and target dates to achieve net zero emissions, potential for semiconductors to reduce CO₂ emissions, plan for our systems to use less energy and our energy savings plans, diversity and other ESG targets and commitments, cash return and dividend policy and statements about our share buyback program and our proposed dividend for 2023, and other non-historical statements. These forward-looking statements are not historical facts, but rather are based on current expectations, estimates, assumptions and projections about business and future financial results and readers should not place undue reliance on them. Forward-looking statements do not guarantee future performance, and actual results may differ materially from projected results as a result of certain risks and uncertainties. These risks and uncertainties include, without limitation, those described under the section entitled “How we manage risk – Risk factors”. These forward-looking statements are made only as of the date of this Annual Report. We do not undertake to update or revise the forward-looking statements, whether as a result of new information, future events or otherwise.



Managing the cycle, preparing for greater growth in years to come

Despite macroeconomic and geopolitical challenges, ASML has again delivered strong performance. Now, as we see signs of the industry coming out of its cyclical downturn, we are laying plans for further significant growth.

Dear Stakeholder,

In last year's message, I wrote that I expected 2023 to yet again see us break records – and ASML's performance has fully justified that confidence. We have grown sales by 30% to €27.6 billion and lifted our gross margin to 51.3%. We returned €3.3 billion to shareholders through a combination of dividends and share buybacks. At the end of 2023, we finished with a backlog of €39.0 billion and we anticipate that with our sustained focus on technology innovation, we will continue to break new ground – not only in terms of technological development, but also in how we manage the environmental impact of our products and services.

This stellar performance has been achieved against a backdrop of what turned out to be a real downturn in the semiconductor industry instead of the mild and short-term correction that many had forecast. In addition, we had to manage uncertainties created by geopolitical challenges including the US and Dutch governments' export control regulations, and global macro concerns around inflation, rising interest rates and lower GDP growth in certain economies. There have also been other uncertainties at play, driven by the ongoing war in Ukraine as well as the more recent conflict in the Middle East. These have inevitably dented confidence and reduced investment by our customers.

In 2023, demand for our DUV systems continued to be strong, particularly in China. During the previous two years, our Chinese customers had received significantly fewer systems than they had ordered, due to global demand for our systems exceeding

supply. However, the shifts in demand timing from other customers that we experienced in 2023 meant that we had the opportunity to backfill these orders for mature and mid-critical nodes to China, while of course complying with export regulations.

Executing our business strategy

Our strategic innovation roadmap has continued to guide us, and, as you can read in the Q&A with our Chief Technology Officer on page 20, we have made good progress on further enhancements to our EUV, DUV and metrology and inspection systems. Our holistic approach to lithography provides customers with support and solutions at every stage of the chipmaking process, from early design and development to high-volume production. To mention a highlight: In 2023, we shipped the first modules of the first High NA EUV EXE:5000 system.

Two further elements of our strategic progress have been particularly pleasing. Firstly, we strengthened the resilience of our supply chain, which had been under immense pressure, with a significant number of suppliers experiencing challenges to meet our increasing expectations. During 2023, we reshaped our sourcing and procurement organization under the leadership of Wayne Allan, a new member of the Board of Management (BoM). This team is now working with suppliers to help optimize our partnerships, so they have the flexibility and capability to deliver the products and services we need.



Our holistic approach to lithography provides customers with support and solutions at every stage of the chipmaking process.”

Peter Wennink

President, Chief Executive Officer and Chair of the Board of Management



Managing the cycle, preparing for greater growth in years to come (continued)

The second area is around customer trust. Trust is the foundation for our customer relationships – it means always being reliable, working at the highest possible level of efficiency, being transparent about what we are doing and fairly sharing the risks and rewards. And while customer trust in general was at a high level in 2023, we – as always – recognize that we can do even better. So over the last 12 months we have developed plans for fundamental reorganization of our customer-facing roles and responsibilities to prepare for future growth, and this was implemented from January 2024.

We expect that the reorganization will help us cement greater customer trust, which will be essential in ensuring that we and our customers reap the rewards of the upturn that we expect in 2025 and 2026.

ESG sustainability at the heart of our company

Developed in 2022, our ESG sustainability strategy took shape in 2023. It is now being executed across the business, and we have taken important steps in each of the E (Environmental), S (Social) and G (Governance) elements.

The overarching aim of our ESG sustainability strategy is simple: As we grow our company, we want to increase our positive impact at the same time as minimizing our negative impacts on the environment and people, while doing business in a responsible way.

The very nature of what we do means we are already making a contribution to overcoming the challenges that our world is facing. Without semiconductors, the changes that society needs to implement – whether to do with the energy transition, healthcare, electrification, AI or many other areas – will not happen.

Our role is to make sure that our customers can continue to deliver the innovation that is already transforming the world, and with a reduced CO₂ footprint per chip. In our own facilities, we are reducing energy consumption and increasingly using renewable energy. Together with our suppliers and other upstream value chain partners, we are working to jointly reduce our carbon footprint in our supply chain. In addition, we are taking steps to increase the energy efficiency of our systems at our customers' sites – reducing waste intensity, increasing reuse and repair, supporting our people and their communities, and promoting transparency and accountability through good governance. There is work to do in all those areas – but we have made excellent progress and we are committed to playing our full part in creating a more responsible and sustainable society. You can read more details in the ESG sustainability sections of this report.

Our stakeholder model

ASML operates on a stakeholder model. With every decision we take, the Board of Management and I, as CEO, aim to balance the concerns and needs of our five different stakeholders: Customers, suppliers and partners, our people, our shareholders and wider society – for example, the communities where we operate.

Over the last year, we have used a significant part of our operational cash flow to support our customers, extending payment terms to help them make investments despite their negative cash flows. This was crucial sustaining their

businesses through difficult times while ensuring that they have the resources in place to meet future demand.

Similarly, we encouraged our *suppliers* to maintain their investment ambitions through the downturn, using opportunities such as our Suppliers' Day to explain how we expected our business to accelerate from 2025 onward. It is vital that we retain the trust of our suppliers.

To retain the trust of our *shareholders*, our key focus is to be as transparent as possible with them about everything to do with ASML – on export controls, on industry cyclicality, on how we are going to use our operational cash flow, on how we are going to pay dividends and buy back shares, and on how we are going to help our customers and suppliers.

As the stories highlighted in this report demonstrate, our *employees* – representing many different nationalities and bringing a broad range of backgrounds, perspectives and skills – are key to our success. One of the reasons why so many talented people choose ASML as an employer is because we give them the opportunity to work at the sharp end of technology and make a real difference, while also supporting their health and well-being. We put a lot of effort into this, providing our employees with opportunities and the best environments to develop their talent, to feel respected and to



Our task in 2024 is to reflect on our organization and capabilities and prepare for the rapid growth that is sure to come.”

Peter Wennink

President, Chief Executive Officer and Chair of the Board of Management



Managing the cycle, preparing for greater growth in years to come (continued)

thrive. We need our people to trust us, and the fact that our engagement score has improved again shows we are on the right track.

Regarding *society*, we strive to respect a range of different and sometimes conflicting interests around our growth trajectory and the increasing impact of our products and services on society. We engage extensively with communities, institutions, special interest groups and governments at all levels across the world on topics that are relevant to our business and its role in society and that therefore require long-term vision and support, such as education, infrastructure, culture and environment.

A year of transition

Our expectation is that our net sales in 2024 will be broadly in line with our net sales in 2023. But above all, this will be a year of transition – a time to digest the fast growth

we have experienced in recent years and to prepare for 2025 and 2026, which I believe will be strong years because of three major factors.

Firstly, demand for semiconductors is increasingly generated by secular growth drivers in end markets, such as the energy transition, electrification and AI. As the application space expands, with lithography playing an ever-greater role in future technology nodes, demand grows for both advanced and mature semiconductors.

Secondly, the semiconductor industry is currently working through the bottom of the cycle. Historically, the downturns of the last 30-40 years have been for two to three years, with the present downturn really beginning in the second half of 2022. Our customers are still not certain of the shape or slope of the recovery, but there are some positive signs in the indicators we have been monitoring. Industry end-market inventory

levels continue to improve and litho tool utilization levels are beginning to show improvement. Our strong order intake in the fourth quarter clearly supports future demand.

Lastly, we need to prepare for the significant number of new semiconductor fabs that are being built. These fabs are spread geographically across the globe – they're strategically important for our customers and they're scheduled to take our tools. It is essential that we keep our focus on the future and build capacity to be ready for this ramp.

The semiconductor industry is expected to double somewhere in the next decade, as compared with today. Our task in 2024 is to reflect on our organization and capabilities and prepare for the rapid growth that is expected to come, while managing increased cost pressures. That means working on our processes – for example, ensuring that they are fit for purpose and have the flexibility to expand rapidly when and where needed.

And it means taking care of our people, making sure that they feel fully engaged in our company. Many thousands of new employees have joined us in the last few years, and around 40% of all our colleagues have been with us for three years or less.

Our values of challenge, collaborate and care have been instrumental in our success to date, and they will continue to guide us in the future. It is vital that all our people embrace these values.

In 2024, we need to take the opportunity to create clarity about the many roles and responsibilities in our diverse, cross-functional teams, to maintain a safe environment where people feel connected, included and respected.

Stakeholder support

We are tremendously proud of what we've achieved to date and extremely excited for the years ahead. But none of this would be possible without the support of our stakeholders. ASML has succeeded and will continue to thrive because of the patience and success of our customers, the collaboration of our suppliers and partners, and the understanding of shareholders and governments. Most of all, we rely on our people – and I thank them for all their expertise and hard work over the last year.

This is my final Annual Report message as ASML's CEO, following the Supervisory Board's announcement that Christophe Fouquet will succeed me as President and Chief Executive Officer at the 2024 AGM. Christophe has been with ASML for 15 years, with a major focus on technology, products and customers, and I am delighted that we have been able to secure such a talented, experienced individual to guide the business through the coming years. Christophe and I share the 'ASML DNA' of collaboration and partnership, and we will work closely together to ensure that he has the best possible start in his new position.

I wish Christophe and all our stakeholders – and particularly our fantastic people – every success as, together, you embark on the next phase of this great company's journey.

Peter Wennink

President, Chief Executive Officer and Chair of the Board of Management



Our values of challenge, collaborate and care have been instrumental in our success.”

Peter Wennink

President, Chief Executive Officer and Chair of the Board of Management

We are a global innovator

As one of the leading innovators in the semiconductor industry, we've been helping chipmakers push technology to new limits and unlock the potential of society since 1984. Together, our hardware, software and services provide a holistic approach to mass producing the patterns of microchips.

Berliner Glas (ASML Berlin GmbH) is reflected as part of our business throughout this report, with the exception of non-financial reporting. We are preparing to integrate this in 2024 in line with Corporate Sustainability Reporting Directive (CSRD) requirements.

Key facts in 2023



€27.6bn

Total net sales

€23.2bn Asia
€3.2bn US
€1.2bn EMEA

[Read more on page 43 >](#)



€4.0bn

R&D investments

We innovate across our entire product portfolio through strong investment in R&D

[Read more on page 137 >](#)



€15.5bn

Total sourcing spend¹

(Netherlands: 40% | EMEA (excl. NL): 40%
North America: 13% | Asia: 7%)

1. Reported for non-financial (GRI) reporting purposes

[Read more on page 126 >](#)



42,416

Employees (FTE)

19,805 in Operations
15,604 in R&D
7,007 in Sales and Support

[Read more on page 107 >](#)



35.1 kt

Scope 1 and 2 CO₂e emissions

(2025 target net zero)

[Read more on page 76 >](#)



80.3%

Employee engagement score against benchmark

(2025 target -2% vs. top 25% performing companies)

[Read more on page 107 >](#)

What we do

At ASML, we design and integrate lithography systems with computational tools, metrology and inspection systems, and process control software solutions. This holistic approach to lithography provides chipmakers with support and solutions at every stage of the chipmaking process, from early design and development to high-volume production.

It enables chipmakers to optimize the lithography system setup and process window for high-volume manufacturing, helping them achieve their highest yields and best chip performance.

[Read more in Our unique offer on page 11 >](#)

Our key products and services

- Lithography systems
- Metrology and inspection systems
- Computational lithography
- Supporting our customers
- System and process control software
- Managing our installed base systems
- Refurbished systems

[Read more in Our products and services on page 13 >](#)

Where we operate – more than 60 locations across 3 continents



Asia

China
Japan
Malaysia
Singapore
South Korea
Taiwan



North America

Arizona
California
Colorado
Connecticut
Idaho
Massachusetts
New Mexico
New York
Oregon
Texas
Utah
Virginia



EMEA

Belgium
France
Germany
Ireland
Israel
Italy
Netherlands
United Kingdom

We work together to help society progress

Why we exist – our purpose

Unlocking the potential of people and society by pushing technology to new limits.

What we try to achieve – our vision

We enable ground-breaking technology to solve some of humanity's toughest challenges.

What we uniquely do – our mission

Together with our partners, we provide leading patterning solutions that drive the advancement of microchips.

[Read more in Our business model on page 32 >](#)

“

You can see the impact of our collaboration in the commercial results of ASML and our customers.”

George Tao
Director Customer
Service Applications

[Read more on page 144 >](#)

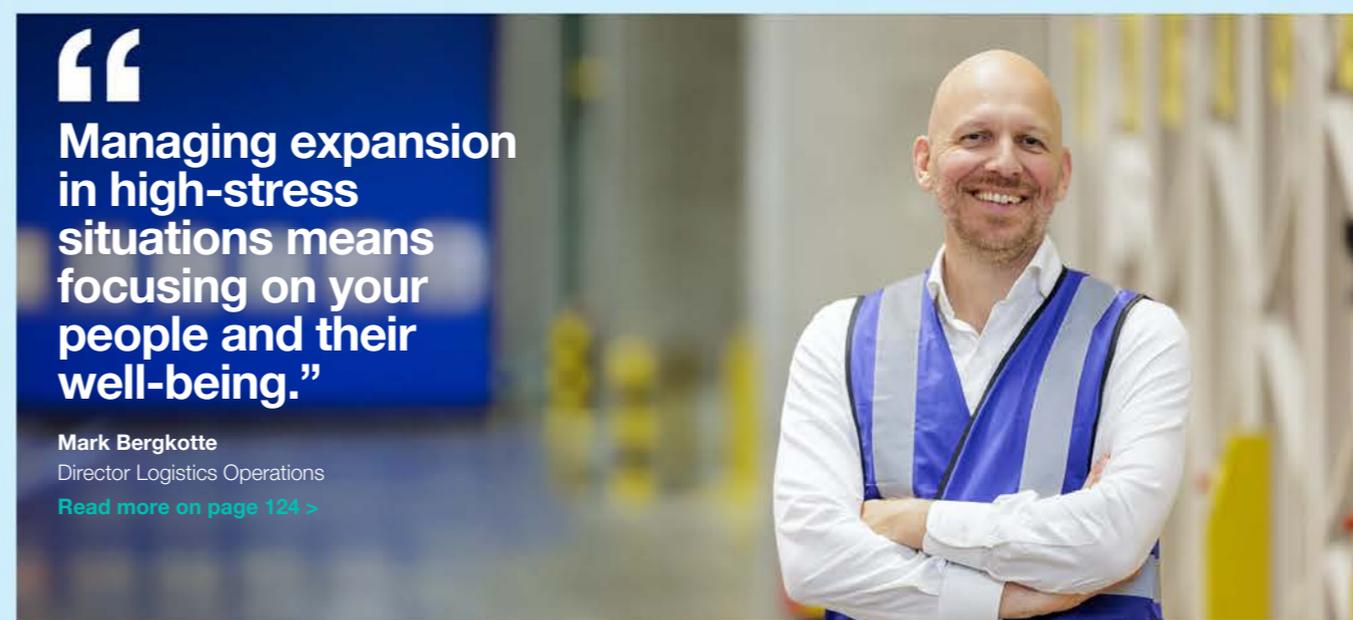


“

Managing expansion in high-stress situations means focusing on your people and their well-being.”

Mark Bergkotte
Director Logistics Operations

[Read more on page 124 >](#)



“

The interaction among supply chain partners helps us all improve to support faster growth.”

Manon Hendriks
Senior Director Sourcing & Procurement

[Read more on page 135 >](#)



We live by our values to drive success

We challenge

We challenge boundaries and question the status quo to keep pushing technology forward.

We collaborate

By tapping into the collective potential of our ecosystem of customers, partners and stakeholders, we can create better solutions.

We care

We act with integrity and respect, and provide a safe, inclusive and trusting environment where our people can learn and grow.



“
Sustainability is a design challenge that must be solved in parallel with system cost and performance.”

Ton van der Net
Principal Architect D&E
[Read more on page 89 >](#)



“
ASML's focus on technology and its supportive culture mean you can go wherever your talent and ambition take you.”

Anya Kish
Program Director EUV Source
[Read more on page 105 >](#)



“
Every few months, I have been given a new challenge to extend myself.”

Manisha Devi
Solution Test Architect
[Read more on page 18 >](#)



“
My new role will help us safeguard our innovation power as we evolve to support future growth.”

Ron Kool
Head of Business Performance Improvement
[Read more on page 35 >](#)

Holistic lithography

Lithography technology is fundamental to the mass production of microchips. Our holistic approach is based on integrating our lithography systems with a set of products that optimize production and enable affordable shrink.

The semiconductor industry is driven by affordable shrink – the ability to make smaller, more energy-efficient transistors at the right price. Reducing the size of transistors means that more can be packed into a given area, resulting in increased functionality and improved performance.

Lithography is a key driver for shrink, enabling what is known as geometric scaling. This determines the smallest feature sizes that can be printed on a chip, and therefore the number of transistors and the performance. To achieve dimensional scaling, lithography has to use shorter wavelengths of light and larger numerical apertures, as well as other advanced techniques such as immersion lithography and multiple patterning.

Our innovations in lithography have enabled the continuation of Moore's Law¹ – the observation that the number of transistors in an integrated circuit (IC) doubles about every two years – for more than 30 years.

1. Dr. Gordon Moore, co-founder of chipmaker Intel, and the man who created Moore's Law, passed away peacefully at his home in Hawaii on Friday, March 24, 2023. He was 94 years old.

The Rayleigh criterion that drives Moore's Law

$$CD = k_1 \times \frac{\lambda}{NA}$$

- **CD** is the critical dimension, a measure of how small the smallest structures are that the lithography system can print.
- **Lambda** λ is the wavelength of the light source used, and the smaller the wavelength, the smaller the structures that can be printed. Our deep ultraviolet (DUV) lithography systems, known as the industry workhorse, dive deep into the UV light spectrum to print the tiny features that form the basis of a microchip.
- **NA** is the numerical aperture, indicating the entrance angle of the light – with larger NA lenses/mirrors, smaller structures can be printed. Besides larger lenses, ASML has increased the NA of our ArF systems by maintaining a thin film of water between the last lens element and the wafer in our so-called immersion systems, using the breaking index of the water to increase the NA.

Over the years, ASML has made several wavelength steps, and our DUV lithography systems range from 365 nm (i-line), through 248 nm (KrF) to 193 nm (ArF). With our extreme ultraviolet (EUV) systems, we provide highest-resolution lithography in high-volume manufacturing as these systems make a major step in wavelength – with EUV tin plasma, we generate EUV light which has a wavelength of just 13.5 nm.

After the wavelength step to EUV, we are developing the next-generation EUV systems, called EUV 0.55 NA (High NA), where we push the numerical aperture from 0.33 to 0.55.

- **k1** is a factor relating to optical and process optimizations. Together with our computational lithography and patterning control software solutions, we provide the control loops for our customers to optimize their mask designs and illumination conditions.



[Watch Gordon Moore video](#)

Lithography explained

Microchips are made by building up complex patterns of transistors, layer by layer, on a silicon wafer. Our lithography systems print those patterns by projecting ultraviolet light on a blueprint of the pattern (known as a 'reticle' or 'mask') and shrinking and focusing that light onto a photosensitive silicon wafer. This results in a so-called die, a rectangular pattern on a wafer containing circuitry to perform a specific function.

ASML's technology is pivotal to semiconductor production because lithography is the only stage where the wafer is processed die by die.

Lithography therefore has a greater impact on performance – including the number of good wafers per day, or yield – than any other stage in the chip manufacturing process.

The lithography process is repeated to build up the layers of a chip. Modern chips can have more than 100 layers, all of which need to be aligned on top of each other with nanometer precision. In general, our EUV systems are used to print the most intricate layers on a chip first, with the rest of the layers then printed using various DUV systems.

Our holistic approach to lithography

As patterning gets smaller, our lithography systems become increasingly complex. And as chipmakers print ever-smaller patterns, they face unprecedented engineering, material, structural and manufacturing challenges. Many sources of variation and error can hinder the lithography process, and they must be controlled to ensure that chips are produced with the required precision, in high volumes, as fast as possible and at the lowest cost.

To help address these challenges, we provide customers with a holistic, integrated approach to lithography that enables them to optimize the system setup and process window for high-volume manufacturing, helping them achieve their highest yields and best chip performance.

[Read more in Our business model on page 32 >](#)



What is a process window?

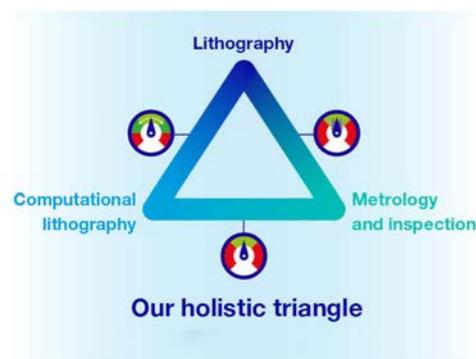
Lithography and all other stages in the microchip manufacturing process must be closely aligned for an optimal result. The process window is the collection of acceptable variations of process parameters that allow a microchip to be manufactured and to operate under desired specifications. By incorporating computational lithography, metrology and inspection, ASML's holistic lithography portfolio enables customers to maximize the process window, keeping lithography systems stable in a high-volume manufacturing setting, which leads to a higher yield with more good wafers per day.

Holistic lithography (continued)

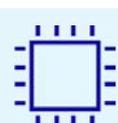
Our holistic approach integrates lithography systems with computational tools, metrology and inspection systems, and process control software solutions. This enables us to provide chipmakers with support and solutions at every stage of the chipmaking process, from early design and development to high-volume production.

By bringing together the different elements of our holistic lithography portfolio, we help our customers understand and correct for potential issues that could cause variations or errors.

This helps minimize any deviation between the intended and printed features of a microchip layout, thereby optimizing the lithography system's performance, stability and yield – including maximizing the number of good wafers per day – and enabling ever-smaller chip features.



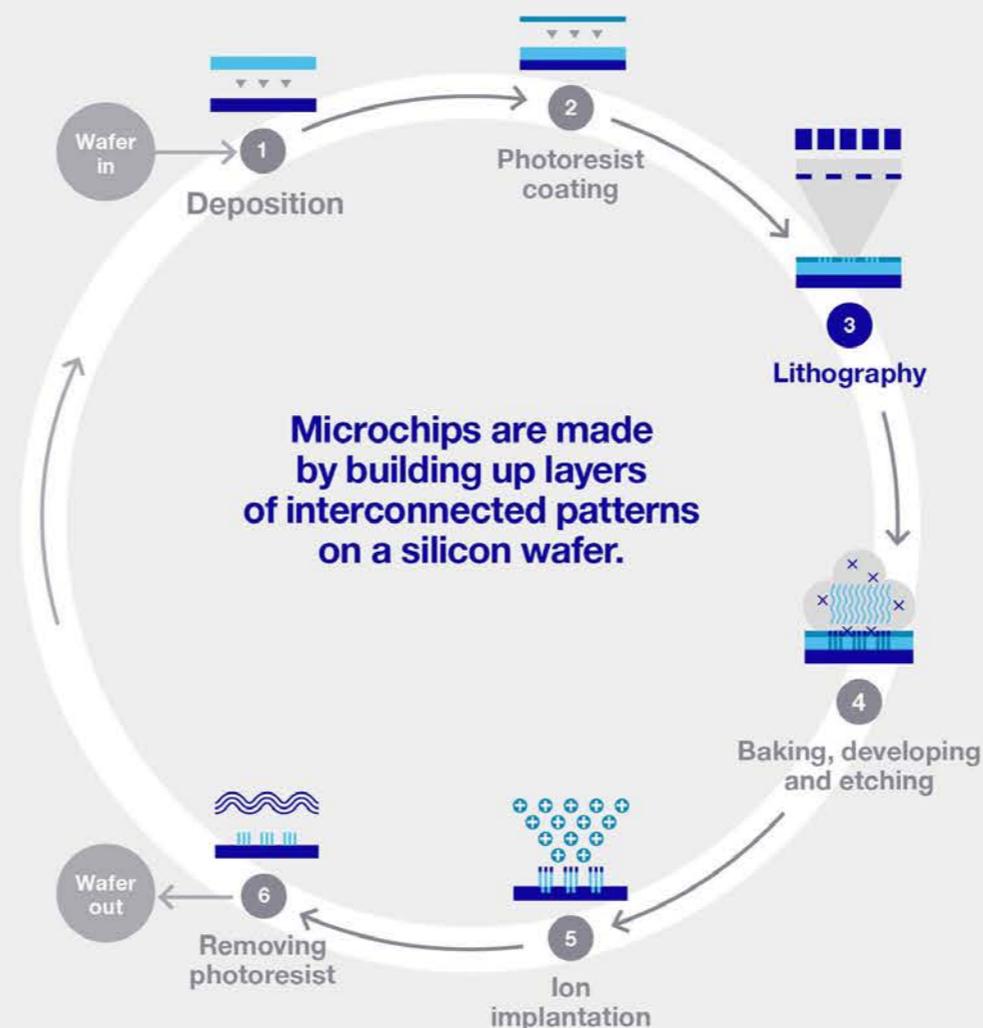
[Read more in Our business model on page 32 >](#)



What is edge placement error (EPE)?

Creating a microchip involves the patterning of tiny features in precise locations. Edge placement error (EPE) is the difference between the intended and the printed features of the layout of a microchip. For example, a feature could be a line, which has right and left edges. On a microchip, this line and its edges must be precise and placed in exact locations. Any deviation, no matter how slight, can result in misalignment, or an EPE. If one or more EPE issues crop up in the microchip production flow, the device is subject to shorts or poor yields, which could cause the entire chip to fail.

ASML plays an integral role in the microchip manufacturing process



- 1 Deposition** – The first step is typically to deposit different materials – such as metals/conductors, insulation films and semiconductors – onto a silicon wafer.
- 2 Photoresist coating** – The wafer is then coated with a light-sensitive layer called a photoresist.
- 3 Lithography** – Light is projected onto the wafer through a reticle. Optics shrink and focus the reticle pattern. This pattern is then printed onto the wafer when the resist layer is exposed to light.
- 4 Baking, developing and etching** – The wafer is then baked and developed to make the pattern permanent, with a pattern of open spaces. Reactive gases are used to etch away material from the open spaces, leaving a 3D version of the pattern.
- 5 Ion implantation** – The wafer may be bombarded with positive or negative ions to tune the semiconductor properties.
- 6 Removing photoresist** – After the layer is etched or ionized, the remainder of the photoresist coating that was protecting areas not to be etched is removed.

The entire microchip manufacturing process – from start to tested and packaged device, ready for shipment – can take between 18 and 26 weeks, depending on the complexity of the microchip.

World-leading holistic lithography solutions

Our comprehensive product portfolio is aligned to our customers' roadmaps, delivering cost-effective solutions in support of all applications, from leading-edge to mature nodes.

Our holistic approach to lithography integrates a set of products – enabling chipmakers to develop, optimize and control the semiconductor production process.

Extreme ultraviolet (EUV) lithography systems

Using extreme ultraviolet (EUV) light at a wavelength of 13.5 nm, our EUV lithography systems make it possible to print the smallest features on microchips at the highest density. EUV systems are used for the most intricate, critical layers on the most advanced microchips. ASML is currently the world's only manufacturer of EUV lithography systems.

EUV 0.33 NA (NXE platform)

EUV lithography uses light with a wavelength of just 13.5 nm. This enables EUV systems to print the finest lines and allows our customers to use them in a more simplified process compared to complex multiple-patterning strategies using DUV immersion systems. Our NXE EUV platform, with an NA of 0.33, was first introduced to customers in 2013 and is now widely adopted in high-volume manufacturing by our major customers.

The platform is now in its seventh generation and we continue to industrialize the technology, innovating further developments to create value for customers.

TWINSCAN NXE:3600D ▶

In June 2023, we celebrated the 100th shipment of the TWINSCAN NXE:3600D, our latest-generation EUV 0.33 NA lithography system. It combines the highest resolution with 15-20% increased productivity and around 30% better overlay compared with its predecessor, the TWINSCAN NXE:3400C, while also improving system availability.

Our EUV product roadmap is intended to drive affordable scaling to 2030 and beyond. Our EUV NXE platform extends our customers' Logic and Memory roadmaps by delivering improvements in resolution, productivity and overlay (layer-to-layer alignment) performance, enabling year-on-year cost reductions.

EUV 0.55 NA (EXE platform)

We are building the next platform of EUV lithography systems and we shipped the first modules intended for R&D purposes in 2023. With a higher NA of 0.55 compared with the 0.33 NA of our first EUV systems, these High NA systems are designed to enable higher-resolution patterning for even smaller transistor features.

This is an evolutionary step in EUV technology, introducing a novel optics design and significantly faster reticle and wafer stages. In addition, the EUV 0.55 NA (EXE) platform has been designed to maximize commonality with the EUV NXE platform to drive cost reductions, speed up the development of new solutions and optimize future reuse.

The enhancements offer considerable benefits to our customers, enabling lithography simplification for future nodes, higher yields and decreased defect density for both Logic and dynamic random-access memory (DRAM). EUV 0.55 NA will help our customers to extend their shrink roadmap and minimize double or triple patterning compared with 0.33 NA, leading to reduced patterning complexity, lower risk of defects and a shorter cycle time.

EUV 0.55 NA has also been designed to enable multiple future nodes, with the industry's first deployment expected in 2025, followed by Memory technologies at similar density.

We expect our EXE platform to start supporting high-volume manufacturing in 2025/2026. We have received purchase orders from all of our current EUV customers for the delivery of the industry's first TWINSCAN EXE:5200 system – an EUV high-volume production system with 0.55 NA and higher productivity.



World-leading holistic lithography solutions (continued)

Deep ultraviolet (DUV) lithography systems

Deep ultraviolet (DUV) lithography systems are the workhorses of the industry, producing the majority of layers in microchips. Supporting numerous market segments, we offer immersion as well as dry lithography systems, and a range of light sources to offer all wavelengths currently used in the semiconductor industry – argon fluoride (ArF) for 193 nm wavelength, krypton fluoride (KrF) for 248 nm and mercury gas discharge lamp (i-line) for 365 nm. Our systems lead the industry in productivity, imaging and overlay performance to help manufacture a broad range of semiconductor nodes and technologies, and support the industry's cost- and energy-efficient scaling.

Immersion systems (NXTi platform)

ArF immersion lithography maintains a thin film of water between the lens and the wafer. Using the refractive index of water to increase NA improves resolution to support further shrink. Our immersion systems are suitable for both single-exposure and multiple-patterning lithography, and can be used in seamless combination with EUV systems to print different layers of the same chip.

Our latest state-of-the-art immersion system is the TWINSCAN NXT:2100i, launched in the third quarter of 2022.

Alongside intrinsic improvements to lens metrology, reticle conditioning and wafer table, as well as overall cross-matching improvements, the NXT:2100i features innovations such as the Alignment Optimizer 12 Color package. The system delivers 295-wafers-per-hour (wph) productivity combined with unprecedented overlay performance, providing the most cost-efficient solution to customers for critical immersion layers on the sub 3 nm nodes.

Dry systems (NXT and XT platform)

Not every layer on a chip has to be produced by the most innovative immersion lithography systems. While some more complicated layers do require more advanced lithography systems, others can often be printed using 'older' technology such as dry lithography systems. Our dry systems product portfolio offers our customers more cost-effective solutions for all types of wavelengths.

Our TWINSCAN NXT:1470 dual-stage ArF system continues to be adopted by the majority of Logic and Memory customers and has been inserted in high-volume manufacturing processes. It is the first dry NXT system, building on the common immersion platform, with improvements in matched machine overlay (<4.0 nm), productivity (>300 wph) and footprint.

The TWINSCAN NXT:870 248 nm step-and-scan system is a high-productivity, dual-stage KrF lithography tool designed for high-volume 300 mm wafer production at and above-110-nm resolution. The system increases productivity from the 260 wph capability of the XT:860N to 330 wph through the use of the NXT platform, a higher scan speed and reduced system overhead time.

The TWINSCAN XT:400L is our latest i-line lithography system, which can print features down to a resolution of 220 nm for 200 mm and 300 mm wafer production.

We are on track with a platform commonality roadmap in order to reduce the cost of ownership: The transition in ArF and KrF from the XT platform to the NXT platform is resulting in significant productivity gains (KrF 27% to 330 wph on NXT:870, ArF 46% to 300 wph on NXT:1470).

We continue to innovate in productivity, cost of ownership and performance across our TWINSCAN XT product lines (ArF, KrF and i-line) for 200 mm and 300 mm wafer sizes.

TWINSCAN NXT:2100i ▼



Refurbished systems

Our refurbished products business refurbishes and upgrades our older lithography systems to extend their lives, and offers associated services and support. We currently offer refurbished PAS 5500 and first-generation AT, XT and NXT systems.

ASML systems have a very long operational lifetime that often exceeds their role at the initial customer. Many customers are therefore able to generate value by selling off systems they no longer require. To support this sustainable product use and ensure used systems deliver the quality that ASML stands for, we are actively involved in the used-system market. Remarkably, 95% of the systems that we have sold in the last 30 years are still in use.

[Read more in Environmental – Circular economy](#)



World-leading holistic lithography solutions (continued)

Metrology and inspections systems

Our metrology and inspection systems allow chipmakers to measure the patterns that they print on the wafer to see how well they match the intended pattern. Our portfolio enables chipmakers to monitor most steps of bringing a chip to market, from R&D to mass production.

The systems are a key element of our holistic approach to lithography. They produce data at the speed and accuracy needed during high-volume manufacturing to enable our process control software solutions to create automated feedback control loops. This optimizes the lithography system settings for each exposure to reduce EPE, enlarging the process window to achieve the highest yield and best performance in a fab environment.



Optical metrology

Our YieldStar optical metrology systems allow chipmakers to assess the quality of patterns on the wafer in volume production, through fast and accurate overlay measurements. We offer two categories of YieldStar systems for use before and after 'etching' (the stage when the material in any open spaces is removed to reveal the 3D version of the patterns on the wafer). Pre-etch metrology measures the overlay and focus of the lithography system and the pattern printed on the photoresist. Post-etch metrology measures the overlay and critical dimensions of the final patterns formed on the wafer.

In 2023, we shipped the YieldStar 500, our latest optical overlay and focus metrology tool, designed to be the new benchmark for measurement accuracy, matching performance and measurement speed. It is a standalone optical wafer metrology system for measuring pre-etch overlay.

Using diffraction-based measurements, the YieldStar 500 offers fast monitoring of overlay and focus performance directly on produced wafers with nanometer-level accuracy.

E-beam metrology and inspection

Our HMI electron beam (e-beam) solutions allow customers to locate and analyze individual chip defects amid millions of printed patterns, extending the scope for process control. While e-beam solutions were historically too slow to monitor volume production processes, we have increased the throughput to now uniquely offer e-beam solutions for use during high-volume production as well as the R&D phase.

The R&D phase of chip manufacturing involves extensive testing, validation and fine-tuning to optimize the complete manufacturing process for reliable, high-yield mass production.

We offer two types of solutions to support this stage: E-beam metrology and defect detection to monitor critical dimension and EPE data at resolutions necessary for the implementation of EUV lithography; and single-beam inspection to monitor voltage contrast and physical defects.

Our ground-breaking multiple e-beam (multibeam) inspection systems operate at throughput speeds that enable them to be used inline during mass production to detect voltage contrast defects and physical defects.

We continue to extend technology leadership in voltage contrast inspection and physical defect inspection with the widely adopted single-beam platform. The HMI eScan 600 is our latest highly flexible e-beam wafer inspection system that can operate in multiple modes, allowing chipmakers to capture the widest variety of defect types in a single system.

Our high-resolution e-beam metrology system HMI eP5 offers world-class 1 nm resolution with large field-of-view capabilities. It produces critical dimension (CD) and EPE data in high volume with a quality level that customers need for monitoring and control. EPE is becoming more critical for device patterning and yield with shrinking design rules and the adoption of EUV lithography.

We also released an EPE metrology application software product on eP5. It is capable of local and global EPE measurements on device, both intralayer and interlayer.

In 2022, we released and shipped the eP5 XLE, which extends the high-resolution eP5 system with high landing energy up to 30 keV and fast back-scattered electron detection for inspection and metrology of 3D devices in Logic and Memory. It is capable of overlay measurement on device patterns, complementing our YieldStar product offering. We also released and shipped the first next-generation high-resolution e-beam metrology system, eP6, to succeed eP5. The projected eP6 performance is expected to be more than 10 times the speed of existing technologies.

Building on the 2020 launch of our breakthrough multibeam inspection tool HMI eScan 1000, with a 3x3 image, in 2022 we also introduced the next-generation HMI eScan 1100. With a 5x5 image, it demonstrates successful multibeam operation, simultaneously scanning with 25 beams. The 5x5 system has higher sensitivity for detecting voltage contrast defects and physical defects, while substantially increasing inspection throughput. In 2022, the first eScan 1100 multibeam system was installed at a customer site to start customer evaluation.

World-leading holistic lithography solutions (continued)

System and process control software

Taking advantage of the huge flexibility of our lithography systems, our system and process control software products enable automated control loops to maintain optimal operation of lithography processes and therefore maximize yield. Using powerful algorithms, they analyze metrology and inspection data and calculate necessary corrections for each individual exposure. This provides a feedback loop to the lithography system to minimize EPE in subsequent wafer lots. Our roadmap aims to apply more powerful algorithms with higher-order corrections to enable our customers to continue improving EPE performance.

[Read more on EPE at box-out on page 12 >](#)

Our roadmap aims to apply more powerful algorithms with higher-order corrections to enable our customers to continue improving EPE performance.

Computational lithography

We use computational lithography to predict and enhance the process window of our lithography systems by calculating the optimal settings, depending on the specific application. This takes place in the R&D phase, during the development of new chips to optimize both the reticle patterns and the setup of the lithography system to ensure robust, manufacturable designs that deliver high yields.

Our computational lithography solutions are based on models of the various physical and chemical processes that influence pattern quality. Advanced algorithms, driven by these models, predict how a designed pattern will appear when printed on a wafer. Based on those predictions, the reticle design and factors within the lithography system can be subtly adjusted to ensure that a chip pattern is printed exactly as intended. Increasingly, we are using machine-learning techniques to further speed up development of models and to reduce the computational time and cost.

Managing our installed base system

Our installed base continues to grow, comprising not only new systems but also refurbished systems with new owners in new markets and applications. To provide all our customers with the best possible value proposition, we offer an extensive installed base management (IBM) portfolio, including a wide range of service and upgrade options.

We develop and sell product options and enhancements designed to improve throughput, patterning performance and overlay. Our field upgrade packages enable customers to optimize their cost of ownership over a system's lifetime by upgrading older systems to improved models.



Supporting our customers

We believe a true partnership with our customers based on mutual trust is vitally important, ensuring that we share the risks and rewards of what we do.

We are one of the world's leading manufacturers of chipmaking equipment, while our customers are the world's leading microchip manufacturers. We enable them to create the patterns that define the electronic circuits on a chip, and consequently our success is inextricably linked with theirs.

That's why we collaborate with our customers to understand how our technology best fits their needs and challenges. That means engaging with our customers at all levels: Building partnerships, sharing knowledge and risks, aligning our investments in innovation and increasingly focusing on the long-term challenges for the next five to ten years and beyond.

We develop our solutions based on their input, help them achieve their technology and cost roadmaps, and work together, often literally in the same team, to make sure our solutions fit together perfectly. Engaging fully with customers is also an important part of working toward securing the full product portfolio that will sustain our company into the future.

As our installed base continues to grow, we work very closely with our customers to develop and sell options and enhancements designed to improve throughput, patterning performance and overlay to optimize the cost of ownership over a system's lifetime.

Building on our customer relationships

We market and sell our products directly to customers, without agencies or other intermediaries. Our account managers,

field and application engineers, and service and technical support specialists are located close to our customers' operations throughout Asia, the US and Europe, the Middle East and Africa (EMEA).

Customer trust is the foundation for our customer relationships. Our customers expect us to have the right means to meet their needs and expectations, consistently deliver upon the promises we make, be transparent about what we are doing and fairly share the risks and rewards with them. In 2023, we took the first steps toward a reorganization of our customer-facing roles and responsibilities, and we announced the intended appointment of a Chief Customer Officer in ASML's Board of Management, effective per the date of the 2024 AGM. This will help us to continue to scale customer relationships, excellent support and customer trust as the business grows.

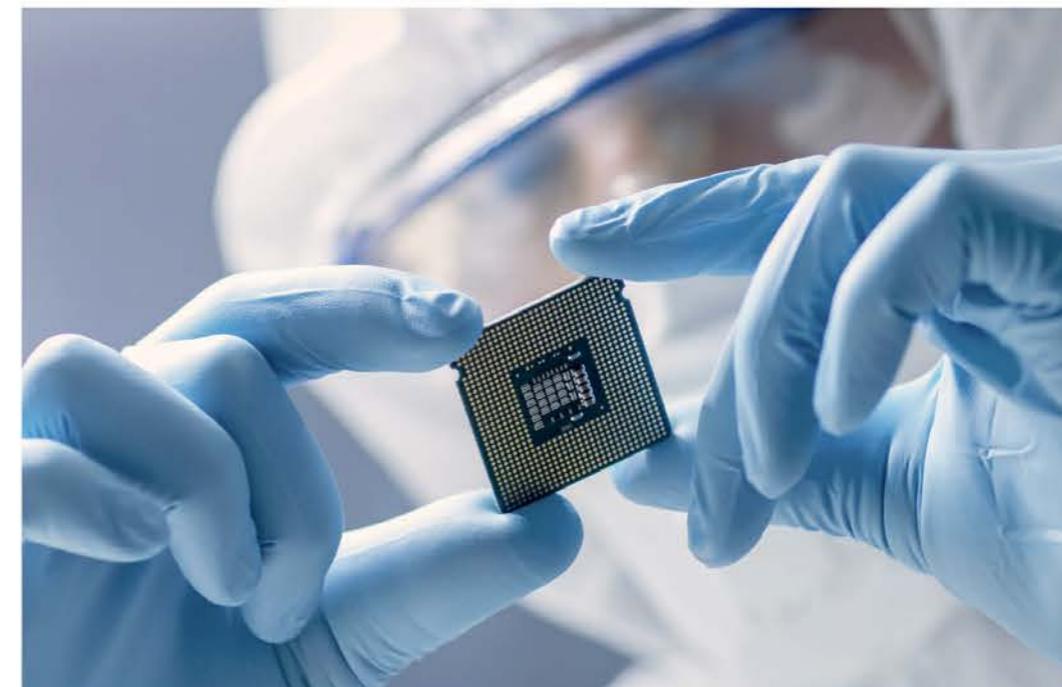


How we provide customer support

We support our customers with a broad range of applications, services and technical support products to maintain and enhance our systems' performance. Our customer support teams across the world ensure the systems in our customers' fabs run at the highest levels of predictability and availability. We offer 24/7 support, next-day parts delivery and an easy-to-use, centralized customer portal.

It is essential for us and our customers to have well-trained engineers in the regions where we operate. We offer specialized training to boost the capabilities of our local customer service teams and enhance local technical expertise. This helps us to increase the self-sufficiency of local field engineers.

[Read more in Engaging with our stakeholders – Customers](#)



We collaborate with our customers to understand how our technology best fits their needs and challenges.



“
Every few months,
I have been given
a new challenge to
extend myself.”

Manisha Devi
Solution Test Architect
4 years at ASML



Delivering for our customers

After joining ASML four years ago, Manisha Devi led a team of engineers in the roll-out of ASML’s digital platform to customers in 2023. Aware that any mishaps could lead to unplanned downtime that may cost customers millions in lost revenue, Manisha knew the stakes couldn’t be higher.



Finding your passion

I have always been inspired by the quote from Marie Curie: “I am among those who think that science has great beauty.” As a child in a small town in North India, I dreamed of a career in science and technology. And I took every opportunity to make that happen. I left the comfort of home to study at a premier science & technology institute before starting work in the telecoms technology domain, growing with each new role and responsibility. ASML then gave me the chance to test my skills in the semiconductor industry. I joined as a software tester and am now a solution test architect – determining test and integration strategies for new solutions.

Unlocking the code

There is a huge amount of software inside ASML’s systems, and we are continually developing more. That software is critical to the operation of the system and the economic success of our customers. Any unintended downtime can cost our customers millions in lost revenue. So, ASML isn’t just investing in development, it is also investing in quality – to ensure all that software works together seamlessly and doesn’t cause unplanned stoppages in production.

Like most software-enabled systems, ASML’s products have a huge amount of legacy code. You can’t just reengineer that every time you want to make an update or add a feature – you need to develop new software in such a way as to ensure that it doesn’t break the legacy code. To streamline the process, ASML has recently switched to a platform development approach: Instead of delivering a single software package for the scanner, we deliver a series of options that all work together. Part of this transition is to update all installed systems in the field with an entire new software stack. I was asked to lead the team responsible for qualifying and integrating that new stack. As someone who loves a challenge, I jumped at the chance.

Replacing all the system software is a daunting prospect, so quality was essential – we had to get it right first time. To make that possible, ASML has recently introduced a new methodology for software development. Of course, we make use of the standard approaches like Lean and Agile, but we take the parts that work best for us and our customers, then combine them with new ideas. For example, for the new stack, we used a ‘shift-left strategy’ where testing and quality evaluation starts much earlier. Having the development team involved in testing end-to-end helped us bring the software to the required quality level faster.

A customer-first approach

Throughout the development of the new software stack, we were guided by our customers’ needs. ASML is in constant contact with its customers, and regularly asks them for feedback. In this case, our customer representatives provided continuous feedback on the features customers will want in the next 9-12 months and customers’ specific use cases. This helped us better understand which software configurations do and don’t work.

We started rolling out the new software stack to customers in 2023. The goal is to do this without downtime – this was the most nerve-racking part of the process, certainly for our customers. There are always things that can go wrong when you go live with such complicated software, but we had done so much preparation, studying each customer’s use case, so we could be one step ahead. That’s not to say that issues didn’t crop up, but we were always ready with the solution when they did. Our customers may not have been smiling when we arrived, but they definitely were eight hours later when their system was running the new stack without problems. And now they can be confident about adding new options equally painlessly in the future.



Driving Moore's Law across four decades of innovation

In conversation with our President, Chief Technology Officer and Vice Chair of the Board of Management

Martin van den Brink

Q What were the highlights in technology development and innovation in 2023?

Martin: Let me start by saying that in 2024 it will be 40 years since a small team of colleagues, including me, first came together in a leaky shed in Eindhoven, tasked with developing lithography systems for the growing semiconductor market. That was the start of ASML as we know it today. So, although 2023 was another dynamic year for innovation, this was not achieved overnight but as the result of all the hard work that preceded it.

Having said that, it was undeniably a very proud moment for our innovation teams when we successfully shipped the first modules of our first High NA EUV system, EXE:5000, following extensive testing and integration throughout the year. Our EXE High NA EUV platform increases the numerical aperture from 0.33 to 0.55 and will enable geometric chip scaling well into the next decade. We expect High NA EUV high-volume manufacturing systems to be fully operational in customer factories by 2025.

In DUV immersion, we rolled out a lens distortion manipulator to adjust the optics in operation and reduce overlay errors, which gives us an opportunity to improve our mix and match overlay between EUV and DUV immersion. It provides us with more flexibility following distortion of the wafer and is also applicable for 3D integration bonding.

On the application side, we made progress with key technologies such as x-ray, working closely with our customers, with whom we are closely aligned. Regarding our metrology and inspection product portfolio, in 2023, we brought to market the YieldStar 500, our latest optical overlay and focus metrology tool, designed to be the new benchmark for measurement accuracy, matching performance and measurement speed. We are now also delivering our multibeam and single-beam high-voltage system. While there remains some work for our teams in maximizing reliability and maturing these systems to a point where customers can use them in production, this has been an important step forward, and one where AI has played a key role.

Two years ago, we started to develop a strategy to arrive at a unified or common EUV platform in order to drive productivity. It was very exciting to see that strategy begin to bear fruit during 2023. We now have a clear, articulated roadmap to achieve a full EUV suite – a common platform with common manufacturing processes and a common supplier base. This will drive cost reductions and speed up the development of new solutions, which is important not only for ASML, but also for our customers.



We expect High NA EUV high-volume manufacturing systems to be fully operational in customer factories by 2025.”

Martin van den Brink

President, Chief Technology Officer and Vice Chair of the Board of Management

On April 24, 2024, ASML President & CTO Martin van den Brink will retire from ASML upon completion of his current appointment term. “It has been a privilege to co-lead ASML with Peter Wennink and to have brought a strong focus on product, technology and engineering capabilities to the company and its suppliers. I am proud of the innovations that we have delivered together with our customers over the decades.”

Driving Moore's Law across four decades of innovation (continued)

In conversation with our President, Chief Technology Officer and Vice Chair of the Board of Management

Martin van den Brink

Q Is shrink still the most important driver of innovation?

Martin: In line with Moore's Law, shrink has long played a key role in innovation, and although this is inevitably becoming more and more challenging, it will continue because shrink is the only way to effectively reduce costs.

However, it's important to put this into context. What we are looking at today is whole-system integration shrink, not just of the chips themselves. For example, 3D system integration – vertically stacking different chips together into a single package – requires innovative lithography solutions to handle the increasingly dense interconnections. We have been working with both Logic and Memory customers on how to shrink these connections from chip to chip. As is always the case with innovation on this scale and in this industry, we are engaging with core solution providers, such as bonding suppliers, to find the answers.

Cost is closely aligned with shrink. As shrink becomes more challenging over time, and as technology continues to demand more energy-efficient transistors per chip, the industry will need to produce more silicon but at lower cost. The cost-productivity ratio is now a key aspect of our roadmap because we understand the cost pressures that our customers and suppliers are facing.

Moving forward, we have clear parameters for R&D to work within so that future innovations take account of the technology limits of our supplier base and, where possible, reduce any risks of suppliers making unnecessary investments in new capabilities.

Q How have your ecosystem partners driven innovation in 2023?

Martin: It is impossible to overstate the importance of our partners. A significant number of them are integral to our innovation activities and several have worked with us for many years.

Our requirements are frequently unique and very demanding – so we work hard to help suppliers engage with our objectives in a spirit of mutual trust and respect. The importance of these relationships has been further recognized at ASML Board level through the recent appointment of Wayne Allan as Executive Vice President (EVP) and Chief Strategic Sourcing & Procurement Officer (CSPO), heading up the supply improvement program which aims to radically step up our ability to work with suppliers and deliver what our customers demand. We saw a number of developments in our supplier relationships in 2023. Having partnered with imec (Interuniversitair Micro-Elektronica Centrum) – a leading research and innovation hub in nanoelectronics and digital

technologies – since the late 1980s, in 2023 we signed a new Memorandum of Understanding (MoU) to intensify our collaboration around High NA. The MoU includes the installation and service of our full suite of advanced equipment in the imec pilot line in Leuven, Belgium. This facility will enable us to work alongside imec to develop a new process that will take us to the next semiconductor process node.

Q How do you safeguard ASML's ability to continually improve?

Martin: We aim for R&D spend to be in the 10-15% range of revenue. As our revenue increases rapidly, so too does our financial commitment to supporting innovation – in 2023, we invested €4.0 billion in R&D. Of that amount, we spend around 10% on pure explorative research that aims to fill the innovation pipeline. We continue to work with our partners, for example by investing in a high-transmissive illuminator with ZEISS.

Q Can you update us on future developments such as Hyper NA?

Martin: Hyper NA with an NA higher than 0.7 is certainly an opportunity that will become more visible from around 2030. It is likely to be most relevant for Logic – and it will need to be more affordable than double patterning – but it may also be an opportunity for DRAM.

For us, the key thing is that Hyper NA is driving our overall EUV capability platform to improve both cost and lead time.

Regarding the industry in general, digitalization will continue to enable many of the solutions that are transforming our planet. Although systems such as our EUV platform require a great deal of energy, I think that we make a positive contribution to reducing GHG emissions by enabling the development of technologies such as smart grids and electric vehicles. More such technologies will follow – so at ASML we can feel good that our customers and their customers are engaging with society in a positive way when it comes to the environment.

Q How do you envisage ASML on its 50th anniversary?

Martin: It is fair to say that our innovations are likely to be restricted by more boundaries, whether in terms of cost, cycle time or technology limits. Our challenge is to make efficiency gains in all these areas over the next 10 years – to make sure not only that we invent new solutions and ways of working but that these can be put into cost-effective and timely practice for our customers. It's all about doing everything we can to turn theory into practical reality, giving our customers the most efficient possible operation in every regard: cost, sustainability and productivity.

“
Digitalization will continue to enable many of the solutions that are transforming our planet.”

Martin van den Brink
President, Chief Technology Officer
and Vice Chair of the Board of Management



How we innovate

As a crucial manufacturer of lithography equipment, ASML is a vital part of the semiconductor ecosystem value chain. We don't innovate in isolation, but work as architects and integrators – collaborating closely with customers, our supply chain, and industry and research partners in a strong innovation ecosystem.

Innovation is crucial to the continuing success of our business. Every day, more than 15,500 of our engineers take on the exciting challenge of innovating across our holistic lithography portfolio, including the most advanced lithography systems in the world. To stay ahead, we invest heavily in R&D – in 2023, we spent €4.0 billion in this vital area, compared with €3.3 billion in 2022, further building our capability to meet customer needs.

A collaborative network at the cutting edge of our digital future

To drive the fast pace of innovation in our value chain, we rely on our strong innovation ecosystem to make progress together. We work hard at developing long-term relationships with our customers, suppliers, research partners and peers, listening to and pushing each other to continuously innovate. We trust our supply chain to manufacture most system parts and modules and many are deeply involved in developing our new technology.

[Read more in Social - Innovation ecosystem on page 137 >](#)

We innovate across our entire product portfolio and we aim to do this at the same pace as our customers through large and sustained investment in R&D, involving a diverse international academic network. This so-called 'double helix' approach is designed to accelerate innovation and provides access to a large leading-edge knowledge base across a wide range of technologies.

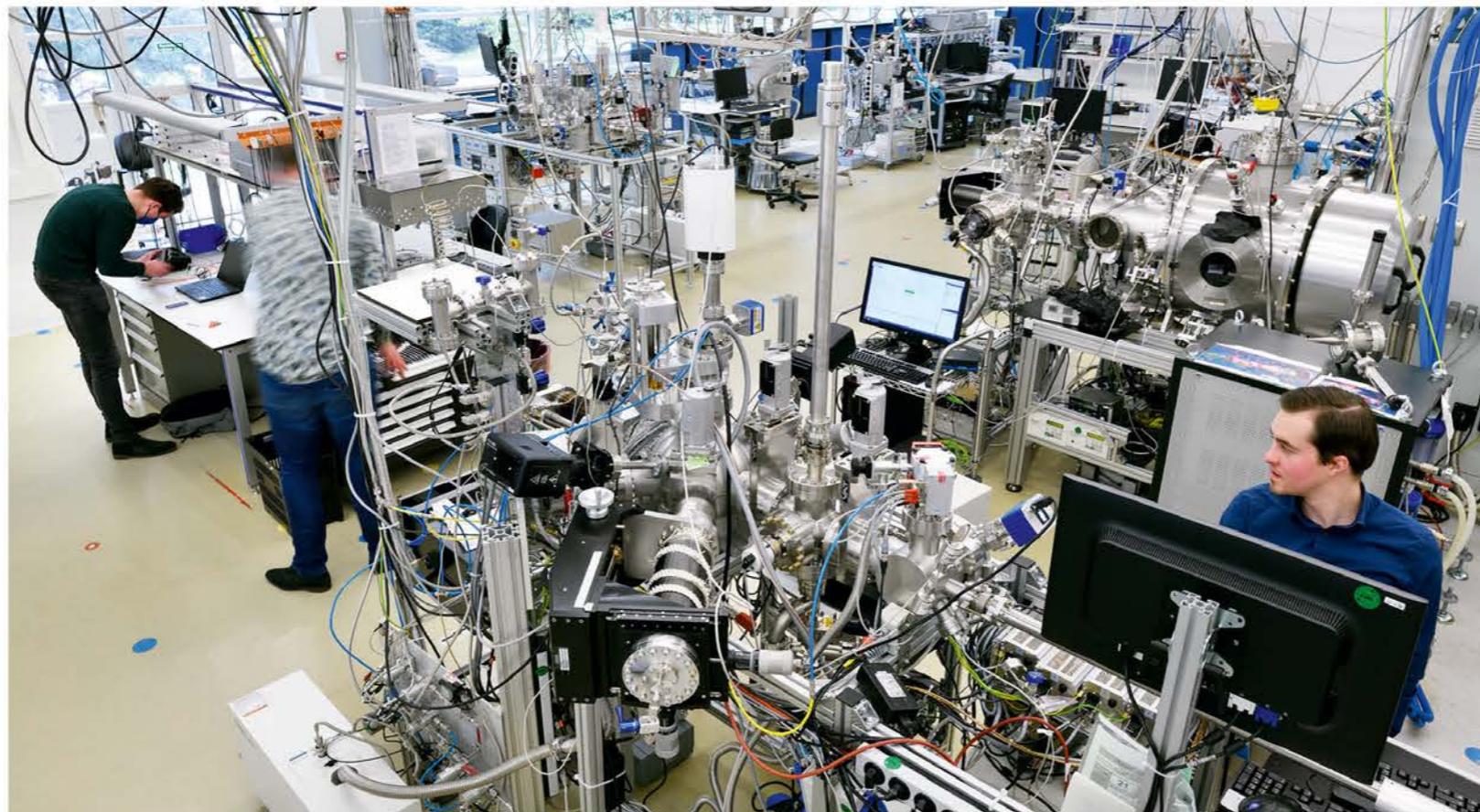
[Read more in Our business model on page 32 >](#)

Generating ideas and finding technological innovations and solutions

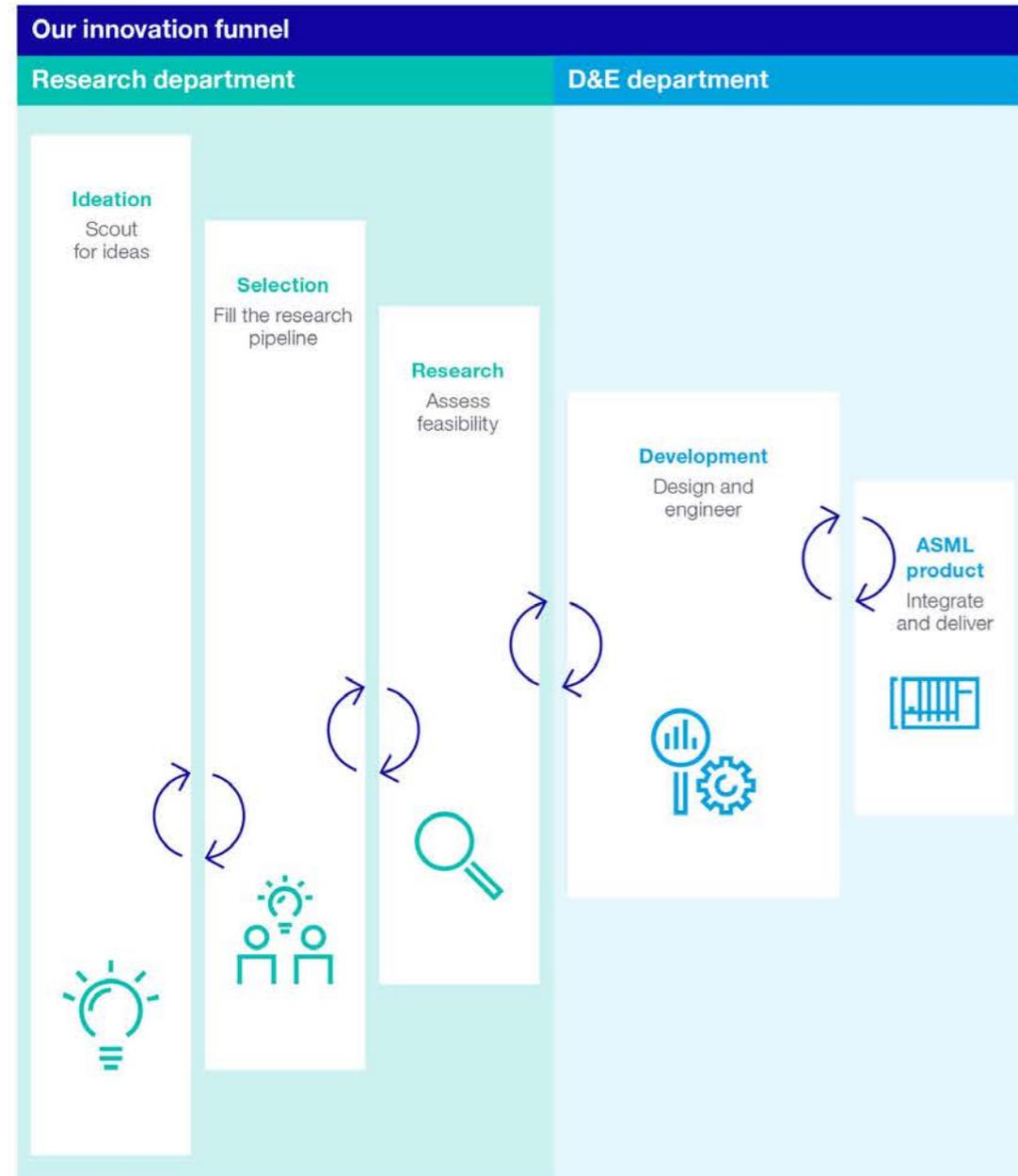
Our R&D teams focus on generating and exploring exciting new ideas and demonstrating their feasibility in the long term, as well as finding technological solutions to the challenges colleagues may face with any products and applications that have already moved into development.

Our researchers continuously scout for technological innovations and solutions – within the semiconductor industry and beyond – searching for those that can help us support our customers while delivering on our ESG sustainability commitments.

We innovate through partnerships. By developing our technology in close collaboration with our customers, we seek to build today what they need tomorrow.



How we innovate (continued)

**Filling the innovation funnel**

We encourage our experts to build wide networks in the broader technology space. This supports the constant stream of new ideas into the technology pipeline that flows through what we call our ‘innovation funnel’ (see diagram). Based on our fundamental understanding of our markets and the needs of chipmakers, we select new ideas that have the potential to advance our products and their customer application.

Ideas that pass the ideation and selection stages are assessed in the research stage for their feasibility to go into our product generation process (PGP), a decision-based process for product development that includes an ESG assessment as well as the building and testing of system prototypes in the relevant environments. Prototypes that pass these tests may eventually lead to new product releases.

ASML Fellowship Program

At ASML, we recognize and honor our technical experts because we know that our company’s success is built on technology leadership. One of the ways we do this is through the ASML Fellowship Program.

In 2023, three new ASML Fellows were appointed, and two of our current Fellows were promoted to the titles of Senior and Corporate Fellow, respectively, for their personal outstanding technical contributions.

Innovation achievements in 2023

Our goal is to give customers the products and capabilities they need to deliver on technology’s potential to make a positive contribution to society. As well as creating some of the most advanced machines in the world, this includes an increased focus on sustainability through parts commonality and reuse, and improvements in the performance and energy efficiency of our products to reduce costs and waste.

Innovation achievements of the last 12 months include:

- Soft x-ray (SXR) scatterometry. Using 10-20 nm wavelength light, this is a revolutionary next-generation metrology for 3D metrology suitable for measuring 3D profiles of advanced devices such as Gate All Around (GAA) transistors.

- Generation of smooth mirror surfaces. This innovation is used on the EXE:5200 mirror block. The mirror block carries the wafer table, with its mirrors used to position the wafer in three dimensions. The smooth mirror surface has greater stiffness compared to other glass materials, enabling it to better cope with the extreme stage accelerations in our next-generation NXE and EXE systems.

The world around us

The macroeconomic situation remains volatile and we continue to see macro trends such as high interest rates, inflation, fear of recession and geopolitical tensions increasing in some parts of the world. The semiconductor industry is trying to manage its inventory levels in some end-market segments to balance supply and demand.

The semiconductor market was still in the aftermath of the COVID-19 crisis in 2023, during which large stimulus packages accelerated economic growth. This created shortages in supply in the electronics industry as companies built safety stocks to increase future resilience.

End demand for electronics slowed as we reached the end of the pandemic, while the supply chain was still building safety buffers. This resulted in a supply chain correction in 2023 which impacted our industry.

In the context of demand for lithography, some customers delayed the timing of their demand for specific systems, as some of their facilities were not ready to receive the systems as well as a result of their end demand. This provided an opportunity to allocate these systems to customers whose demand profile we could not initially meet. Despite these delays, for certain system types the supply is still the main constraint, with demand being higher than supply, albeit at a reduced level than was experienced at the start of the year.

All in all, global trends – such as generative AI, the energy transition, the electrification of mobility and the industrial Internet of Things (IoT) – continue to fuel semiconductor growth in the longer term.

Our highest-priority objective is to optimize supply so that we can deliver and live up to our customers' expectations.

We have strong confidence that the semiconductor ecosystem will continue to innovate and grow at a high single-digit compound annual growth rate. Factors that may impact our business are explained in more detail over the next few pages, including:

- 1. Macroeconomic and geopolitical trends**
- 2. Semiconductor market trends**
- 3. Semiconductor application areas**
- 4. Semiconductor industry market**

1. Macroeconomic and geopolitical trends

Economic outlook

Description

The macroeconomic situation did not improve in 2023; inflation rates and interest rates stayed relatively high and the fear of recession, amid the geopolitical conflicts, remained. The continued macroeconomic uncertainty means our customers in different market segments have remained cautious. A later recovery of markets is expected, and the timing and shape of the recovery slope remains unclear.

What it means for ASML

Our EUV business saw a slight shift in demand timing, predominantly driven by a lack of readiness of fabs. This was due to the market environment and a shortage of people who have the capability to build advanced fabs. With DUV demand higher than we can deliver, particularly in China, we are working closely with our customers and suppliers to ride out the uncertainty and manage the risks.

[Read more in Our business strategy](#)

[Read more in Risk - How we manage risk](#)

Middle East conflict

Description

The military action in the Middle East is an additional factor in the current uncertainty in the macroeconomic environment.

What it means for ASML

Both ASML and our customers have operations in the Middle East. Additional military action in the region has and could further adversely affect the global economy, financial markets and the supply chain. This may impact our people and operations and our customers' operations, customer demand, delivery of products and services to customers, and the ability to obtain parts and components due to supply chain disruption. The safety and well-being of our employees and their families are a priority for us.

Russia-Ukraine war

Description

The military action in Ukraine is an element of the current uncertainty in the macroeconomic environment.

What it means for ASML

While we do not have operations in Russia or Ukraine, sanctions and other measures taken in response to the military action have adversely affected – and could further affect – the global economy, financial markets and the supply chain. This may impact our customer demand, delivery of products and services to customers, and the ability of us and our suppliers to obtain parts, components and gas supply due to supply chain disruption.

The world around us (continued)

1. Macroeconomic and geopolitical trends (continued)

Global geopolitics – technological sovereignty**Description**

Semiconductors are crucial to the economic and strategic development of countries and regions, with the strategic importance of the semiconductor industry only likely to grow. Many countries and regions are pushing for ‘technological sovereignty’ to ensure security of supply, resilience and technological leadership in semiconductor technologies and applications. This is fueling capital expenditures in new regions.

What it means for ASML

As governments increasingly see semiconductor manufacturing as strategically significant, chips acts are incentivizing our customers to build manufacturing facilities in the US, Europe and Asia.

Besides sharing our views with governments on semiconductor manufacturing, we work closely with our customers to build the semiconductor manufacturing ecosystem in new regions, while retaining our focus on supporting incumbent regions.

Global geopolitics – export controls**Description**

On June 30, 2023, the Dutch Government published new regulations regarding the export control of semiconductor equipment that came into effect on September 1, 2023. These controls focus on advanced chip manufacturing technology, including the most advanced deposition and immersion lithography systems (NXT:2000i, NXT:2050i, NXT:2100i and subsequent systems). In addition, in October 2023, the US government published updated US export control regulations which include restrictions on shipping mature immersion lithography systems (NXT:1970 and NXT:1980) to a limited group of customers in certain countries (including China). Governments have turned their attention to securing sufficient semiconductor supplies to ensure greater technological sovereignty and support local industries. Significant investments in the semiconductor industry are being planned, with industry forecasts suggesting that the top three semiconductor manufacturers plan to invest over \$300 billion in global capacity in the coming years. While the industry is managing its overall costs, price rises could ultimately be passed on to the end market, driving up the price of devices. Trade tensions and protectionism introduce significant complexity across the supply chain and the processes required.

Like so many others in this trading environment, the semiconductor industry needs to review its global supply chain. At the end of 2023, the Dutch Government partially revoked a license for the shipment of NXT:2050i and NXT:2100i lithography systems, impacting a small number of customers in China.

What it means for ASML

The new regulations require ASML to apply for Dutch export licenses for all shipments of its most advanced DUV immersion lithography systems (TWINSCAN NXT:2000i and subsequent immersion systems) as well as US licenses for mature systems for a limited number of customers in China. The governments will determine whether to grant or deny the required export licenses and provide further details to the company on any conditions that apply. From January 1, 2024, we will work with our customers to deliver the non-advanced lithography systems which are not impacted by the new restrictions. We continue to educate governments on the semiconductor manufacturing process and ecosystem to foster understanding of the potential impacts of current and future regulatory measures.

[Read more in Risk - Risk factors](#)

Mitigating climate change**Description**

With an urgent collective response needed to limit global warming to 1.5°C, climate change is a crucial matter for governments, companies and individuals worldwide.

Energy and water resources

Technologies to counter climate change – from the energy transition to electrification, smart mobility and agricultural innovation – require semiconductors. Semiconductors are crucial to the generation, storage, distribution and consumption of electrical energy. They are at the core of smart (home) devices and play an important role in reducing overall energy consumption.

The semiconductor industry also has an important role to play by reducing its own climate impacts; the semiconductor manufacturing process consumes large volumes of energy and water resources. Driving Moore’s Law to enable shrink and improve computing power and storage capacity fuels demand for these vital resources. Innovative architectures and a new way of looking at the entire ecosystem will be required to enhance energy and water resource efficiency of the industry.

What it means for ASML

Our goal is to achieve net zero emissions across our value chain by 2040. We plan to do it by decreasing our GHG emissions and reducing our carbon footprint across our value chain, enhancing the energy efficiency of our products and properties. We aim to achieve this by reducing energy consumption, using renewable energy and compensating CO₂ emissions.

We are also committed to using water responsibly. This includes acting to preserve water quality and conservation across our operations and in the communities where we operate.

We work closely with our customers and suppliers to minimize waste and maximize the value gained through use of resources. By 2030, we aim to send zero waste from operations to landfill or incineration.

[Read more in Environmental – Energy efficiency and climate action and Environmental – Circular economy](#)

[Read more in Risk – Risk factors](#)

The world around us (continued)

Technology is evolving at pace – we are moving fast toward intelligent edge computing, the next level of computing which focuses on processing data closer to its source rather than in centralized data centers. The current era of mobile computing – where you bring the computer with you – is moving us into an immersive world of ubiquitous computing, with computing power available everywhere, driven by artificial intelligence (AI).



2. Semiconductor market trends

Trends

Increasing market demand

The continuing convergence of wireless communication, telecoms, media and cloud technology via connected devices is driving demand for advanced semiconductors across the globe.

Growing populations, urbanization, the energy transition and electrification to support smart mobility are increasing demand for advanced electronic devices.

Microchips are at the heart of these devices, ranging from sensors and actuators to smart, scalable and flexible computing solutions. This is driving demand for chips in both leading edge and mature process nodes, which are specifically designed for innovative applications in areas ranging from smart homes, cities and industries to predictive healthcare, smart wearables and autonomous robotics.

The virtuous cycle of a data-driven society

Moore's Law is the guiding principle for the semiconductor industry. It is the motor behind the industry transition from mobile computing to ubiquitous computing. This transition continues to expand, driving the three main elements in computing – applications, data and algorithms – that

feed each other in a virtuous cycle: applications generate data, data fuels new algorithms, which again leads to new applications that generate new data, etc. This is the virtuous cycle of our data-driven society.

Unleashing the power of data better and faster with AI

AI is becoming more ubiquitous and embedded into the environment and smaller devices, which moves us into the era of intelligent edge computing – smart, connected networks of more energy-efficient devices that seamlessly communicate over powerful 5G networks to unleash the power of data better and faster than ever. This provides people with more innovative functionalities and applications, improves human-to-machine interactions, and enhances data management and analytics.

With intelligent edge computing, data processing is brought as close to the source of data as possible, rather than happening in the cloud. The vast amounts of data and insights that people can access are expected to fuel semiconductor business growth and the digital transformation.

Edge intelligence and AI-empowered mobile and ubiquitous computing technologies are key to solving some of society's toughest challenges, such as mitigating climate change, enabling the energy transition, creating sustainable social communities and improving quality of life.

The world around us (continued)

3. Semiconductor application areas

Automotive

Automotive is one of the fastest-growing market segments driven, by electrification, autonomy and other mega trends. Integrated automotive systems consist of a full range of scalable, flexible computing solutions that require advanced and mature semiconductor devices. Advanced driver-assistance systems (ADAS) enabled by electronics and semiconductors, considered supercomputers on wheels, are also expected to contribute to the growth of the automotive segment in the semiconductor industry.

Smart industry

Smart industry devices use real-time data analytics and machine-to-machine sensors to optimize processes, foresee bottlenecks, and prevent errors and injuries.

Autonomous robotics

A new generation of lightweight robots connected to a wide network and fitted with smart sensors enable humans and machines to safely and efficiently work side by side.

**Mixed reality**

Augmented reality and virtual reality technology can combine to bring the real world and digital elements together (so that physical and digital objects coexist and interact in real time) to create the next-level user experience.

Global connectivity

5G enables a new kind of network that is designed to connect almost everyone and everything around the world, including machines, objects and devices.

Wearables

Wearable devices (such as fitness trackers smart watches, smart rings, jewelry or glasses) are able to connect to the internet and continuously monitor, track and transmit personal data.

Artificial intelligence

Artificial intelligence (AI) is about developing systems that have the intellectual processes characteristic of humans, such as the ability to reason, discover meaning, generalize or learn from past experience. Due to the exponential growth in computation, along with the availability of massive data sets and improved algorithms, AI has made huge advancements over a short period of time. Today, AI not only matches, but also beats human performance in many areas.

**Predictive healthcare**

Predictive analysis of health data from multiple sources combined with machine learning and AI is being harnessed to improve healthcare services and patient outcomes.

**Smart cities**

Smart cities use technology and digital networks to integrate transportation and infrastructure, connectivity, energy and lighting, and other public services.

**Energy transition**

The energy transition is expected to be a key market driver, with semiconductors enabling the global shift from fossil-based energy production to renewable sources like wind and solar. Semiconductors are crucial in the generation, storage, distribution and consumption of electrical energy. The energy transition also drives the need for more intelligent infrastructure and end devices.

Smart home

Smart home devices, such as thermostats, lights and smart TVs, learn a user's habits to provide automated support for everyday tasks.

The world around us (continued)

4. Semiconductor industry market

Semiconductor technology plays a crucial role in shaping the interconnected and intelligent network future. As a result, end markets continue to grow. This overview provides an outlook on current market size and opportunity for the entire industry, based on external research. The historical market compound annual growth rate (CAGR) from 2012 to 2022 was 7%. In 2022, almost 1.1 trillion chips were manufactured around the world, feeding a \$0.6 trillion industry. 2023 was a correction year, as consumer markets like PC slowed following the peak in working-from-home triggered by COVID-19. At the same time, the supply chain continued to build safety buffers in 2022 to increase resilience against future supply chain disruptions, and these needed to be corrected given lower demand. Industry sources project that the chip market (worldwide semiconductor revenues) will resume growth after 2023 in line with historical growth rates. The longer-term market outlook is not expected to be materially impacted by the 2023 downturn. With an expected global annual wafer capacity growth of over 780,000 wafer starts per month per year, we plan to increase our annual capacity to 90 EUV 0.33 NA and 600 DUV systems (2025-2026), while ramping up EUV 0.55 NA (High NA) capacity to 20 systems per year (2027-2028).

	Smartphone	Personal computing	Consumer electronics	Automotive	Industrial electronics	Wired and wireless infrastructure	Servers, data centers and storage	Total
								
Key driver	Continued refresh of all semiconductor content including image sensors and edge AI processors	High-end compute and Memory, fast conversion to solid-state drive (SSD), edge AI processors	Both low-power and high-bandwidth connectivity, sensors	Strong IC content growth: graphics processing unit (GPU), sensors, vehicle-to-everything (V2X) communication sensing	Connectivity, edge processors, sensors	High-bandwidth connectivity, edge processors	High processor and Memory growth, hardware accelerations including GPU for AI applications	
2020 market size (\$bn)	117	100	50	40	51	38	76	471
2023 market size (\$bn)	104	89	60	79	74	50	78	534
2025 market opportunity (\$bn)	146	107	74	104	94	60	136	721
Outlook CAGR 2020-2025 (%)	5%	2%	8%	21%	14%	10%	12%	9%

Source: Based on external market research firms

The world around us (continued)

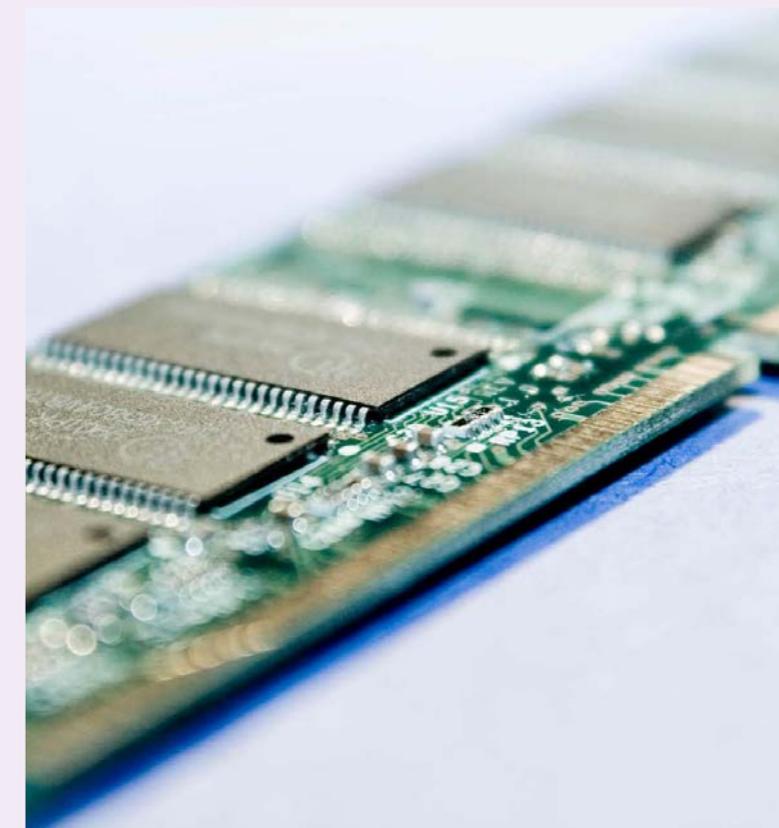
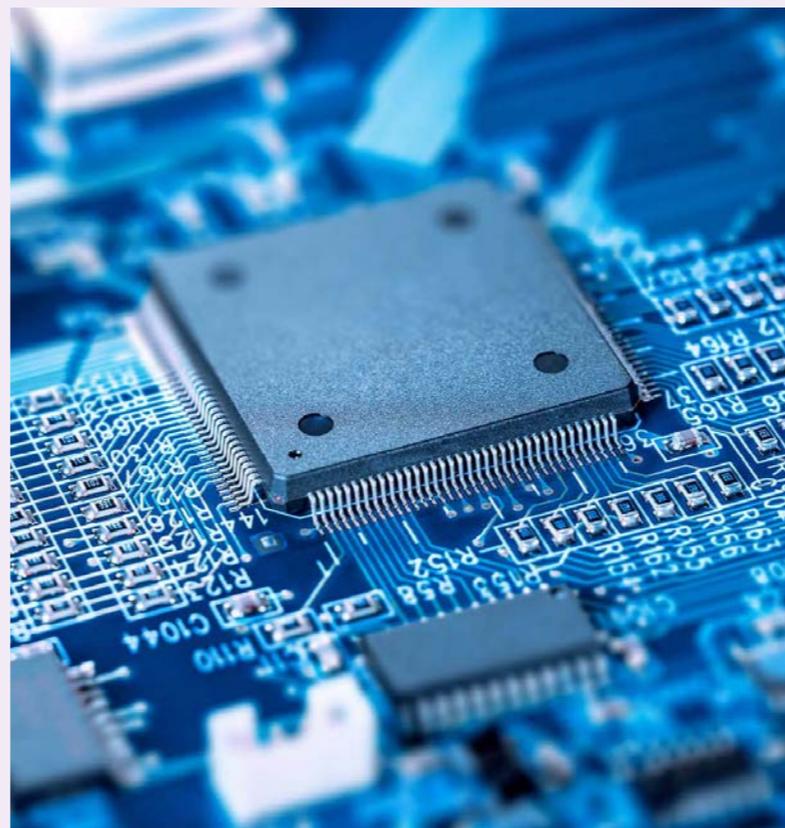
Logic and Memory chips

Logic chips are the ‘brains’ that process information in electronic devices. They are produced by two groups of manufacturers: integrated device manufacturers (IDMs), which design and manufacture Logic chips, and contract manufacturers, known as foundries. Foundry manufacturers produce chips for ‘fabless’ companies that focus on chip design and distribution but do not manufacture microchips themselves.

Memory chips can store large amounts of data in a very small area. They are used in an increasing variety of electronic products like servers, data centers, smartphones, high-performance computing, automotive, or personal computers and other communication devices. There are two main classes of chips typically made in dedicated Memory-chip factories: NAND chips that can store data even when a device is powered off and DRAM Memory chips that are used to efficiently provide data to the processor.

Logic and Memory chips can vary greatly in complexity and capability. For example, the most advanced chips power leading-edge technology, in AI, big data and automotive technology, while simpler low-cost chips integrate sensing capabilities into everyday technology to create a vast network of connected devices, the IoT.

During 2023 generative AI got a lot of traction, which resulted in strong demand for GPU chips (Logic) and High-Bandwidth Memory (HBM) at our customers. Both products are still a small portion of the overall Logic and Memory market.



Focused on sustainable long-term value creation

Our purpose is to unlock the potential of people and society by pushing technology to new limits. Our vision is that we enable ground-breaking technology to solve some of humanity's toughest challenges. Our strategy and priorities are designed to deliver on these points and create long-term sustainable value for our stakeholders.

Our strategy is to

1 Grow our holistic lithography business

2 Secure unique supply chain capabilities to ensure business continuity

3 Move toward adjacent business opportunities

4 Deliver on our ESG sustainability commitments

1. Grow our holistic lithography business

Fueled by strong customer demand, we expect substantial growth opportunities for our holistic lithography business in the remainder of this decade.

We will continue to increase the capacity of our company to meet the demand across all market segments, preparing for cyclicalities while sharing risks and rewards fairly with all stakeholders.

We will remain focused on protecting and gaining market share by delivering on our technology roadmap, securing our competitiveness, and addressing our growth and execution challenges.

We aim to innovate responsibly by improving the simplicity, sustainability, serviceability, manufacturability and scalability of our future lithography solutions. By considering the cost and complexity constraints of a new technology from day one, we can efficiently allocate our resources and cost-effectively deliver new capabilities to our customers.

Based on different market scenarios, shared during our 2022 Investor Day, we presented an opportunity to achieve the following in 2025 and 2030:

- In 2025: annual revenue between approximately €30 billion and €40 billion with a gross margin between approximately 54% and 56%
- In 2030: annual revenue between approximately €44 billion and €60 billion with a gross margin between approximately 56% and 60%

Our priorities

Our holistic approach to lithography integrates a set of products that enables chipmakers to develop, optimize and control the semiconductor production process. Through the continued execution of our strategic priorities, we aim to deliver cost-effective solutions that support all applications, from leading-edge to mature nodes, and enable the extension of the industry roadmap into the next decade.

2025

€30-40bn

Annual revenue

54-56%

Gross margin

2030

€44-60bn

Annual revenue

56-60%

Gross margin

Our five priorities are:



Strengthen customer trust

Enhance our innovation and operational excellence capabilities to deliver on our roadmap for new product introductions and system deliveries, on time and with the highest quality, to address the needs of our customers. Increase our focus on sustainability through parts commonality and reuse, and drive improvements in the performance and energy efficiency of our products to reduce costs and waste.



Build a winning position in holistic lithography

Build a winning position in edge placement metrology and process control to support customer needs. Integrate our complete product portfolio into a holistic lithography solution to optimize and control lithography performance.



Continue innovation leadership in DUV

Continue our innovation leadership, enabling execution of customer roadmaps by driving DUV to the highest level of performance while remaining cost-competitive. Expand our installed base and support customer needs.



Enhance the value of EUV 0.33 NA for manufacturing

Secure high-volume manufacturing performance and enhance the value of EUV technology by extending our product portfolio for future nodes. Improve cost effectiveness for our customers by improving system performance and energy efficiency.



Insert EUV 0.55 NA into high-volume manufacturing

Insert EUV 0.55 NA (High NA) in Logic and DRAM for high-volume manufacturing from 2025 onward to support customer roadmaps by simplifying patterning schemes and decreasing defect density.

Toward the end of 2023 and in light of our expectation that 2024 would be a year of transition, we reviewed our strategic business priorities, adding operational excellence and people empowerment as supplementary focus points.

Focused on sustainable long-term value creation (continued)

2. Secure unique supply chain capabilities

In order to deliver on our growth aspirations, we need to secure innovation, scale-up and continuity, while preserving sound business conditions and a constructive collaboration model with our unique technology suppliers.

Our supply chain is a critical enabler of our ambition to grow our core business. Therefore, we are proactively assessing our supply base for projected demand and control of future roadmap-enabling capabilities.

3. Move toward adjacent business opportunities

Once core growth is secured, we can move into adjacent business opportunities representing additional growth opportunities. We aim to do this by focusing on synergetic opportunities at the forefront of holistic transistor scaling to best serve our customers. This includes leveraging product and technology synergies, and tapping into different future semiconductor scaling engines.

4. Deliver on our ESG sustainability commitments

We believe digital technologies can have a positive impact on the world – supporting society to make progress and addressing environmental and social challenges. Enabled by microchips, these technologies are fueling a digital transformation that is helping to address global challenges, such as tackling climate change by reducing energy consumption and GHG emissions.

We recognize that new technology comes with new challenges – and we’re committed to using our innovations to enable the semiconductor industry to reduce its footprint. We aim to help our customers minimize the materials and energy required to produce advanced microchips. Within our own operations, including our supply chain, we aim to minimize our environmental impact while having a positive role in society for our employees, the communities around us and everyone involved in our innovation ecosystem.



Read more on how we're delivering on our vision on pages 18, 35, 89, 105, 124, 135, 144 >

Our ESG sustainability strategy

Our aim is to create long-term sustainable value for our stakeholders, while also contributing to the United Nations' Sustainable Development Goals (SDGs). Our ESG sustainability strategy is based on a materiality assessment that helps us identify and focus on the ESG sustainability topics where we can have the biggest impact.

Environmental

We want to continue to expand computing power but with minimal waste, energy use and emissions. That's why we focus on energy efficiency and climate action, and a circular economy.

Social

We want to ensure that responsible growth benefits all our stakeholders – we aim to offer an attractive workplace for all, to build and maintain a responsible supply chain, to fuel innovation in our ecosystem and to be a valued partner in our communities.

Governance

We act on our responsibilities and aim to fully anchor them in the way we do business through our focus on integrated governance, engaged stakeholders and transparent reporting.

See how we're delivering on our ESG sustainability commitments



Read more in ESG - Our material ESG sustainability topics

1 2 3 What we need to create sustainable long-term value

The depth and breadth of our resources and the relationships we build are key to our continued success in growing a sustainable holistic lithography business.

People and culture



We depend on more than **42,400** talented, dedicated and highly motivated employees who live our values of challenge, collaborate and care.

Every day, our colleagues in R&D, manufacturing, customer support, sourcing and supply chain, and support functions take on the exciting challenge of building and maintaining the most advanced lithography, metrology and inspection systems in the world.

[Read more on pages 34 and 107 >](#)

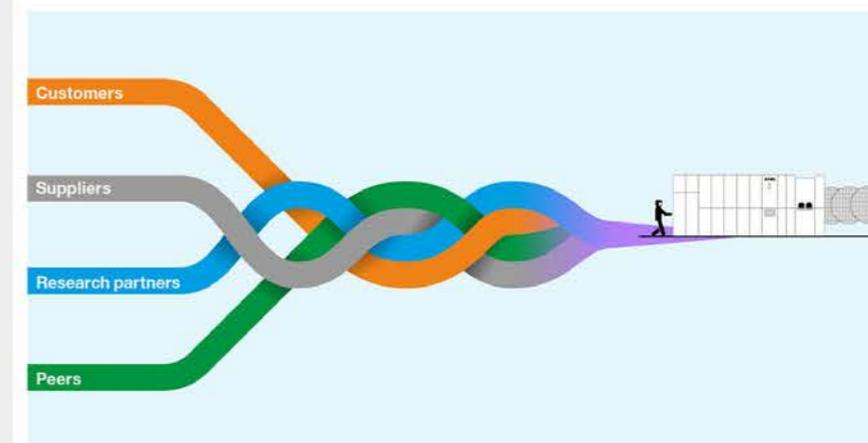
Manufacturing facilities

We have **eight manufacturing sites in the EU, US and Asia** that provide high-precision, highly controlled environments where we assemble, test and deliver our complex lithography and metrology and inspection portfolio, from prototype to final product.

[Read more on page 13 >](#)



Ecosystem of innovation partners



Our lithography solutions are the result of strong partnerships based on trust, respect, and shared risks and incentives to compete and drive innovation.

Customers

We believe a true partnership with our customers is vitally important, to ensure we share the risks and rewards of what we do.

Suppliers

Our lithography systems comprise thousands of parts, with most of them co-designed with and made by our suppliers. Early involvement of our suppliers has always been a key part of our business model.

Research partners

We co-develop R&D expertise within a wide network of technology partners, such as universities and research institutions – accelerating innovation and giving us access to a large leading-edge knowledge base across a wide range of technologies.

Peers

Our semiconductor industry peers optimize the total manufacturing process by delivering complementary process equipment, critical materials, essential data and new processing steps.

Capital

We have strong capital reserves, underpinned by a robust balance sheet. Total shareholders' equity at the end of 2023 amounts to **€13.5 billion** on a consolidated balance sheet total of **€40.0 billion** and net cash provided by operating activities of **€5.4 billion** in 2023.



[Read more on page 250 >](#)

Innovation

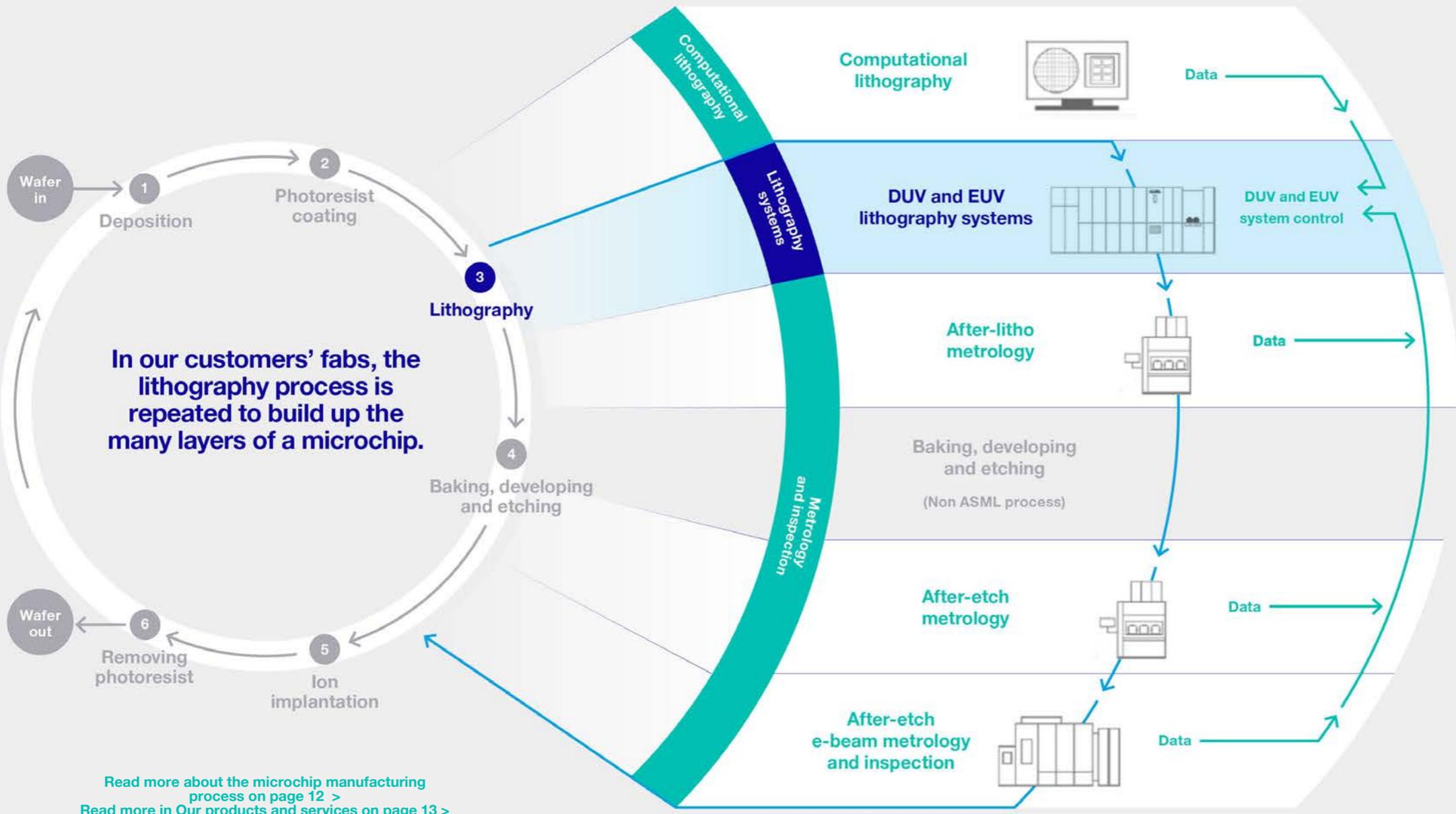
In 2023, we spent a total of **€4.0 billion** on R&D. We do not innovate alone – our more than **15,500** R&D employees collaborate closely within an innovation ecosystem of key partners in the value chain.



[Read more on page 137 >](#)

1 2 3 Creating sustainable long-term value through holistic lithography

Our holistic approach is based on the intelligent integration of computational lithography, lithography systems, and metrology and inspection.



In our customers' fabs, the lithography process is repeated to build up the many layers of a microchip.

Computational lithography

Computational lithography is used to predict and enhance the process window of our lithography systems by calculating the optimal settings, depending on the specific application. This takes place in the research and development phase, before a lithography system goes into high-volume manufacturing.

Metrology and inspection

We have a suite of tools – optical and e-beam metrology, high-resolution inspection, and scanner and process control software solutions – which control the process window and help ensure that the lithography system operates optimally in the fab environment. Lithography is the only way in which in-line adjustments can optimize performance as part of the manufacturing process.

Holistic lithography enables shrink by optimizing setup and control of a lithography system's process window for high-volume manufacturing – improving the system's availability, reducing downtime and overall costs, and optimizing yield (or number of good wafers per day) for our customers.

Read more about the microchip manufacturing process on page 12 >
Read more in Our products and services on page 13 >

① ② ③ The sustainable long-term value we created for our stakeholders in 2023

Our success depends on strong, sustainable relationships with all stakeholders in the value chain. We aim to create sustainable value for them, and to use their input to develop our strategy, products and services.



Customers

Our world-leading lithographic systems enable our customers to develop ever more powerful and energy-efficient chips for new applications and devices. At the same time, we help our customers reduce costs and their environmental footprint.

€27.6bn

Total net sales

600

Net system sales (in units)

#2

TechInsights customer satisfaction ranking

Read more in [Engaging with our stakeholders – Customers](#)



Employees

ASML is a growth business providing employment opportunities around the world. We invest in people's career development and well-being, and provide a diverse and inclusive environment where people can achieve their full potential.

80.3%

Employee engagement score

27%

Gender diversity – % inflow of women

3.6%

Attrition rate

Read more in [Engaging with our stakeholders – Employees](#)



Suppliers

We innovate together with our strategic partners, sharing knowledge and tapping into each other's technology expertise to drive ever higher levels of complexity and capability. Long-term relationships, close collaboration, transparency and a commitment to sustainability with our suppliers are key to our success.

€15.5bn

Total sourcing spend

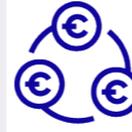
5,100

Number of suppliers

57%

% supplier spend covered by commitment to sustainability via Letter of Intent (LOI)

Read more in [Engaging with our stakeholders – Suppliers](#)



Shareholders

The effective and disciplined investment of free cash flow drives the profitable growth of our company, and delivers solid financial performance and a healthy financial position. This underpins our cash return policy through share buybacks and dividends.

€3.2bn

Free cash flow¹

€6.10

Proposed annualized dividend per share

€1.0bn

Share buyback

Read more in [Engaging with our stakeholders – Shareholders](#)



Society

We play an active role in the communities where we operate, recognizing that when the community thrives, we thrive. And our collaborative ecosystem nurtures innovation and benefits society. For example, we share our expertise with universities and

€413

Community partnership program: amount invested per employee

€16.4m

Contribution to EU research projects

95%

% of systems sold in the past 30 years still active in the field

Read more in [Engaging with our stakeholders – Society](#)

research institutes, support young tech companies and promote science, technology, engineering and mathematics (STEM) education worldwide.

We are also committed to creating sustainable value by reducing our environmental footprint, both from our operations and during the use of our products and services.

88%

% Reuse rate of parts returned from field and factory

35.1 kt

Emissions from manufacturing and building (scope 1 and 2)

15.0 Mt

Indirect emissions from total value change (scope 3)

1. Free cash flow is a non-GAAP measure and is defined as net cash provided by operating activities (2023: €5,443.4 million and 2022: €8,486.8 million) minus purchase of property, plant and equipment (2023: €2,155.6 million and 2022: €1,281.8 million) and purchase of intangible assets (2023: €40.6 million and 2022: €37.5 million). We believe that free cash flow is an important liquidity metric for our investors, reflecting cash that is available for acquisitions, to repay debt and to return money to our shareholders by means of dividends and share buybacks. Purchase of property, plant and equipment and purchase of intangible assets are deducted from net cash provided by operating activities in calculating free cash flow because these payments are necessary to support the maintenance and investments in our assets to maintain the current asset base.



“
My new role will help
us safeguard our
innovation power as
we evolve to support
future growth.”

Ron Kool
Head of Business Performance Improvement
26 years at ASML

**Embracing change,
driving innovation**

Ron Kool spent over 25 years in various product-related roles within ASML, most recently leading our deep ultraviolet (DUV) lithography business. In 2023, he changed direction to use the experience he has gained in improving our technology to help us improve our business processes.



A strong track record

When I joined ASML in 1997, it had fewer than 2,000 employees. Today, it has over 42,400. We are shipping more products each year and supporting many more installed systems in the field. And we have plans to grow further to support future developments in the semiconductor industry.

ASML has always been driven by technology. We employ the best technical minds and let them focus on innovation. But with the massive growth, we have had to evolve how we work around the technology. At ASML, we have always seen ourselves as technology firefighters – ready to tackle any challenge that comes our way. But firefighters need to be organized or bad things can happen. So ASML has continually improved its processes for developing new products and running the business so that our innovators can continue to focus on what they do best: innovation.

Building on strong foundations

The challenge is to do that in a structured way. Business processes are, by nature, cross-sector – they govern how different parts of the company work together to deliver what customers and shareholders want. You need to make sure improvements in one area don't cause problems in others. That means having insight from all affected groups while keeping the end goal clearly in focus.

In 2023, I stepped away from a career track in technical and business line management to start a Business Performance Improvement (BPI) group. The group aims to be a catalyst, to create a way of working that makes cross-sector business performance improvements more efficient.

Perhaps unsurprisingly, given my history, I am copying our PGP approach as a blueprint for BPI. In particular, we've adopted the PGP's key decision process, whereby we only move on to the next step if everyone agrees. It's very much an ASML-tailored approach, but it works well in our product development, and I believe it will help on the BPI side too: If you actively say yes to something, you are more committed to it.

Evolving for the future

We currently have around 10 ongoing BPI initiatives, covering areas such as reuse, supporting field operations, planning and IT. In each case, execution is handled mostly by the main sector involved. Our role is to help them communicate with the other sectors to understand the wider impact and know who to connect with to address issues. So, our planning department is responsible for improving planning, but they need input from our sourcing and customer-facing departments to make that happen.

Another example is an initiative to improve how we ship systems to customers. Any changes to shipping impact the whole work chain for many operational sectors. First, we need alignment with our customers, so sales and customer support must be involved. But we also need to consider the internal way of working for departments such as finance, because changes to shipping practices could affect our compliance with customs regulations and tax rules. Having the right people from all the necessary departments involved from the start allows us to discuss and solve those issues at an early stage, and not have to spend time fighting fires later.

Improving business processes is an ongoing challenge for any company. At ASML, we want to safeguard our innovation-driven way of working while we evolve. That was my motivation for making the change to BPI. It's a step we need to take to prepare for further growth and the evolving needs of our customers.



Engaging with our stakeholders

We engage with our stakeholders on an ongoing basis, working hard to understand how we impact them and how we can best meet their needs. This approach plays a key role in our ability to build stakeholder relationships based on mutual trust.

[Read more on page 71 >](#)

A new Stakeholder Engagement Policy has been published.

[Read more at asml.com](#)

Our stakeholders – customers, employees, suppliers, shareholders and society – can affect or be affected by our business, and we embrace continuous open dialogue and knowledge-sharing for the benefit of all parties.



Customers

At each stage of the customer relationship, we aim to foster trust, advocacy and continuous engagement, with the goal of achieving complete customer satisfaction and loyalty. As customer requirements become more complex, it takes longer to align with a shared vision, so we seek to start earlier in the process. Transparency is key, and our customer intimacy strategy helps us to leverage our innovations and develop even more sophisticated solutions with our customers.

What's happening in their world

Macroeconomic uncertainty across different market segments led our customers to more carefully control capital expenditure and cash flow. In 2023, the market continued to be influenced by governments focusing on incentives to encourage the construction of semiconductor manufacturing facilities in their respective countries through chips acts. This led our customers to look into expanding their manufacturing in these new geographical locations. However, the readiness of these 'off-shore' facilities has been impacted due to a shortage of experienced staff in these new locations. In addition, new regulations were announced and imposed by the Dutch, US and Japanese governments regarding the export control of advanced semiconductor equipment impacting the customers in China that are using advanced lithography tools.

How we respond

We had delivery challenges for our DUV systems (in light of the heightened demand) and we kept our customers informed about shipment status and progress in our capacity plans. To respond to their demand faster, we implemented the fast shipment solution as a standard way of working in 2023. We continued to closely collaborate with our customers to support them in settling in to their new manufacturing locations by providing them with operational flexibility where needed. We worked with governments and our customers to minimize the potential impact of new regulations on our customers' deliveries. In new product design, we are increasing our focus on reducing energy consumption of our systems.

We have deployed improvement actions identified in our 2022 customer survey. This has helped us focus on truly understanding what customers need from us, and validating that we are on the right track with the right improvements. We have updated our customers regularly on the progress being made, and in September 2023 we sent out our latest survey, including a new set of questions to measure customer trust.

Survey results reveal that our customers have high levels of trust in us, mainly driven by our transparency and commitment to fairness in driving mutual success. They ask us to listen closely to their feedback, resolve issues in a timely manner, provide them with shorter delivery times for good-quality products and continue pushing the technology forward to meet their current and future needs.

How we engage

- Regular meetings with our key customers
- Technology Review Meetings where our senior technology experts, our Chief Technology Officer (CTO) and our Chief Business Officer (CBO) discuss technology roadmaps and requirements with customers
- Executive Review Meetings where members of our senior management team and Board of Management discuss business and strategies with customers
- Operational Review Meetings where we review topics related to our customers' operational activities
- Annual customer feedback survey
- Voice of the Customer program, which provides firsthand feedback about our customers' needs and challenges for employees without direct access to customers
- Various technology symposia and special events

Engaging with our stakeholders (continued)



We strive for engaged employees who are proud to work for ASML and deliver jointly our vision and our ambitions as a company.

Employees

What's happening in their world

Our growth in recent years has been accompanied by a large increase in our workforce. This has brought benefits – such as a more diverse employee base – as well as challenges. As the organization becomes more complex, and the expectations of our customers and stakeholders increase, the need to engage all our employees becomes even more crucial.

Our employees feel respected and have trust in each other. They continue to raise suggestions to improve processes, and they like to have more opportunities to participate in sustainability initiatives.

[Read more in Social - Attractive workplace for all](#)

How we respond

Since the pandemic, employee expectations have continued to change, especially around work-life balance, hybrid working and well-being. Staying on top of these trends and understanding how the world of work and expectations is evolving is a key part of our strategy to attract and retain talent.

Inclusion, well-being and job enablement are the key themes we will focus on to further increase our engagement. Cross-collaboration and sharing knowledge across teams also remain subjects for improvement.

How we engage

- Employee engagement survey
- Training and development programs, including employee evaluation and feedback
- ASML's Speak Up service
- Works Council/Unions
- Employee networks, such as Next, Women/WAVES, Seniors, Parents, Veterans, Green ASML, Atypical, SHADES and Proud
- ASML Ambassadors community, aiming to attract and inspire talent, engage colleagues and show the community our appreciation
- Internal communication and awareness, for example through the intranet, our Ethics program, department employee meetings and interactive lunch sessions with Board members
- Onboarding program for new employees
- All-employee meeting and senior management meetings



We engage with our suppliers to help deliver our innovations. They are critical to our value chain and our ambition to be a sustainable leader in the semiconductor industry.

Suppliers

What's happening in their world

Over recent years, the world of our suppliers has been quite turbulent. First of all, geopolitical uncertainties led to disruptions in our supply chain due to less availability of materials as well as increased price levels. Furthermore, on a broader scale, the inflationary pressure has hit our suppliers, mainly in areas of raw materials, energy and wages. And finally, throughout all those challenges, ASML continued to grow, and despite short-term market uncertainties was still requiring suppliers to build up further capacity for future growth while putting pressure on cost and quality performance.

The future growth in demand of ASML's customers can only be met if our suppliers are capable and willing to keep up.

How we respond

Our commitment to our suppliers is that we want to maintain and build a strong business relationship based on mutual trust. We listen to our suppliers when they openly share their pain points and challenges. We are implementing improvements relating to quality issues, early supplier involvement during the industrialization phase of new product introductions, reducing cycle time and cost, planning with our suppliers and ESG sustainability.

How we engage

- ASML's Suppliers' Day
- Direct interactions via supplier account teams / sourcing account leaders
- Supplier audits
- Site visits
- Newsletter
- Responsible Business Alliance (RBA) self-assessment questionnaire (SAQ)
- ASML's Speak Up service
- Knowledge sessions on ESG sustainability



Engaging with our stakeholders (continued)



Shareholders

We aim to help shareholders – as well as financial and ESG sustainability analysts – to understand our long-term investment opportunities. We communicate with them about our financial growth strategies and opportunities, financial and ESG sustainability performance, and our outlook and shareholder returns.

What's happening in their world

For investors in the semiconductor industry, 2023 was an interesting, highly dynamic year in which ASML showed impressive sales growth while overall semiconductor sales went down. Key focus areas for investors were to get a better sense of when the industry will recover from its short-term cyclical downturn in order to understand how 2024 will shape up. There were also positive developments of (generative) AI gaining strong traction.

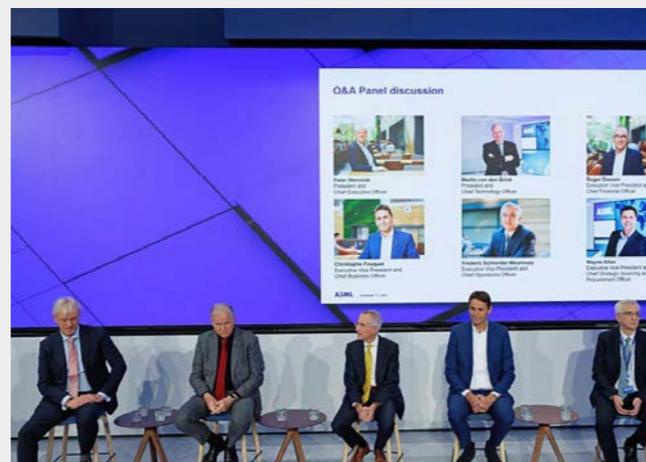
In addition to uncertainties around a potential recession, inflationary costs, the Russia-Ukraine war and the conflict in the Middle East, the Dutch and US governments published new regulations in 2023 regarding the export controls of semiconductor equipment.

How we respond

During the year, ASML's management and Investor Relations team actively engaged with our investor community to discuss specific topics that are relevant to ASML's equity story. We focus on being transparent, accessible, credible, reliable and responsive. We actively engage with the investor community via a large number of (ESG-related) conferences, roadshows and conference calls. We also encourage investors to visit our Veldhoven (NL) or Wilton (US) facilities to be able to discuss our capacity expansion plans as well as our technology challenges and opportunities in our ASML Experience Centers.

How we engage

- AGM
- Investor calls and Investor Days
- Company quarterly results presentations and press releases
- Various (ESG) investor conferences and roadshows
- Various sustainability questionnaires, assessments and survey feedback
- Direct personal interactions in line with our Bilateral Contacts Policy as published on our website



Society

We know that our actions and our activities have an impact beyond ASML – on the environment, for example, and on the world around us in its broadest sense, which is how we define society. We engage with organizations, communities and other bodies in society on a wide range of issues – from reducing our environmental footprint to regulatory matters and fulfilling our commitment to playing an active role in the communities where we operate.

What's happening in their world

Increasingly the local community feels the impact of the rapid development of our headquarters in the Brainport Eindhoven region, home to around half of ASML's employees. Our community stakeholders expect ASML to take its fair share in keeping the region attractive and inclusive for all community members, with sufficient affordable housing, sustainable transportation, a strong (technology) education system for all and opportunities for the underserved. Meanwhile, our headquarter campus expansion should take into account the interests of our close neighbors.

How we respond

Launched in collaboration with our ESG Sustainability team at the start of 2023, ASML's Society & Community Engagement team focuses on four areas: boosting the attractiveness of the communities, aiming to keep these communities inclusive, promoting science and technology education, and supporting ESG innovation. Within these focus areas, we and our stakeholders have identified and formed 17 program strategies that we began to execute during 2023.

Read more in Social - Valued partner in our communities

Operating in an international industry with a global value chain where strong incentives to compete and drive innovation are key, we work with and collaborate with governments on all levels (national, regional and local) to ensure our growth and objectives are clear and can be supported.

Read more in our ASML Government & External Affairs Report at [asml.com](https://www.asml.com)

How we engage

With industry unions and associations

- Member conferences and technical forums
- Member consultation on standards
- Brainport Eindhoven

With governments and authorities

- Dialogue with tax authorities
- Relevant EU roundtable discussions
- Compliance reporting
- Proactive dialogue with government, authorities and municipalities

With communities and other bodies

- In the Veldhoven region, via regular dialogue at six-weekly intervals with local government representatives and local residents. In addition, we regularly hold information events, open house events, town halls and other opportunities for discussion, and also invite local input through the 'ASML Dichtbij' (ASML close by) section of our website.
- At our site in Wilton in the US, we held information sessions during 2023 where local officials and neighbors could discuss our expansion plans
- Quarterly surveys of a random sample of the 800,000 residents of the Brainport Eindhoven region
- Regular discussion between the managers of our 17 community programs and various stakeholders and specialists
- Through (social) media, conferences and other mass communication channels, we have an intensive communication plan to inform and engage with stakeholders around our communities

Robust results in a challenging macro environment

In conversation with our Executive Vice President and Chief Financial Officer

Roger Dassen

Q Can you reflect on ASML's financial performance in 2023?

Roger: In short, we did what we said we expected to do at the beginning of the year. We delivered on our expectations in spite of the challenges.

We have reported an excellent financial performance, with sales up by 30% and a gross margin of 51.3%. When you take the macro environment into account – inflation, high interest rates, falling GDPs, geopolitical tensions and a downturn in the semiconductor industry – this achievement was little short of remarkable.

Diving into some further details, we showed a strong increase in net income compared to 2022. We were able to successfully place a bond amounting to €1.0 billion. In addition to this, we repurchased shares for a total consideration of €1.0 billion and paid dividends totaling €2.3 billion.

Free cash flow¹ was low compared to previous years by design. In a challenging economic climate, we took the decision to help our customers navigate their liquidity issues by offering extended payment terms, while continuing to support our supply chain. Understanding and balancing the interests of all our stakeholders is one of our most important responsibilities, and in this instance helping our ecosystem partners through difficult times was the right thing to do. However, this inevitably meant delayed payments and therefore reduced cash flow.

“
We delivered on our expectations in spite of the challenges.”

Roger Dassen

Executive Vice President
and Chief Financial Officer



1. Free cash flow is a non-GAAP measure and is defined as net cash provided by operating activities (2023: €5,443.4 million and 2022: €8,486.8 million) minus purchase of property, plant and equipment (2023: €2,155.6 million and 2022: €1,281.8 million) and purchase of intangible assets (2023: €40.6 million and 2022: €37.5 million). We believe that free cash flow is an important liquidity metric for our investors, reflecting cash that is available for acquisitions, to repay debt and to return money to our shareholders by means of dividends and share buybacks. Purchase of property, plant and equipment and purchase of intangible assets are deducted from net cash provided by operating activities in calculating free cash flow because these payments are necessary to support the maintenance and investments in our assets to maintain the current asset base.

Robust results in a challenging macro environment (continued)

In conversation with our Executive Vice President and Chief Financial Officer

Roger Dassen

Q What were the main drivers for that performance?

Roger: Firstly, we had been significantly supply-constrained in both 2021 and 2022, and over the last 12 months we saw those constraints ease. The supply bottlenecks created by COVID-19 restrictions have now worked their way through the system. This meant that over 2021 and 2022, we built up a very significant backlog that we could start eating into in 2023.

Secondly, although we have received significant orders from customers in China for a number of years, our fill rate has been less than 50%. This meant that, while some of our other customers were understandably taking their foot off the accelerator, we could take the opportunity to step up our China order fill rate this year.

Q How do you manage industry cyclicality?

Roger: Cyclicalty is no stranger to this industry, obviously. Key is to focus on the longer term while managing short-term cost and working capital challenges. The secular trends remain very strong and we believe that the years ahead will see a significant uptick in the market – so while we address the downcycle, we also have to prepare for the upcycle that all the indicators say is around the corner.

Managing costs is always important, so during 2023 we focused on our selling, general and administrative costs, and also looked after our cash. In addition, we slowed our hiring pace. In the last two years we had boosted our staff by around 10,000 FTEs. In 2023 we were able to put more resources and effort into making them feel welcome and training them in our values and how we work.

We have also spent considerable time making sure that our organization is fit for purpose. From finance and tax to IT, HR and other areas, our enabling functions exist to support ASML's growth. This means we must continually focus on working together and not in silos, collaborating and being totally aligned on end-to-end processes and solutions that meet customer needs instead of each department doing their own thing. We have looked at all our functions collectively from an overall business perspective, identifying challenges around issues such as the pre-building of tools next year. In addition, we have come together to have the right capacities and processes in the right places at the right times to meet those challenges.

Q What other matters have required focus during 2023?

Roger: Reporting requirements continue to put more pressure on our teams, particularly around ESG. For example, the Corporate Sustainability Reporting Directive (CSRD) comes into force for us over the financial year 2024 and involves reporting on many more data points. At ASML we are already fairly advanced in our ESG reporting. Nonetheless, several new disclosure requirements, including data points, have been introduced, and each of these require robust reporting, targets and strategies, not just for next year but also for the longer term. We have developed the appropriate action plans to close the approximately 900 gaps we identified, and we track our progress accurately and consistently. All of this means a lot of work, not just for the enabling functions, but for everybody in the business.



We believe that the years ahead will see a significant uptick in the market.”

Roger Dassen

Executive Vice President
and Chief Financial Officer



€27.6bn

Total net sales

51.3%

Gross margin

€3.3bn

Returned to shareholder

Robust results in a challenging macro environment (continued)

In conversation with our Executive Vice President and Chief Financial Officer

Roger Dassen

Cybersecurity is another area that required serious focus. We face two different kinds of cyber and data security threats. We have external exposure, where outside forces try to penetrate our systems. This is continuous warfare – as we increase our defenses, so will our combatants – and we have done a lot of good work on that front. As well as making our lines of defense and detection capabilities as strong as possible, we have also continued to invest in how to counter and mitigate the impact of a successful penetration. Secondly, there is the internal exposure – how do we ensure that employees and others who have access to our systems keep data only in a safe environment, and do not export this data to private devices or places that are not secure.

Our response has been to change our way of working. For decades, ASML has thrived on the notion of open innovation, but now we have to conclude that this comes with risks that have to be mitigated, and we have to ensure that people only have access to information that they need. Although this is counter-cultural to an extent, everybody understands that security is vital to the company.

Q What's the outlook for 2024 and beyond?

Roger: We believe that the market has now reached the lowest point of the dip, and although we cannot predict the exact nature of the slope ahead, the recovery is nascent. The longer-term trends are unmistakable – artificial intelligence, electrification and the energy transition are happening, and those factors are underlined by the large number of fabs that are set to open in the next couple of years. All of these new fabs will need our tools.

Amid these very encouraging signs, we are looking at 2024 and 2025 as a whole and making output plans for the combined period. For 2024, we envisage a transition year with 2024 revenue to be similar to 2023. We will continue to be frugal, managing our costs and cash while not compromising on our capability and capacity for 2025, which we see as a potentially strong growth year. Our target capacity for 2025-2026 is 600 DUV and 90 EUV tools, and this is going to place pressure on our supply chain.

One of our major projects for 2024 is to work even more closely with our suppliers to help them build the capacity to support our growth.

For the first time in our history, during 2024 we will pre-build and create our own inventory in order to prepare for the surge of demand that we expect in 2025. We are readying ourselves for the uptick – pre-building tools, helping our new hires buy into our culture, working with suppliers and reshaping our functions, all while being fiscally prudent and managing any fallout from export restrictions.

We face the future with confidence, sure in our technology and strategies, proud of our ability to be a force for good in the world and committed to meeting the increasing demands that all our stakeholders – from customers, suppliers and shareholders to governments and wider society – place upon us.



For 2024, we envisage a transition year with revenue broadly similar to 2023.”

Roger Dassen

Executive Vice President
and Chief Financial Officer

Performance KPIs

Sales
Total net sales €27.6bn 2022: €21.2bn
Net system sales €21.9bn 2022: €15.4bn
Net service and field option sales €5.6bn 2022: €5.7bn
Sales of lithography systems (in units)¹ 449 2022: 345
EUV systems recognized (in units) 53 2022: 40

Profitability
Gross profit % of total net sales €14.1bn 51.3% 2022: €10.7bn 50.5%
Income from operations €9.0bn 32.8% 2022: €6.5bn 30.7%
Net income €7.8bn 28.4% 2022: €5.6bn 26.6%
Earnings per share €19.91 2022: €14.14

Liquidity
Cash and cash equivalents & short-term investments (year-end) €7.0bn 2022: €7.4bn
Net cash provided by operating activities €5.4bn 2022: €8.5bn
Free cash flow² €3.2bn 2022: €7.2bn

1. Lithography systems do not include metrology and inspection systems.

2. Free cash flow is a non-GAAP measure and is defined as net cash provided by operating activities (2023: €5,443.4 million and 2022: €8,486.8 million) minus purchase of property, plant and equipment (2023: €2,155.6 million and 2022: €1,281.8 million) and purchase of intangible assets (2023: €40.6 million and 2022: €37.5 million). We believe that free cash flow is an important liquidity metric for our investors, reflecting cash that is available for acquisitions, to repay debt and to return money to our shareholders by means of dividends and share buybacks. Purchase of property, plant and equipment and purchase of intangible assets are deducted from net cash provided by operating activities in calculating free cash flow because these payments are necessary to support the maintenance and investments in our assets to maintain the current asset base.

Performance KPIs (continued)

Operating results of 2023 compared to 2022

Year ended December 31 (€ in millions)	2022	% ¹	2023	% ¹	% Change
Net system sales	15,430.3	72.9	21,938.6	79.6	42.2
Net service and field option sales	5,743.1	27.1	5,619.9	20.4	(2.1)
Total net sales	21,173.4	100.0	27,558.5	100.0	30.2
Cost of system sales	(7,582.3)	(35.8)	(10,151.0)	(36.8)	33.9
Cost of service and field option sales	(2,891.0)	(13.7)	(3,271.4)	(11.9)	13.2
Total cost of sales	(10,473.3)	(49.5)	(13,422.4)	(48.7)	28.2
Gross profit	10,700.1	50.5	14,136.1	51.3	32.1
Research and development costs	(3,253.5)	(15.4)	(3,980.6)	(14.4)	22.3
Selling, general and administrative costs	(945.9)	(4.5)	(1,113.2)	(4.0)	17.7
Income from operations	6,500.7	30.7	9,042.3	32.8	39.1
Interest and other, net	(44.6)	(0.2)	41.2	0.1	(192.4)
Income before income taxes	6,456.1	30.5	9,083.5	33.0	40.7
Income tax expense	(969.9)	(4.6)	(1,435.8)	(5.2)	48.0
Income after income taxes	5,486.2	25.9	7,647.7	27.8	39.4
Profit from equity method investments	138.0	0.7	191.3	0.7	38.6
Net income	5,624.2	26.6	7,839.0	28.4	39.4

1. As a percentage of total net sales.

For a comparison of ASML's operating results for the year ended December 31, 2022, with the year ended December 31, 2021, please see Our performance in 2022 – Financial – Financial performance – Operating results of 2022 compared with 2021 of ASML's annual report on Form 20-F for the year ended December 31, 2022.

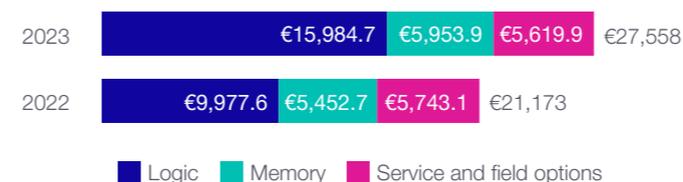
The preparation of our Consolidated Financial Statements in conformity with US GAAP requires management to make estimates and assumptions. Reference is made to Note 1 General information / summary of general accounting policies to the Consolidated Financial Statements for detailed information on critical accounting estimates.

Total net sales and gross profit

We achieved another record year in 2023, with total net sales increasing by €6,385.1 million, or 30.2%, reflecting an increase in net system sales of 42.2%, partially offset by a decrease in net service and field option sales of 2.1% compared to 2022.

Revenue growth from Logic and Memory markets

(in millions)



Despite lower overall lithography tool utilization in 2023, we saw strong demand in the Logic markets in support of the digital transformation (5G, AI, VR, intelligent cloud solutions, and simulation and visualization applications). Logic is the largest consumer of our most advanced NXE systems and also benefited from a catch-up in the backlog of DUV orders to Chinese customers. The revenue growth in the Memory market was less pronounced due to historically low lithography tool utilization levels. The latter and lower demand for productivity enhancement packages negatively impacted net service and field option sales.

Increase (decrease) on previous year

30.2%

Net sales

42.2%

Net system sales

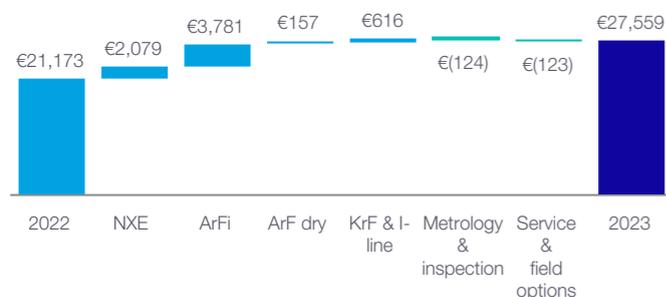
(2.1)%

Net service and field option sales

Performance KPIs (continued)

Increase in net sales driven by growth in NXE and DUV immersion

(in millions)

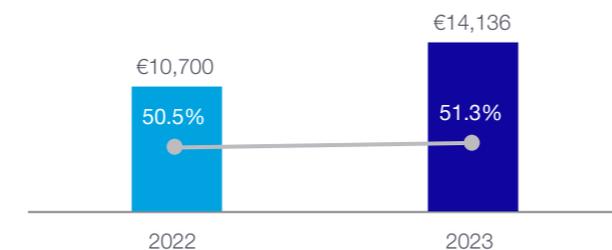


The increase in total net sales was primarily driven by higher sales volumes for NXE and DUV immersion systems as supply caught up with demand. In addition there was increased DUV demand from China that was previously unfulfilled due to supply constraints. Also the timing of revenue recognition for DUV immersion fast shipments is considered to be proven. We recognized revenue for 53 EUV systems in 2023 compared with 40 EUV systems in 2022. Our system sales across our DUV technologies increased from 305 units in 2022 to 396 units in 2023.

The decrease in net service and field option sales was mainly driven by lower field upgrade sales due to lower lithography tool utilization levels at our customers, and customers delaying productivity enhancement packages due to uncertainty around the timing of the market recovery. This decrease is partially offset by higher service sales, which continue to scale as a result of the growing installed base of systems.

Gross profit

(in millions)



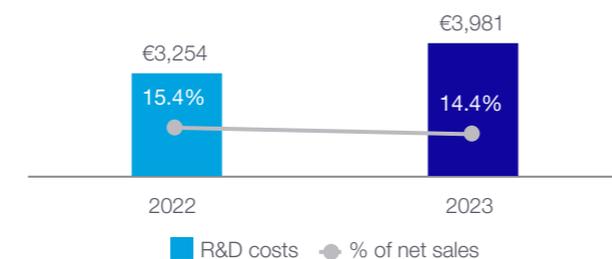
Gross profit increased as a result of higher NXE and DUV immersion sales volumes and improved profitability. The gross margin increased from 50.5% in 2022 to 51.3% in 2023. This increase is mainly due to:

- a larger share of DUV immersion system sales
- lower inflationary effect on our business

partially offset by lower field upgrade sales.

Research and development costs

(in millions)



R&D costs were €3,980.6 million in 2023 compared with €3,253.5 million in 2022. The increase in R&D investments across each of our EUV, DUV and Applications programs, all support our holistic lithography solutions. In 2023, R&D investments mainly related to:

- Investments in the development of the NXE:3800E system and further improving availability and productivity of our EUV installed base systems.
- Investments in our next generation EUV 0.55 NA (High NA) systems, to support future nodes for both Logic and DRAM customers.
- The introduction of our immersion system NXT:1980Fi and the dry system XT:400M. Continued developments for the next generation of scanners include NXT:2150i and NXT:870B. In parallel, there were multiple developments for productivity packages and new service models, focusing on increasing 'good wafers per day' in our customers' installed base.
- Continued investment in e-beam inspection, e-beam metrology and Yieldstar optical metrology. In addition, securing our multibeam inspection roadmap and continuously expanding our investment in the holistic software applications space.

**€4.0 billion**

R&D costs

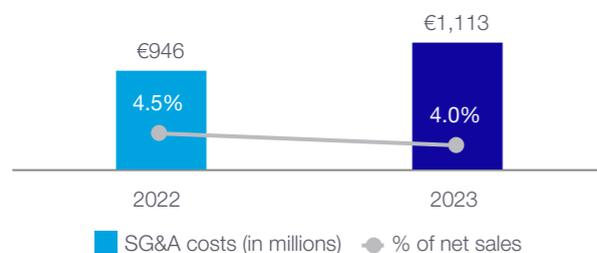
22.3%

Increase in R&D costs on previous year

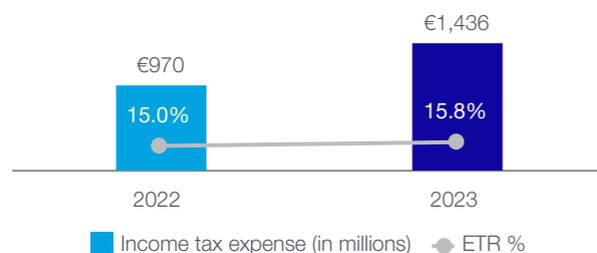
Performance KPIs (continued)

Selling, general and administrative costs

SG&A costs increased by 17.7% from 2022 to 2023, largely due to an increase in the number of employees and increased wage per FTE.

**Income taxes**

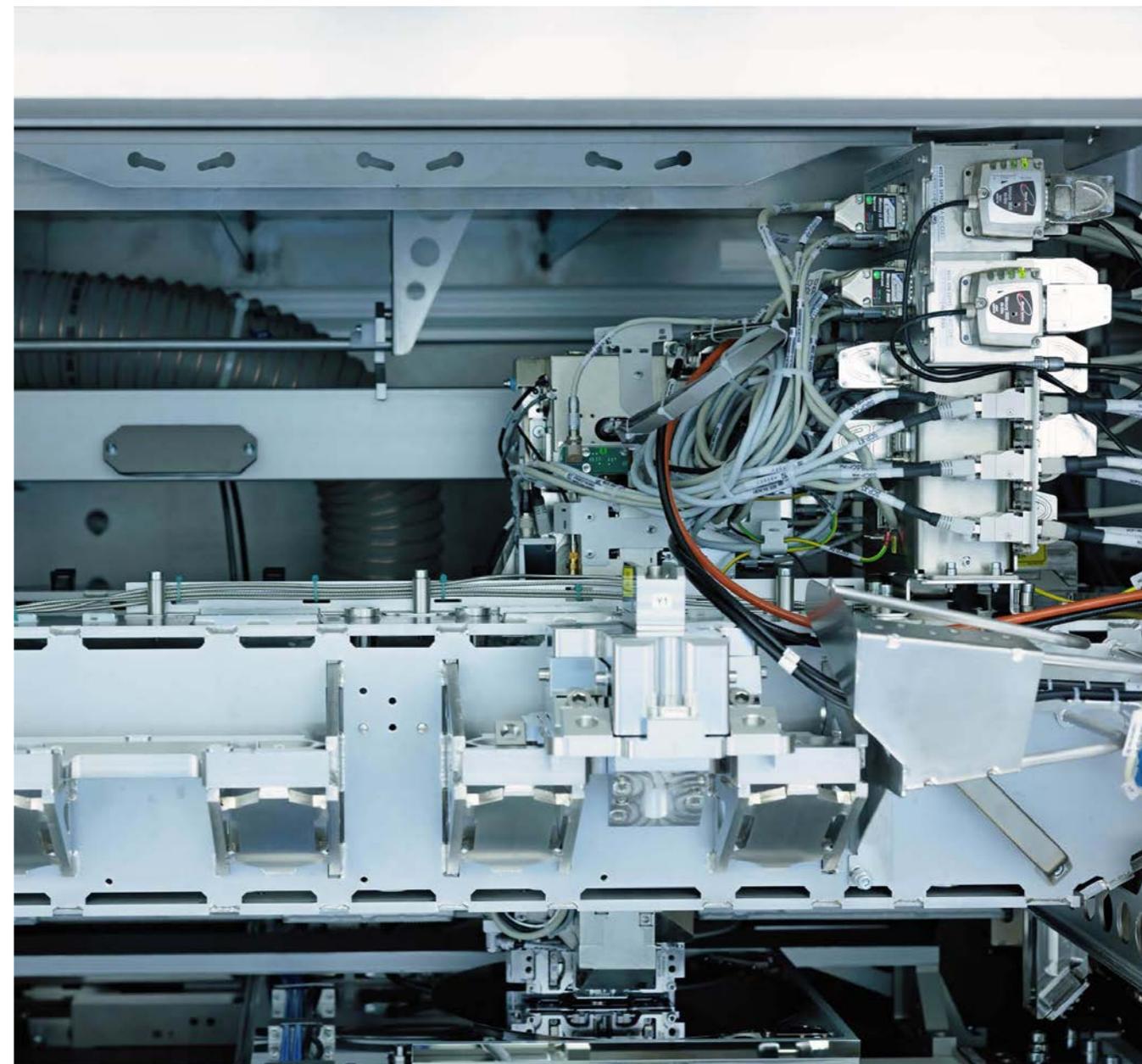
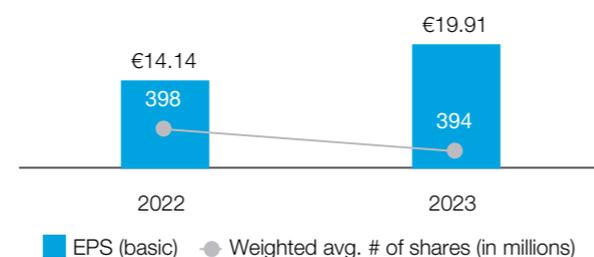
The effective tax rate (ETR) increased to 15.8% in 2023, compared with 15.0% in 2022. The higher rate is mainly caused by an increase in our liability for unrecognized tax benefits and a reduction in US Foreign Derived Intangible Income (FDII) deduction.



Read more in [Consolidated Financial Statements - Notes to the Consolidated Financial Statements - Note 21 Income taxes](#)

Net income

Net income in 2023 amounted to €7,839.0 million, or 28.4% of total net sales, representing €19.91 basic net income per ordinary share, compared with net income in 2022 of €5,624.2 million, or 26.6% of total net sales, representing €14.14 basic net income per ordinary share. The increase in basic net income per ordinary share is mainly due to the higher net income, but also partially driven by a decrease in the weighted average number of outstanding shares resulting from our share buyback program.



Performance KPIs (continued)

Cash flow analysis

We continue to invest heavily in our next-generation technologies in order to secure future growth opportunities which require a significant cash investment in net working capital, capital expenditures and R&D.

We also continued our efforts to return cash to our shareholders through our dividends and share buyback program.

Year ended December 31 (€, in millions)	2022	2023
Cash and cash equivalents, beginning of period	6,951.8	7,268.3
Net cash provided by (used in) operating activities	8,486.8	5,443.4
Net cash provided by (used in) investing activities	(1,028.9)	(2,689.3)
Net cash provided by (used in) financing activities	(7,138.3)	(3,003.9)
Effect of changes in exchange rates on cash	(3.1)	(13.8)
Net increase (decrease) in cash and cash equivalents	316.5	(263.6)
Cash and cash equivalents, end of period	7,268.3	7,004.7
Short-term investments, end of period	107.7	5.4
Cash and cash equivalents and short-term investments	7,376.0	7,010.1
Purchases of property, plant and equipment and intangible assets	(1,319.3)	(2,196.2)
Free cash flow ¹	7,167.5	3,247.2

1. Free cash flow is a non-GAAP measure and is defined as net cash provided by operating activities (2023: €5,443.4 million and 2022: €8,486.8 million) minus purchase of property, plant and equipment (2023: €2,155.6 million and 2022: €1,281.8 million) and purchase of intangible assets (2023: €40.6 million and 2022: €37.5 million).

Net cash provided by (used in) operating activities

The decrease in net cash provided by operating activities of €3.0 billion compared with 2022 is mainly due to an increase in inventory and a decrease in contract liabilities, as a result of extended payment terms granted to our customers. This is partially offset by an increase in net income of €2.2 billion.

Net cash provided by (used in) investing activities

The increase in net cash used in investing activities of €1.7 billion compared to 2022 is mainly due to our continuous cash investment in capital expenditures, which increased by €0.9 billion. Additionally, our loans issued increased by €0.3 billion, and the net cash inflow from the purchase and maturity of short-term investments was €0.4 billion lower.

Net cash provided by (used in) financing activities

The decrease in net cash used in financing activities of €4.1 billion compared to 2022, is mainly due to a decrease in shares purchased through our share buyback program, which decreased by €3.6 billion. Other drivers are the temporary decrease of our total paid dividends of €0.2 billion due to a change from bi-annual to quarterly dividend payments. Additionally, in 2023, we had net proceeds from issuances of notes of €1.0 billion (2022: €0.5 billion) and we repaid an amount of €0.8 billion (2022: €0.5 billion) for a previously issued note that became due.

As of December 31, 2023, ASML has sufficient capital for the company's present requirements.

Long-term growth opportunities

Trend information

The semiconductor industry continues to work through the bottom of the cycle. To prepare for the recovery, we are looking at the combined demand for 2024 and 2025. We view 2024 to be a transition year in preparation for the expected strong demand in 2025. We continue to make investments this year both in capacity ramp and technology to be ready for the turn in the cycle.

Although our customers are still not certain about the shape of the semiconductor market recovery in 2024, there are some positive signs. Industry end-market inventory levels continue to improve and litho tool utilization levels are beginning to show improvement. Our strong order intake in the fourth quarter of 2023 (€9.2 billion) clearly supports future demand. In spite of the positive signs, we maintain our conservative view for the total year and expect 2024 revenue to be similar to 2023. We also expect 2024 to be an important year to prepare for significant growth that we expect for 2025. We expect 2024 revenue to be similar to 2023, with a slightly lower gross margin.

We expect slightly lower Logic revenue in 2024 versus 2023 as customers digest capacity and utilization levels improve.

For Memory, we currently expect revenue growth in 2024 versus 2023, primarily driven by DRAM technology node transitions in support of advanced memory devices.

For EUV, we are expecting revenue growth in 2024. Relative to 2023, we are expecting to recognize revenue for a similar number of systems, however with a higher average selling price from the NXE:3800E systems. In addition, we expect the first revenue from High NA EUV systems in 2024.

We expect our non-EUV business to be down in 2024, primarily driven by lower immersion system sales, relative to 2023.

Our net service and field option sales is expected to be at a similar level of revenue as last year.

Our expectations and guidance for the first quarter of 2024 can be summarized as follows:

- Total net sales between €5.0 billion and €5.5 billion
- Gross margin between 48% and 49%
- R&D costs of around €1,070 million
- SG&A costs of around €300 million
- Annualized effective tax rate between 16% and 17%

The trends discussed above are subject to risks and uncertainties.

[Read more in Forward-looking statements](#)



Long-term growth opportunities (continued)

Outlook 2025 and 2030

This decade is all about distributed computing, bringing the cloud closer to devices at the edge. Through connectivity, computing power will be available to all of us 'on device', enabling a connected world. These global megatrends in the electronics industry, supported by a highly profitable and fiercely innovative ecosystem, are expected to continue to fuel growth across the semiconductor market. This translates into increased wafer demand at both advanced and mature nodes.

The continued push of countries around the globe for technological sovereignty is expected to drive increased capital intensity. This means that the industry is expected to make significant investments in wafer capacity, with increasing spend on lithography. The semiconductor end markets, such as automotive, data centers, industrial and consumer electronics, are expected to grow, and we expect the total semiconductor market to grow around 9%¹ year-on-year through 2030, fueling the strong growth of our business based on an increased mix of EUV, while the demand for DUV is expected to increase across all wavelengths. To achieve this, we and our supply chain partners are actively adding and improving capacity to meet future customer demand.

At our November 2022 Investor Day, also known as Capital Markets Day (CMD), we presented our long-term growth opportunity for 2025 as well as 2030.

We plan to update our view in our next Investor Day planned for November 14, 2024.

Based on the different market scenarios, we believe we have an opportunity to reach annual sales of between approximately €30 billion and €40 billion in 2025, with a gross margin between approximately 54% and 56%.

Looking further ahead, for 2030 we believe we have an opportunity to reach annual sales of between approximately €44 billion and €60 billion, with a gross margin between approximately 56% and 60%.

The anticipated growth in the future is largely market driven in both advanced and mature markets, technology (e.g., the energy transition, AI and die sizes) and geopolitical and competition-driven growth.

Our sales potential is primarily based on assumed organic growth. We continuously review our product roadmap and have, from time to time, made focused acquisitions or equity investments to enhance the industrial synergy of our product offering. Based on such reviews and the assessment of clear potential product and value synergies, we may also evaluate and pursue focused merger and acquisition activities in the future. Within this growth ambition, we expect to continue to return significant amounts of cash to our shareholders through a combination of growing dividends and share buybacks.

[Read more in Our business strategy](#)

Long-term models as presented at CMD2022

Market	System units		Total sales opportunity (in €bn)	
	CMD 2022 Units ASML 2025	CMD 2022 Units ASML 2030	CMD 2022 Sales 2025	CMD 2022 Sales 2030
High				
EUV High NA 0.55	5	30		
EUV Low NA 0.33	80	80	32	47
ArFi (immersion)	105	115		
Dry	385	425	8	13
Total	575	650	40	60
Low				
EUV High NA 0.55	5	15		
EUV Low NA 0.33	65	65	23	33
ArFi (immersion)	75	85		
Dry	180	250	7	11
Total	325	415	30	44

1. M&I: Metrology and inspection.

2. Installed Base Management equals our net service and field option sales.

1. Source: Based on external market research firms

How we manage risk

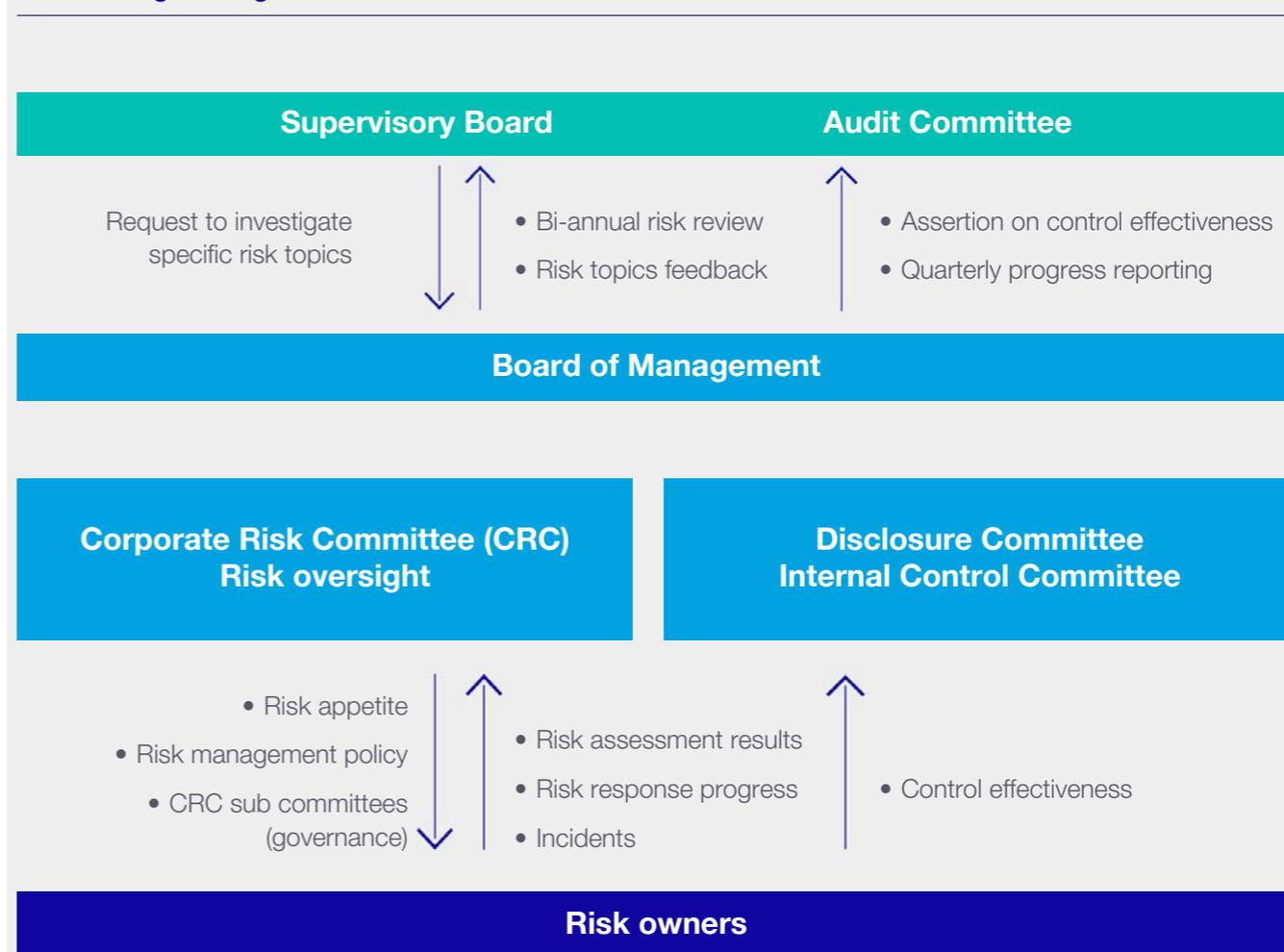
We use a robust enterprise risk management (ERM) framework to embed risk management into our daily business activities and strategic planning.

Enterprise risk management

ASML's ERM framework is designed to enable a well-defined governance structure and a robust ERM process. The Risk and Business Assurance function drives the ERM process and associated activities across ASML. We follow a systematic approach to identify, manage and monitor risks in pursuit of our business objectives by setting standards and enabling management to maintain and continuously improve our governance, risk management, internal control and compliance. The framework enables us to identify opportunities to achieve our objectives and enable long-term sustainable growth.

ERM is a continuous process. Its related activities are periodically repeated to identify and address risks in a timely fashion, and ensure outcomes are relevant for effective decision-making. Our Head of Risk and Business Assurance reports to the CFO and Audit Committee and is responsible for leading the development and maintenance of the ERM framework and the implementation of the ERM process. We have adopted the ISO 31000:2018 standard as the basis for our ERM activities. In addition, the Head of Risk and Business Assurance is responsible for leading the security function and for developing and maintaining the compliance process.

Risk management governance structure



The purpose of risk management is to maximize the probability of achieving business objectives responsibly.”

Geert Beullens

Head of Risk and Business Assurance

How we manage risk (continued)

Supervisory Board and Audit Committee

The Supervisory Board (SB) provides independent oversight of management's response on critical risk areas. The SBs Audit Committee provides independent oversight of the ERM process and timely follow-up of priority actions based on quarterly progress updates.

Board of Management

The Board of Management is responsible for managing internal and external risks related to our business activities and for ensuring we comply with applicable laws and regulations.

Corporate Risk Committee

The Corporate Risk Committee (CRC) is the central risk oversight body that reviews, manages and controls risks in the ASML risk universe, including security. It also approves the risk appetite, risk management policies and risk mitigation strategies. The CRC is chaired by the CFO and comprises senior management representatives across ASML, including the CEO, COO and CSPO.

Disclosure Committee

The Disclosure Committee assists the Board of Management in overseeing ASML's disclosure activities and compliance with applicable disclosure requirements arising under Dutch and US law, applicable stock exchange regulations and other regulatory requirements.

Internal Control Committee

The Internal Control Committee, which includes members of the Disclosure Committee, advises the Disclosure Committee and the CEO and CFO in their assessment of our internal control over financial reporting and related disclosures, under section 404 of the Sarbanes Oxley Act. The Chair of the Internal Control Committee updates the Audit Committee, the CEO and CFO on the progress of this assessment. The Chair also includes this update in the Internal Control Committee's report to the Audit Committee.

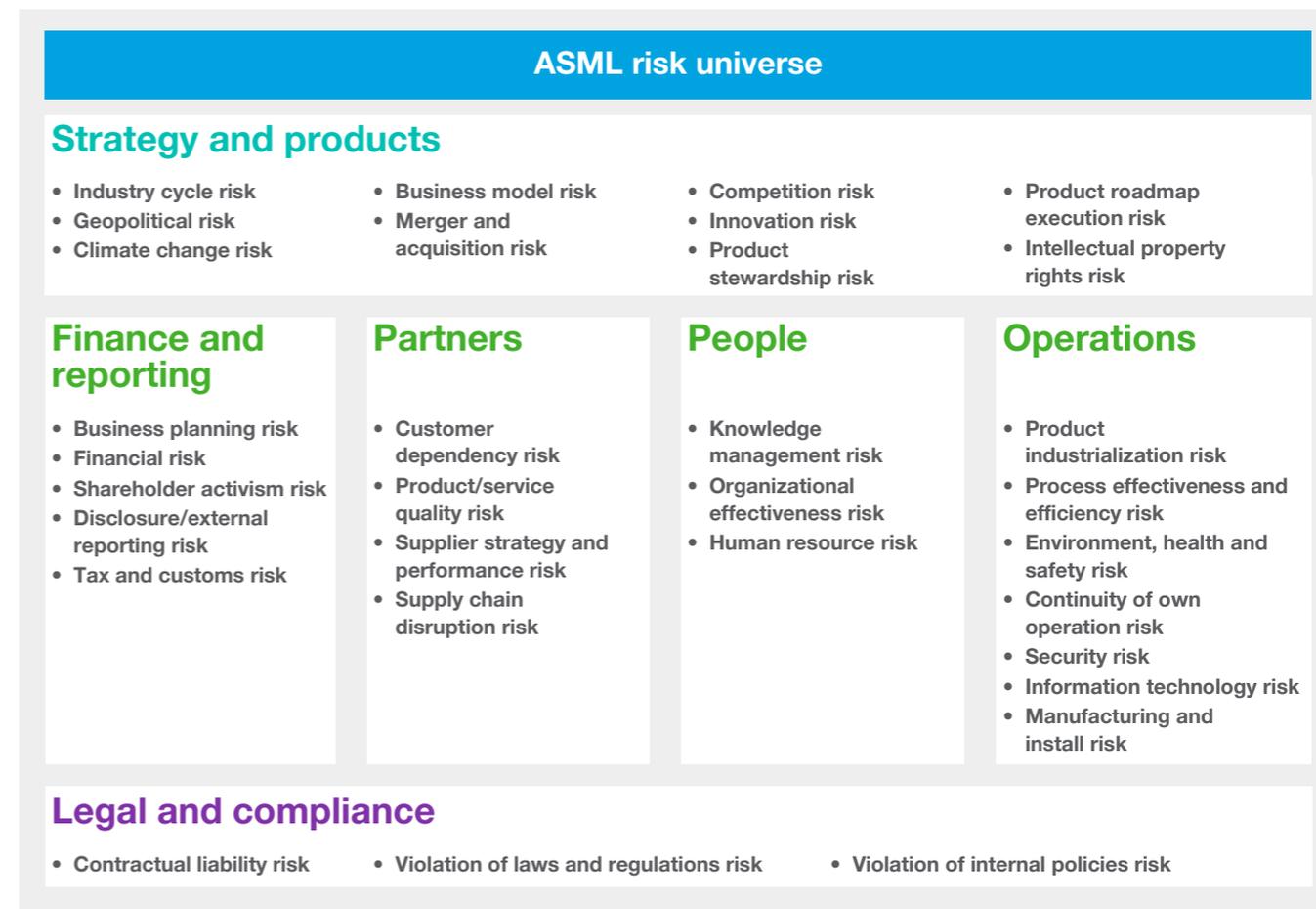
Risk owners

Risk owners monitor the development of risks across the ASML risk universe and drive risk response across ASML according to requirements that are defined by the CRC.

ASML risk universe

The ASML risk universe is a consolidated overview of the risks that may have a material adverse impact on our ability to achieve our business objectives. The risk universe was updated in 2023 and consists of 32 risk categories grouped into six risk types. The risk universe allows us to have a consistent approach to risk assessments across ASML.

We take into account a broad range of internal and external information sources such as macroeconomic and industry trends, relevant guidelines and legislation, and stakeholders' needs and expectations in all areas. The risk universe is reviewed, updated and approved annually, or more frequently when there are significant internal and/or relevant external developments.



ASML's risk management process provides direction for adequate risk and control measures for key risks.”

Roel Verstegen
Risk manager

How we manage risk (continued)

Enterprise risk management process

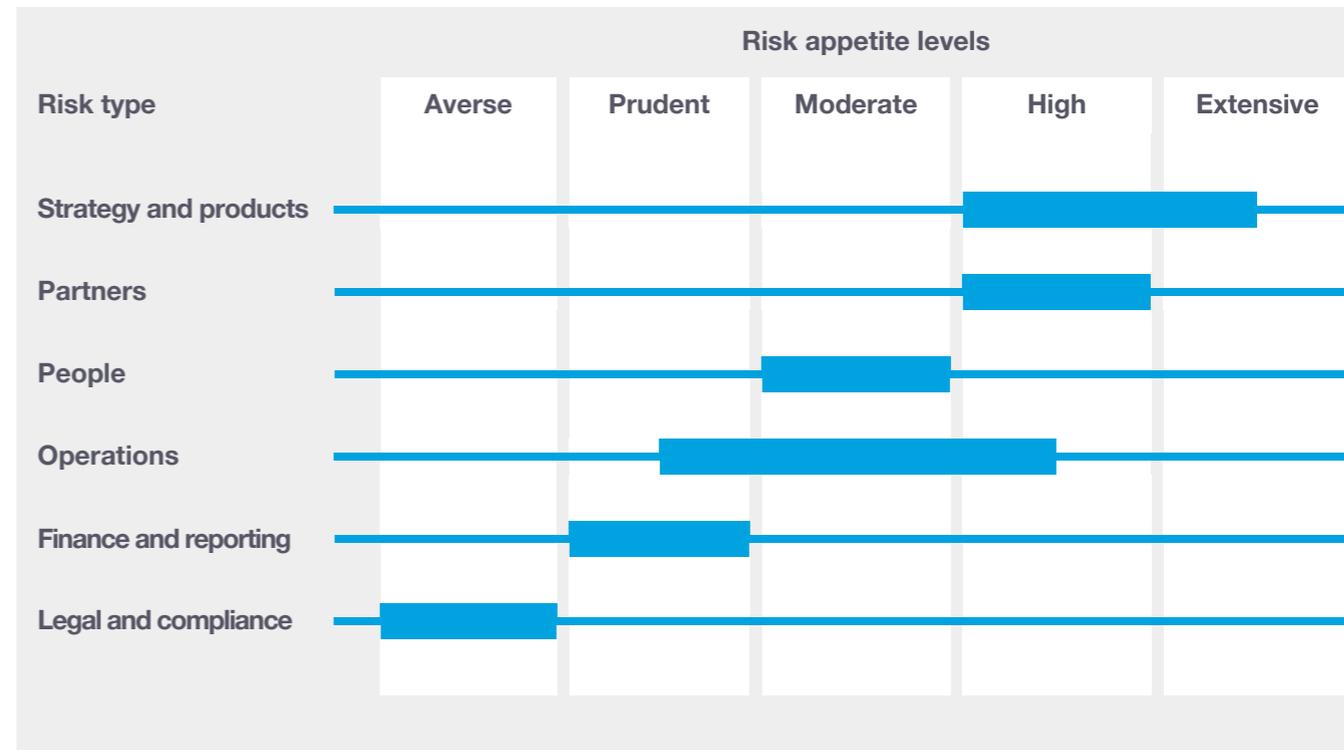
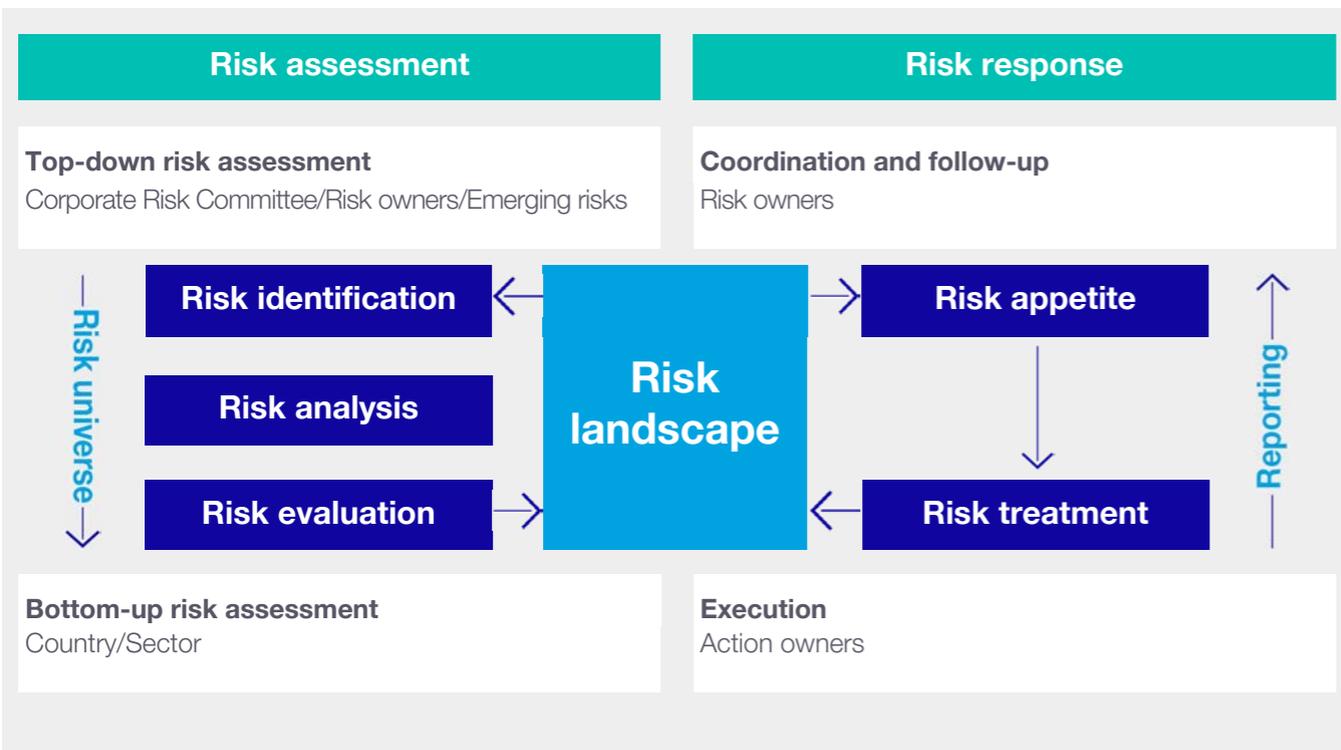
The ERM process provides a holistic approach combining both top-down (company-level) and bottom-up (organization- and process-level) perspectives. This helps us to identify, evaluate and manage risks at the right level. We continuously seek to improve our ERM process based on learnings, developments and best practices.

The results of periodic risk assessments and the potential impact of external trends and emerging risks are captured in the ASML risk landscape. As we operate in a dynamic environment, risk exposures are subject to change. The ASML risk landscape is reviewed and updated by the CRC each quarter. Risk assessments are carried out to assess all risk events in ASML's risk universe. We define strategies to address relevant risks and take these into account when we define our corporate priorities. Our risk responses aim to mitigate risks to the level defined by the risk appetite.

Risk appetite

Our risk appetite describes the level of risk we are willing to accept to achieve our objectives. It depends on the nature of the specific risk and is divided into five levels: Averse, Prudent, Moderate, High and Extensive. Our approach is geared toward mitigating risks to the level defined in our risk appetite.

Risk management process



How we manage risk (continued)

The table below shows the main risks related to our strategy and includes examples of our responses:

Grow our holistic lithography business

Risk development	Risk trend	Risk universe reference	Risk response
<p>Geopolitical tensions</p> <p>Geopolitical tensions and the strive for technological sovereignty may lead to a decoupled ecosystem and – in longer term – overcapacity. Additional export restrictions have been imposed during 2023. There is a risk that future trade restrictions (e.g. raw materials, technology, systems, investments) further limit our ability to source parts and/or sell and service systems to certain customers.</p>		<ul style="list-style-type: none"> • Geopolitical • Competition • Supply chain disruption • Continuity of own operations • Business model • Violation of laws and regulations • Security • IP rights • HR 	<ul style="list-style-type: none"> • Active engagement with authorities and governments • Scenario planning • Collaborate with peers in global advocacy • Optimize industrial footprint • Apply for export licenses • Comply with applicable regulations
<p>Uncertain global economy</p> <p>Global economic conditions lead to uncertainty for semiconductor demand and therefore demand for our products. We have experienced order push-outs. The macroeconomic weakness continues into 2024 and duration is uncertain.</p>		<ul style="list-style-type: none"> • Industry cycle • Business model • Financial • Competition • Supply chain disruption 	<ul style="list-style-type: none"> • Cost control • Maintain flexibility • Scenario planning
<p>Pressure on innovation in ecosystem</p> <p>ASML's strengths are based on the innovation power in our ecosystem and the ability to protect our IP. There is a risk that we are not able to deliver on our technology roadmap. In addition, there is significant pressure on know-how and IP protection for ASML and its open innovation partners. We and our partners experience cyberattacks and other security threats.</p>		<ul style="list-style-type: none"> • Innovation • Product roadmap • Supplier strategy and performance • IP rights • Competition • Security 	<ul style="list-style-type: none"> • Open innovation – sharing risk and reward • Intellectual property portfolio management • Patents and relevant technical publications monitoring • Substantial investments in security • Awareness and training programs • Cyber defense capabilities
<p>Growth challenges</p> <p>The increasing demand in recent years is an opportunity for us that also brings challenges. While we are now facing uncertainty in customer demand outlook, we face challenges to increase production capacity in our end-to-end supply chain to meet future demand. This is amplified by supply chain constraints. In addition, hiring, onboarding and retaining our workforce in the competitive market is challenging. Our ability to attract people also depends on the government to accommodate them, e.g. by income tax policies and investments in appropriate infrastructure.</p>		<ul style="list-style-type: none"> • Manufacturing and install • Supplier strategy and performance • HR • Product industrialization • Process effectiveness • Product/service quality 	<ul style="list-style-type: none"> • Increase of manufacturing capabilities • Cycle time reduction • Fast shipments • Supplier move rate support • Secure unique supply chain capabilities • Onboarding, retention and well-being program • Shorten time to knowledge

How we manage risk (continued)

Deliver on our ESG sustainability commitments

Risk development	Risk trend	Risk universe reference	Risk response
<p>Strengthening ESG regulations and increasing stakeholder expectations</p> <p>Stakeholders are increasingly focused on our contribution to society and expect us to minimize the environmental and social impact of our products throughout all life-cycle stages. There is a risk that we fail in achieving our ESG objectives. In addition, we are faced with increasing regulations and disclosure requirements (e.g. CSRD).</p>		<ul style="list-style-type: none"> Product stewardship EHS Climate change Human resource Violation of laws and regulations 	<ul style="list-style-type: none"> Stakeholder engagement and disclosures Deployment of ESG strategy in ASML & value chain Non-financial reporting in accordance with the Global Reporting Initiative (GRI) Preparing for CSRD reporting requirements
<p>Climate change fueling extreme weather</p> <p>Climate change contributes to increasing severity and frequency of extreme weather events (such as cyclones, flood, fire stress, drought, excessive heat and precipitation, rising sea levels) that can impact continuity of our operations and/or our supply chain.</p>		<ul style="list-style-type: none"> Continuity of own operations Supply chain disruption 	<ul style="list-style-type: none"> Deployment of business continuity plans Include extreme weather aspects in building upgrades and new designs

Risk factors

Many risks have the potential to impact our business. It is important to understand the nature of these risks. We assess risks by using the ASML risk universe which comprises six risk types (Strategy and products, Finance and reporting, Partners, People, Operations, Legal and compliance).

The risk factors in this section are classified under these six risk types. Any of these risks and the related events or circumstances described therein may have a material adverse effect on our business, financial condition, results of operations and reputation. These risks are not the only ones that we face. Some risks may not yet be known to us, and certain risks that we do not currently believe to be material could become material in the future. Many risks may be intensified by global events such as interstate conflicts, geopolitical tensions, inflation, industry downturn, global measures (including new regulations) taken in response to these events and/or any worsening of the associated global business and economic conditions.

1. Strategy and products

Our future success depends on our ability to respond timely to commercial and technological developments in the semiconductor industry

Risk category:

Business model, Innovation

Our success in developing new and enhancing existing technologies, products and services, depends on a variety of factors. These include the success of our and our suppliers' R&D programs and the timely, cost-effective and successful completion of product development and design relative to competitors.

Our business will suffer if the technologies we pursue to assist our customers in producing smaller and more energy-efficient chips are not as effective as, or are more costly than, those developed by competitors. Our business will also suffer if our customers do not adopt technologies that we develop, or if they adopt new technological architectures that are less focused on lithography products.

The success of our EUV 0.55 NA (High NA) technology, which we believe is critical for keeping pace with Moore's Law, depends on continuing technical advances by us and our suppliers. We invest considerable financial resources to develop and introduce new and enhanced technologies, products and service offerings. If we are unsuccessful in developing (or if our customers do not adopt) these technologies, products and service offerings such as EUV 0.55 NA and multibeam inspection, or if alternative technologies or processes are successfully introduced by others, our competitive position and business may suffer.

We make significant investments in developing new products and product enhancements and we may be unable to recoup some or all of these investments. We may incur impairment charges on capitalized technology including prototypes or incur costs related to inventory obsolescence, as a result of technological changes. Such costs may increase as the complexity of technology increases. Due to the highly complex nature and costs of our systems, including newer technologies, our customers may purchase existing technology systems rather than new leading-edge systems, or they may delay their investment in new technology systems to the extent that such investment is not economical or required, given their product cycles.

Global economic conditions affect our customers' investment decisions and lead to uncertainties in the timing around the introduction of and demand for new leading-edge systems. Some of our customers have experienced and may continue to experience delays in implementing their product roadmaps. This increases the risk of slowing down the overall transition period (or cadence) for the introduction of new nodes, and therefore new systems.

We also depend on our suppliers to maintain their development roadmaps to enable us to introduce new technologies in a timely manner. If they are unable to keep pace, whether due to technological factors, lack of financial resources or otherwise, we may not meet our development roadmaps.

The success of new product introductions is uncertain and depends on our ability to successfully execute our R&D programs

Risk category:

Product roadmap execution, Innovation

As our lithography systems and applications have become increasingly complex, the cost and time to develop new products and technologies have increased and we expect this trend to continue. In particular, developing new technology, such as EUV 0.55 NA (High NA) and multibeam, requires significant R&D investments by us and our suppliers.

Our suppliers may not be able or willing to invest the resources necessary to continue the (co-) development of new technologies to the extent that such investments are necessary. This has resulted and may continue to result in ASML contributing funds to such R&D programs or limiting the R&D investments that we can undertake. Furthermore, if our R&D programs are not successful in developing the desired new technology on time or at all, we may be unsuccessful in introducing new products and unable to recoup our R&D investments. In case of high levels of customer demand, we may prioritize our resources toward increasing production over R&D programs.

Risk factors (continued)

1. Strategy and products (continued)

We face intense competition

Risk category:
Competition

The semiconductor equipment industry is highly competitive. Our competitiveness depends on our ability to develop new and enhanced lithography equipment, related applications and services that bring value to our customers and are competitively priced and introduced on a timely basis – as well as our ability to protect and defend our intellectual property, trade secrets or other proprietary information.

We compete primarily with Canon and Nikon in respect of DUV systems. Both Canon and Nikon have substantial financial resources and broad patent portfolios. Each continues to offer products that compete directly with our DUV systems, which may impact our sales or business. In addition, adverse market conditions, long-term overcapacity or a decrease in the value of the Japanese yen in relation to the euro could increase price-based competition, resulting in lower prices and lower sales and margins.

We also face competition from new competitors with substantial financial resources, as well as from competitors driven by the ambition of self-sufficiency in the geopolitical context. Furthermore, we face competition from alternative technological solutions or semiconductor manufacturing processes.

We also compete with providers of applications that support or enhance complex patterning solutions, such as Applied Materials Inc. and KLA-Tencor Corporation. These applications effectively compete with our Applications offering, which is a significant part of our business.

The semiconductor industry can be cyclical and we may be adversely affected by any downturn

Risk category:
Industry cycle risk

The semiconductor industry has historically been cyclical. As a supplier to the global semiconductor industry, we are subject to the industry's business cycles. The timing, duration and volatility are difficult to predict and can have a significant impact on semiconductor manufacturers including ASML. Newer entrants to the industry, including Chinese semiconductor manufacturers, could increase the risk of cyclical in the future. Certain key end-market customers – Logic and Memory – exhibit different levels of cyclical in and different business cycles. Cyclical in may be worsened by the geopolitical situation if countries increase semiconductor capacity for higher levels of self-sufficiency, thereby creating global overcapacity.

Sales of our lithography systems, services and other holistic lithography products depend in large part on the level of capital expenditures by semiconductor manufacturers. These in turn are influenced by industry cycles, the drive for technological sovereignty and a range of competitive and market factors, including semiconductor industry conditions and prospects. The timing and magnitude of capital expenditures of our customers also impact the available production capacity of the industry to produce chips, which can lead to imbalances in the supply and demand of chips. Reductions or delays in capital expenditures by our customers, or incorrect assumptions by us about our customers' capital expenditures, could adversely impact our business.

In addition, industry trends that are positively impacting our business, such as increasing capital expenditures by our customers, may not continue. We have experienced changes in timing of orders from certain customers, and while we currently have significant backlog and therefore such timing changes have not impacted sales, we are subject to uncertainty in future customer demand. The current global economic environment, including inflation and high interest rates, contribute to this uncertainty. Our ability to maintain profitability in an industry downturn will depend substantially on whether we are able to lower our costs to break-even level. If sales decrease significantly as a result of an industry downturn and we are unable to adjust our costs over the same period, and if down payments need to be returned, our net income may decline significantly or we may suffer losses.

As we have significantly increased our organization in terms of employees, infrastructure, manufacturing capacity and other areas, we may not be able to adjust our costs adequately in a timely manner in the event of an industry downturn.

An uncertain global economy frequently leads to reduced consumer and business spending, and could cause our customers to decrease, cancel or delay their orders. High interest rates and volatility in financial markets could make it more difficult for our customers to raise capital, whether debt or equity, to finance their purchases of equipment, including the products we sell. The foregoing could lead to reduced demand, which may adversely affect our product sales and revenues and may harm our business and operating results.

If we are unable to adapt appropriately and in a timely manner to changes resulting from difficult macroeconomic conditions, our business, financial condition or results of operations may be materially and adversely affected.

We derive most of our revenues from the sale of a relatively small number of products

Risk category:
Business model

We derive most of our revenues from the sale of a relatively small number of lithography systems (449 units in 2023 and 345 units in 2022). As a result, the timing of shipments, including any delays, and recognition of system sales for a particular reporting period from a small number of systems, with an increase in sales prices, may have a material adverse effect on our business, financial condition and results of operations in that period. In recent years, we have used fast shipments for some customers, which allows us to deliver systems more quickly to customers by having some final testing and formal acceptance carried out on customer sites instead of at our own facilities. In general, this leads to a delay of revenue recognition for those shipments until formal customer acceptance, which can impact comparability of our results of operations from quarter to quarter.

In addition, we may not be able to increase installed base revenues to the extent we planned, as, for example, customers may perform more of these services themselves, find other third-party suppliers to provide them or we may be limited by national security restrictions.

Risk factors (continued)

1. Strategy and products (continued)

Failure to adequately protect intellectual property could harm our business

Risk category:

Intellectual property rights

We rely on intellectual property (IP) rights such as patents and copyrights to protect our proprietary technology. However, we face the risk that such protective measures could prove inadequate and we could suffer material harm because, among other matters:

- IP laws may not sufficiently support our proprietary rights or may change adversely in the future.
- Our agreements (e.g. confidentiality, licensing) with our customers, employees and technology development partners and others to protect our IP may not be sufficient or may be breached or terminated.
- Patent rights may not be granted or interpreted as we expect;
- Patent rights will expire, which may result in key technology becoming widely available that may harm our competitive position.
- The steps we take to prevent misappropriation or infringement of our proprietary rights may not be successful.
- IP rights and trade secrets are difficult to enforce in countries where the application and enforcement of the laws governing such rights may not have reached the same level compared with other jurisdictions where we operate.
- Third parties may be able to develop or obtain patents for our own or for similar competing technology.

Legal proceedings may be necessary to enforce our IP rights and the validity and scope may be challenged by others. Any such proceedings may result in substantial costs and diversion of management resources, and, if unfavorable decisions are made, could result in significant costs or have a significant impact on our business.

We have experienced and may in the future experience misappropriation attacks by third parties or our employees, including theft of intellectual property. Such incidents may result in third parties or others, without authorization, obtaining, copying, using or disclosing our intellectual property, despite our efforts to protect them.

Defending against intellectual property claims brought by others could harm our business

Risk category:

Intellectual property rights

In the course of our business, we have been and are subject to claims by third parties alleging that our products or processes infringe upon their IP. If successful, such claims could limit or prohibit us from developing our technology, manufacturing and selling our products.

Our customers or suppliers may also be subject to claims of infringement from third parties, including patent holder companies, alleging that our products used by such customers in the manufacturing of semiconductor products and/or the processes relating to the use of our products infringe on one or more patents issued to such third parties. If such claims are successful, we could be required to indemnify our customers for some or all of any losses incurred or damages assessed against them as a result of such infringement.

We may incur substantial licensing or settlement costs to settle claims or to potentially strengthen or expand our IP rights or limit our exposure to IP claims of third parties.

Patent litigation is complex and may extend for a protracted period of time, giving rise to the potential for substantial costs and diverting the attention of key management and technical personnel. Potential adverse outcomes from patent litigation may include payment of significant monetary damages, injunctive relief prohibiting our manufacturing, exporting or selling of products, reputational damage and/or settlement involving significant costs to be paid by us.

Risk factors (continued)

1. Strategy and products (continued)

We are exposed to economic, geopolitical and other developments in our international operations

Risk category:
Geopolitical

Geopolitical tensions may result in export control restrictions, trade sanctions, tariffs and more generally international trade regulations which may impact our ability to deliver our systems, technology, and services. Our ability to deliver technology in certain countries such as China has been and continues to be impacted by our ability to obtain required licenses and approvals. Our business involves the sale of systems and services to customers in a number of countries, including China, and includes technologies that may be the subject of increased export regulations or policies. We are required under Dutch regulations and other applicable legislation to obtain licenses for the export of certain technologies. In some cases, such licenses have not been granted or renewed. For example, at the end of 2023, the Dutch government partially revoked a license for shipment of NXT:2050i and NXT:2100i systems, impacting a small number of customers in China. Following recent changes in the Dutch regulations, advanced DUV-immersion is also now subject to license requirement. The US government has enacted trade measures, including national security regulations and restrictions on conducting business with certain Chinese entities, restricting our ability to provide certain products and services to such entities without a license. The list of Chinese entities impacted by export control restrictions has increased since 2022, with the recently updated additional export controls on semiconductor manufacturing items imposing license requirements on the sale / transfer of US origin items as well as on the support by US persons on non-US origin items destined for certain fabs in China working on advanced node ICs. The list of restricted customers and the scope of the restrictions are subject to change. These and further developments in multilateral and bilateral treaties, national regulation, and trade, national security and investment policies and practices have affected and may further affect our business, and the businesses of our suppliers and customers. For example, the ability to obtain US licenses to authorize employees

with foreign nationalities to work in programs that include controlled US items has been reduced over the last couple of years. Such developments, including the drive for technological sovereignty, could also lead to long-term changes in global trade, competition and technology supply chains, which could adversely affect our business and growth prospects. Customers in China represented 26.3% of our 2023 total net sales. The semiconductor industry makes use of (raw) materials that are controlled by certain countries. In the current geopolitical context, we see an increasing risk exposure that these materials may become unavailable or restricted, which could impact our suppliers, our customers and ASML. Interstate conflicts and/or nationalization of ASML assets can also impact our business. For example, some of our facilities and supply chain and customers are located in Taiwan. Customers in Taiwan represented 29.3% of our 2023 total net sales and 38.2% of our 2022 total net sales. Taiwan has a unique international political status. Changes in relations between Taiwan and China, Taiwanese government policies and other factors affecting Taiwan's political, economic or social environment could, for example, impact our ability to service our customers in Taiwan. Furthermore, certain of our facilities as well as our supply chain and customers are located in South Korea. Customers in South Korea represented 25.2% of our 2023 total net sales and 28.6% of our 2022 total net sales. In addition, there are tensions with the Democratic People's Republic of Korea (North Korea). A worsening of relations between those countries or the outbreak of war on the Korean Peninsula could impact our ability to service customers. A small percentage of our suppliers and customers as well as our customer support organization is based in Israel. There are tensions in this region that have resulted and may continue to result in violence and/or the outbreak of war that could impact our business.

We may be unable to make desirable acquisitions or to integrate successfully any businesses we acquire

Risk category:
Mergers and acquisitions

From time to time, we may acquire businesses or technologies to complement, enhance or expand our current business or products or that might offer us growth opportunities. Any such acquisitions could lead to failure to achieve our financial or strategic objectives or our ability to perform as we plan or disrupt our ongoing business and adversely impact our results of operations. Our ability to complete such transactions may be hindered by a number of factors, including potential difficulties in obtaining government approvals, for example, anti-trust and/or inbound and outbound foreign direct investment approval processes.

Any acquisition could pose risks related to the integration of the new business or technology with our existing business and organization. We may not be able to achieve the benefits we expect from an acquisition investment. Such transactions may also strain our managerial and operational resources and the challenge of managing new operations may divert our management from day-to-day operations. Furthermore, we may be unable to retain key personnel from acquired businesses or we may have difficulty integrating employees, business systems and technology. The controls, processes and procedures of acquired businesses may also not adequately ensure compliance with laws and regulations, and we may fail to identify compliance issues or liabilities.

In connection with acquisitions, antitrust and national security regulators have and may in the future impose conditions, including requirements to divest assets or other conditions that could make it difficult for us to integrate the businesses that we acquire. Furthermore, we may have difficulty in obtaining, or be unable to obtain, antitrust and national security clearances, which could inhibit future desired acquisitions.

As a result of acquisitions, we have recorded a significant amount of goodwill and intangible assets. Accounting standards require periodic review of these assets for indicators of impairment. If one or more indicators of impairment are found to exist, then valuation of the related asset could change and may incur impairment charges.

Risk factors (continued)

1. Strategy and products (continued)

We may not be able to achieve our ESG objectives or adapt and respond timely to emerging ESG expectations and regulations

Risk category:

Climate change, Product stewardship

Companies across all industries are facing increasing scrutiny of their ESG policies and practices. Investors, capital providers, shareholder advocacy groups, market participants, customers and other stakeholders are increasingly focused on ESG practices and ESG matters. In particular, within the semiconductor industry, there is a focus on contribution to society and minimizing environmental and social impacts of products throughout all life-cycle stages. Failure to achieve our ESG objectives, meet the emerging ESG expectations of our stakeholders and/or respond in a timely way to enhanced regulations, reporting and disclosure obligations could negatively affect our brand and reputation and impede our ability to recruit or retain employees, which may adversely affect our operations.

Climate change contributes to increasing severity and frequency of extreme weather events, rising sea levels and droughts that can impact continuity of our operations and/or our supply chain. Climate change concerns and the potential environmental impact of climate change have and may result in new laws and regulations that affect us, our suppliers and our customers. Such laws or regulations could cause us to incur additional direct costs for compliance, as well as increased indirect costs resulting from our value chain. Furthermore, the ability to improve our product-related environmental performance (such as energy efficiency) may be affected by the complexity of our technology and products. In order to meet our ESG goals and requirements, we are dependent on our suppliers and their ability to reduce their ecological footprints. In addition, we are dependent on our customers and/or our customers may not be satisfied with our progress, which can impact demand.

A global trend to transition to a lower-carbon economy has resulted in increased regulations that could lead to technology restrictions, modification of product designs, an increase in energy prices and energy or carbon taxes, restrictions on pollution, remediation measures, or other requirements that could impact our business and increase our costs. A variety of regulatory developments have been introduced that focus on restricting or managing carbon and GHG emissions. This could result in a need to redesign products and/or purchase at higher costs new equipment or materials with lower carbon footprints. We publish disclosures on ESG matters relating to our business and our partners as required by applicable regulations and guidance and other data which may not be required but which we nonetheless elect to disclose.

Such disclosures include statements based on our ESG goals, expectations and assumptions, including forecasts about costs and future circumstances, which may prove to be incorrect. In addition, our ESG sustainability strategy may not deliver the intended results, and our estimates concerning feasibility, timing and cost of meeting stated goals are subject to risks and uncertainties. This could result in us not meeting our goals on expected timing or at all. ESG disclosure requirements are increasing and authorities have proposed disclosure requirements on ESG matters which differ from the requirements that we are currently subject to. We face risks in complying with such regulations, including the risk of complying with requirements in different jurisdictions, costs associated with such compliance and potential liability in the event that our ESG disclosures prove incorrect.

Risk factors (continued)

2. Finance and reporting

We are exposed to financial risks including liquidity risk, interest rate risk, credit risk, foreign exchange risk and inflation

Risk category:

Financial

As a global company, we are exposed to a variety of financial risks, including those related to liquidity, interest rates, credit, foreign exchange and inflation.

Liquidity risk

Negative developments in our business or global capital markets could affect our ability to meet our financial obligations or to raise or refinance debt in the capital or loan markets. In addition, we might be unable to repatriate cash from a country when needed for use elsewhere due to legal restrictions or required formalities.

Interest rate risk

Our Eurobonds bear interest at fixed rates. Our cash, investments and credit facilities bear interest at a floating rate. Failure to effectively hedge this risk could impact our financial condition and results of operation. In addition, we could experience an increase in borrowing costs due to a ratings downgrade (or the expectation of a downgrade), developments in capital and lending markets or developments in our businesses.

Counterparty credit risk

We are exposed to credit risk, particularly with respect to financial counterparties with whom we hold our cash and investments as well as our customers. As a result of our limited number of customers, credit risk on our receivables is concentrated. Our three largest customers (based on total net sales) accounted for €3,718.8 million, or 64.4% of accounts receivable and finance receivables at December 31, 2023 compared with €5,252.8 million, or 78.6%, at December 31, 2022. Accordingly, business failure or insolvency of one of our main customers could result in significant credit losses.

Currency risk

Our Financial Statements are expressed in euros. Accordingly, our results of operations are exposed to fluctuations in exchange rates between the euro and other currencies. Changes in currency exchange rates can result in losses in our Financial Statements. We are particularly exposed to fluctuations in the exchange rates between the US dollar and the euro, and to a lesser extent to the Japanese yen, the South Korean won, the Taiwanese dollar and the Chinese yuan, in relation to the euro. We incur costs of sales predominantly in euros, with portions also denominated in US and Taiwanese dollars. A small portion of our operating results are driven by movements in currencies other than the euro, US dollar, Japanese yen, South Korean won, Taiwanese dollar or Chinese yuan.

Inflation risk

We are exposed to increases in costs due to inflation for costs of goods, transportation and wages, which may impact our profitability. We are experiencing higher-than-normal inflation, which impacts our costs and margins to the extent that we are not able to pass on increased costs in our prices.

Risk factors (continued)

3. Partners

Our success is highly dependent on the performance of a limited number of critical suppliers of single-source key components

Risk category:

Supply chain disruption, Supplier strategy and performance

We rely on outside vendors for components and subassemblies used in our systems, including the design thereof. These components and subassemblies are obtained from a single supplier or a limited number of suppliers. As our business has grown, our dependence on single suppliers or a limited number of suppliers has grown. The highly specialized nature of many of our components, particularly for EUV systems, means it is not economical to source from more than one supplier. In many cases, our sourcing strategy prescribes 'single sourcing, dual competence'. Our reliance on a limited group of suppliers involves several risks, including a potential inability to obtain an adequate supply of required components or subassemblies in time and at acceptable costs, and reduced control over pricing and quality. Delays in supply of these components and subassemblies could occur due to disruptions experienced by our suppliers for reasons including work stoppages, fire, energy shortages, pandemic outbreaks, flooding, cyberattacks, blockades, sabotage or other disasters, natural or otherwise. This could lead to delays in delivery of our products, which could impact our business. For example, certain of our suppliers experienced disruptions in their operations as a result of material shortages and cyberattacks. Consistent delays or prolonged inability to obtain adequate deliveries of components or subassemblies, or any other circumstance that requires us to seek alternative sources of supply, could significantly hinder our ability to deliver our products in a timely manner. This could damage relationships with our customers and materially impact our business.

The number of lithography systems we are able to produce is limited by the production capacity of one of our key suppliers, Carl Zeiss SMT, is our sole supplier of lenses, mirrors, illuminators, collectors and other critical optical components (which we refer to as optics). We have an exclusive arrangement with Carl Zeiss SMT. If this supplier became unable to maintain and increase production levels, we could be unable to fulfill orders. This could have a material impact on our business and damage relationships with our customers. Furthermore, if Carl Zeiss SMT were to terminate its supply relationship with us or be unable to maintain production of optics over a prolonged period, we would effectively cease to be able to conduct our business.

From time to time, we experience supply constraints which can impact our production. In 2023, we were impacted by delays and shortages in our supply chain, resulting in a late start on the assembly of a number of systems. We and our suppliers are investing in additional capacity to meet the demand. However, increasing capacity takes time, and we may be unable to meet the full demand of our customers for a few years. Further, we face the risk that demand may decrease, which could result in overcapacity and loss of investment in increasing capacity. In addition, most of our key suppliers, including Carl Zeiss SMT, have a limited number of manufacturing facilities, the disruption of which may significantly and adversely affect our production capacity.

Lead times in obtaining components have increased as our products have become more complex. A failure by us to adequately predict demand for our systems, or any delays in the shipment of components, can result in insufficient supply of components. This could lead to delays in delivery of our systems and could limit our ability to react quickly to changing market conditions. Conversely, a failure to predict demand could lead to excess and obsolete inventory.

We are also dependent on suppliers to develop new models and products to meet our development roadmaps. If our suppliers do not meet our requirements or timetable in product development, our business could suffer.

Risk factors (continued)

3. Partners (continued)**A high percentage of net sales is derived from a few customers**

Risk category:

Customer dependency

Historically, we have sold a substantial number of lithography systems to a limited number of customers. Customer concentration can increase because of continuing consolidation in the semiconductor manufacturing industry. In addition, although the applications part of our holistic lithography solutions constitutes an increasing portion of our revenue, a significant portion of those customers are the same customers as those for our systems. Consequently, while the identity of our largest customers may vary from year to year, sales may remain concentrated among relatively few customers in any particular year.

The recognized total net sales to our largest customer amounted to €8,772.9 million, or 31.8% of total net sales in 2023, compared with 7,046.9 million, or 33.3% of total net sales in 2022. In 2023, 53.9% of total net sales were made to two customers. The loss of any significant customer or any significant reduction or delay in orders by such a customer may have a material adverse effect on our business, financial condition and results of operations.

4. People**Our business and future success depend on our ability to manage the growth of our organization and attract and retain a sufficient number of adequately educated and skilled employees**

Risk category:

Human resources, Knowledge management, Organizational effectiveness

Our business success depends significantly on our ability to attract and retain employees, including a large number of highly qualified professionals. Competition for talent is intense and has intensified in recent years. Continuing to attract sufficient numbers of qualified employees to meet our growing needs will remain a challenge. Our business has grown significantly and the risk of not being able to attract, onboard and retain qualified personnel increases as our business grows.

Our R&D programs require a large number of qualified employees. If we are unable to attract sufficient numbers of such employees, this could affect our ability to conduct R&D on a timely basis. The loss of key employees for unexpected reasons such as resignation or long-term illness is also a risk.

As a result of the uniqueness and complexity of our technology, qualified engineers capable of working on our systems are scarce and generally not available from other industries or companies. We invest a significant amount in educating and training our employees to work on our systems and their retention is a critical success factor for us.

The increasing complexity of our products results in a longer learning curve for new and existing employees and suppliers. Our suppliers face similar risks in attracting and retaining qualified employees, including those in connection with programs that will support our R&D programs and technology developments. If our suppliers are unable to attract and retain qualified employees, this could impact our R&D programs or delivery of components to us.

Our organization has grown significantly in recent years. We may be unable to effectively manage, monitor and control our employees, facilities, operations and other resources. Our rapid growth driven by strong customer demand has put pressure on our organization and employee well-being. This may negatively impact the efficiency of our operations, our ability to comply with laws and regulations and our reputation as an employer.

Risk factors (continued)

5. Operations

We may face challenges in managing the industrialization of our products and bringing them to high-volume production

Risk category:

Product industrialization

Bringing our products to high-volume production at a value-based price and in a cost-effective manner depends on our ability to manage the industrialization of our products and to manage costs. Customer adoption of our products depends on the performance of our products in the field. As our products become more complex, we face an increasing risk that products may not meet development milestones or specifications and may not perform according to specifications, including quality standards. If our products do not perform according to specifications and performance criteria, or if quality or performance issues arise, this may result in additional costs and reduced demand for our products. Our customers may not be able to meet planned wafer capacity.

Transitioning newly developed products to full-scale production requires the expansion of infrastructure, including enhancing manufacturing capabilities, increasing the supply of components and training qualified personnel. It may also require our suppliers to expand their infrastructure capabilities. If we or our suppliers are unable to expand infrastructure as necessary, we may be unable to introduce new technologies, products or product enhancements, or to reach high-volume production of newly developed products on a timely basis or at all.

When we are successful in industrializing new products, it can take years to reach profitable margins. New technologies might not have the same margins as existing technologies, and we might not be able to adjust value-based pricing and/or cost in an effective manner. In addition, the introduction of new technologies, products or product enhancements also impacts ASML's liquidity. New products may have higher cycle times, resulting in increased working capital needs. As our products become more complex, the investments needed before new product introduction and the timing of revenue recognition of these products may have a significant negative effect on our cost structure and margins.

The capability, capacity and costs associated with providing the required customer support to cover the increasing number of shipments and service a growing number of EUV systems that are operational in the field could affect the timing of shipments. It could also impact the efficient execution of maintenance, servicing and upgrades, which are key to our systems continuing to achieve the required productivity.

We are dependent on the continued operation of a limited number of manufacturing facilities

Risk category:

Continuity of own operation

All of our manufacturing activities, including subassembly, final assembly and system testing, take place in (cleanroom) facilities in Veldhoven, Oirschot (the Netherlands), Berlin (Germany), Wilton, San Diego (US), Pyeongtaek (South Korea), and Linkou and Tainan (Taiwan). These facilities may be subject to disruption for reasons including work stoppages, fire, energy shortages, pandemic outbreaks, flooding, cyberattacks, blockages, sabotage or other disasters, natural or otherwise. We cannot be sure that alternative production capacity would be available if a major disruption were to occur.

We are not able to fully insure our risk exposure and not all disasters are insurable. As a result, we may be subject to the financial impact of uninsured losses, which could have an adverse impact on our financial condition and results of operations.

Risk factors (continued)

5. Operations (continued)

We face challenges to meet demand

Risk category:

Manufacturing and install, Human resources, Supplier strategy and performance

In recent years, we have experienced significant demand across all our market segments and product portfolio. This high level of demand brings challenges. We have and are continuing to increase production capacity in our end-to-end supply chain to meet demand, but we face challenges in increasing capacity. For example, we depend on our suppliers increasing their capacity and their ability to invest, and it takes time to build the production space and equipment required for expansion. We and our supply chain also need to obtain permits to make expansion possible, and the time it takes for these to be granted may cause delays.

It is a challenge for ASML and its suppliers to hire and retain employees to support expansion. Our processes and systems and that of our supply chain may also not be able to adequately support our growth. If we are not successful in increasing our capacity to meet demand, this could impact our relationships with customers and our competitive position. The increased demand and resultant supply constraints that we are continuing to experience lead to longer lead times for customers. This could result in customers changing their sourcing strategy to become less dependent on ASML, impacting our market share in certain product offerings.

Our operations expose us to health, safety and environment risks

Risk category:

Environment, health and safety

Hazardous substances are used in the production and operation of our products and systems. Their use subjects us to a variety of governmental regulations relating to environmental protection and employee and product health and safety. This includes the transport, use, storage, discharge, handling, emission, generation, and disposal of toxic or other hazardous substances. In addition, operating our systems (which use lasers and other potentially hazardous systems) can be dangerous and can result in injury. Failure to comply with regulations could result in harm to people and environment. Substantial fines could be imposed on us, as well as suspension of production, alteration of our manufacturing and assembly and test processes, damage to our reputation and/or restrictions on our operations or sale or other adverse consequences.

Additionally, our products have become increasingly complex. This requires us to invest in ongoing risk assessments and development of appropriate preventative and protective measures for health and safety for both our employees (in connection with the production and installation of our systems and field options and performance of our services) and our customers' employees (in connection with the operation of our systems). Our health and safety practices may not be effective in mitigating all health and safety risks. Failure to comply with applicable regulations, or the failure of our implemented practices for customer and employee health and safety, could subject us to significant liabilities.

Risk factors (continued)

5. Operations (continued)

Cybersecurity and other security incidents, or disruptions in our processes or information technology systems, could materially adversely affect our business operations

Risk category:

Security, Information technology, Process effectiveness and efficiency

We rely on the accuracy, availability and security of our information technology (IT) systems. Despite the measures that we have implemented, including those related to cybersecurity, our systems could be breached or damaged by malware and systems attacks, natural or man-made incidents, disasters or unauthorized physical or electronic access. We have experienced some of these incidents in the past.

We are experiencing an increasing number of cyberattacks on our IT systems as well as the IT systems of our suppliers, customers and other service providers, whose systems we do not control. These attacks include malicious software (malware), attempts and acts to gain unauthorized access to data, and other electronic and physical security breaches of our IT systems. They also include the IT systems of our suppliers, customers and other service providers that have led and could lead to disruptions in critical systems, unauthorized release, misappropriation, corruption, or loss of data or confidential information (including confidential information relating to our customers, employees and suppliers).

Further, we depend on our employees and the employees of our suppliers to appropriately handle confidential and sensitive data and deploy our IT resources in a safe and secure manner that does not expose our network systems to security breaches or the loss of data. Inadvertent disclosure, actions or malfeasance by our employees, those of our suppliers or other third parties have resulted and may in the future result in a loss or misappropriation of data or a breach or interruption of our IT systems. This could result in competitive harm and violate export controls and other laws and regulations which could result in fines and penalties, business disruption, reputational harm and additional regulatory scrutiny or export control measures.

Any system failure, accident or security breach could result in business disruption, theft of our intellectual property or trade secrets, unauthorized access to, or disclosure of, customer, personnel, supplier or other confidential information, corruption of our data or of our systems, reputational damage or litigation and violation of applicable laws.

Furthermore, malware may harm our systems and software and could be inadvertently transmitted to our customers' systems and operations. This could result in loss of customers, litigation, regulatory investigation and proceedings that could expose us to civil or criminal liabilities and diversion of significant management attention and resources to remedy the damages that result. We may also incur significant costs to protect against or repair the damage caused by these disruptions or security breaches, including, for example, rebuilding internal systems, implementing additional threat protection measures, providing modifications to our products and services, defending against litigation, responding to regulatory inquiries or actions, paying damages, or taking other remedial steps with respect to third parties. Further, remediation efforts may not be successful and could result in interruptions, delays or cessation of service, unfavorable publicity, damage to our reputation, customer allegations of breach-of-contract, possible litigation and loss of existing or potential customers that may impede our sales or other critical functions.

Cybersecurity threats are constantly evolving. We remain potentially vulnerable to additional known or as yet unknown threats, as in some instances, we and our customers, partners and suppliers may be unaware of an incident or its magnitude and effects.

We also face the risk that we could unintentionally expose our customers to cybersecurity attacks through the systems we deliver to them, including in the form of malware or other types of attacks, which could harm our customers.

Overall, cybersecurity incidents have not had a material impact on our results of operations. However, ASML's visibility and importance for the semiconductor industry continues to increase. There is a risk that this may lead to actions that may adversely impact the security of ASML or the safety of its employees.

In addition, processes and systems may not be able to adequately support the growth that we have experienced in recent years and continue to experience. From time to time, we implement updates to our IT systems and software which can disrupt or shut down our IT systems. We may not be able to successfully launch and integrate IT systems as planned without disruption to our operations.

[Read more in How we manage risk and ESG integrated governance](#)

Risk factors (continued)

6. Legal and compliance

We are subject to regulatory and compliance obligations in the various countries where we operate and as our business grows ensuring compliance becomes more challenging

Risk category:

Violation of laws and regulations

We are subject to a variety of laws and regulations across the jurisdictions where we operate, including those relating to trade, national security, tax, export controls, reporting, product compliance, anti-corruption, antitrust, ESG, human rights, data protection, spatial planning and environmental matters. With the significant growth of our business in recent years, including an increase in our sales, operations, workforce and infrastructure, ensuring compliance with laws and regulations and our internal policies across our continually expanding organization has become more challenging. We face the risk that, despite our significant efforts and proactive approach to compliance, we may fail to comply with such laws, regulations or policies.

As a result of our expanding international operations, we operate in a significant and growing number of countries in the world, and we are therefore subject to numerous and differing, and sometimes competing, regulatory frameworks, which can impact how we operate our business. In particular, the trade and national security regulatory environment has become increasingly restrictive, and as a result, our ability to sell some of our products and services to certain customers has been subject to restrictions, delays in shipments due to a requirement to obtain permits, and a prohibition on shipments of products to certain customers.

Laws and regulations that impact our business are regularly amended and we are subject to new laws and regulations, including in response to changing global geopolitical dynamics. We are also subject to the changing interpretations and positioning of regulators, including in the granting of required licenses to ship products as well as in investigations and enforcement. Additional or amended regulations or changes in policies of governments and regulators could increase compliance costs and risks associated with non-compliance or further limit our ability to sell our products and services in certain jurisdictions.

We are subject to investigations, audits and reviews by regulatory authorities in the various jurisdictions where we operate regarding compliance with laws and regulations, including tax laws. These may arise due to misunderstandings, disputes, or suspicions of non-compliance or otherwise, and can be resource-intensive and have reputational and financial implications for us. Despite our efforts and proactive compliance program, we may be found to be non-compliant with applicable regulations.

Compliance with existing and new regulations can result in compliance costs, increased risk of non-compliance and limitations on our business which can impact our results of operations. The consequences of non-compliance include fines, penalties and litigation, as well as business disruption, the loss of trade or export privileges, reputational harm, additional regulatory scrutiny measures and the erosion of stakeholder trust, which could have a material adverse impact on our business and results of operations.

Changes in taxation could affect our future profitability

Risk category:

Tax and customs

We are subject to income taxes in the Netherlands and other countries in which we are active. Our effective tax rate has fluctuated in the past and may fluctuate in the future.

Changes in our business environment can affect our effective tax rate. The same applies to changes in tax legislation in the countries where we operate, together with developments driven by global organizations such as the Organization for Economic Co-operation and Development (OECD), as well as any change in approach to tax by tax authorities. These initiatives have already resulted in and may result in further increased compliance obligations for ASML. Additionally, this may result in an increase in our effective tax rate in future years.

Changes in tax legislation may adversely impact our tax position and consequently our net income. Our worldwide effective tax rate is heavily impacted by R&D incentives included in tax laws and regulations in the countries where we operate. Examples include the so-called innovation box in the Netherlands and the R&D credits we obtain in the US. If jurisdictions alter their tax policies/laws in this respect, it may have an adverse effect on our worldwide effective tax rate. In addition, jurisdictions levy corporate income tax at different rates. The mix of our sales over the various jurisdictions in which we operate may vary from year to year, resulting in a different mix of corporate income tax rates applicable to our profits. This can also affect our worldwide effective tax rate and impact our net income.

Risk factors (continued)

7. Other risk factors

Restrictions on shareholder rights may dilute voting power

ASML's Articles of Association provide that it is subject to the provisions of Dutch law applicable to large corporations, called 'structuurregime'. These provisions concentrate control of certain corporate decisions and transactions in the hands of the Supervisory Board. As a result, holders of ordinary shares may have more difficulty in protecting their interests in the face of actions by members of the Supervisory Board than if we were not subject to the 'structuurregime'.

Our authorized share capital includes a class of cumulative preference shares. We have granted our preference shares foundation (Stichting Preferente Aandelen ASML), an option to acquire, at the nominal value of €0.09 per share, such cumulative preference shares. Exercise of the preference share option would effectively dilute the voting power of our outstanding ordinary shares by one-half, which may discourage or significantly impede a third party from acquiring a majority of our voting shares.

We may not declare cash dividends, conduct share buyback programs or cancel shares at all or in any particular amounts in any given year

We aim to pay a quarterly dividend that is growing (on an annualized basis) over time, and we conduct share buybacks from time to time. The dividend proposal, amount of share buybacks and cancellation of shares in any given year is subject to the availability of distributable profits, retained earnings and cash. It may also be affected by, among other factors, the Board of Management's views on our potential future liquidity requirements, including for investments in production capacity and working capital requirements, the funding of our R&D programs and for acquisition opportunities that may arise from time to time, and by future changes in applicable tax and corporate laws (for example plans of the Dutch government to tax share buy backs).

The Board of Management may decide not to pay a dividend or to pay a lower dividend and may suspend, adjust the amount of or discontinue share buyback programs, or we may otherwise fail to complete buyback programs.

Developing our competitive advantage

In conversation with our Executive Vice President and Chief Business Officer **Christophe D. Fouquet** on his responsibility for the ESG sustainability strategy

Q Why is ESG sustainability such an important topic for ASML?

Christophe: ESG sustainability is a key challenge for all companies because it is a challenge for the world in general. In our personal lives as well as our working lives, everybody is increasingly aware of how our actions impact the world beyond our immediate horizons. Almost everything we do at ASML – from how we design and deliver solutions to the technologies our products enable for the end users of technology – can affect the environment or society.

Where I think ASML is different to other companies lies in how we are working to manage that impact. Our ESG sustainability strategy is now established and driving progress toward more inclusive and sustainable growth for all. As Chief Business Officer, I'm responsible for this strategy at Board level, and I work closely with the total organization to make sure it delivers on its promises.

Our core belief is that ESG sustainability is not a fluffy nice-to-have attribute or something you do with reluctance because of regulation. For us, ESG sustainability is a real competitive advantage and we embrace it wholeheartedly. It powers our innovation mindset because it underpins diversity and inclusion, and it forms the structure against which we can measure our impact on the world.

Q What are the main aims of the ESG sustainability strategy?

Christophe: We provide comprehensive details on how we aim to deliver on our ESG sustainability commitments, as on page 70, but its main objectives can be broken down into the three E, S and G areas. Regarding the Environment, we are working to reduce the environmental footprint of our operations and supply chain as well as the environmental impacts of our products and services. In the Social arena, we aim to have positive impact by providing an attractive workplace, ensuring a responsible supply chain, supporting an innovation ecosystem and being a valued partner in our communities. And looking at Governance, we take an integrated, responsible approach that considers the needs of all our stakeholders.

Q Where are ASML's greatest ESG challenges?

Christophe: Our environmental commitment is clear and unequivocal: We expect to meet our target of net zero scope 1 and 2 emissions by 2025. We have also committed to achieving net zero emissions in our supply chain by 2030, and with our customers by 2040. The question is no longer about where we want to get to, but how fast we can get there. Is it possible to do more and go even faster? That is an area where our teams are working hard internally, on our own emissions, and also with our suppliers and customers.



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For us, ESG sustainability is a real competitive advantage and we embrace it wholeheartedly.”

Christophe D. Fouquet

Executive Vice President and Chief Business Officer

On November 30, 2023, the Supervisory Board of ASML announced its intention to appoint Christophe Fouquet, currently ASML's Chief Business Officer and member of the Board of Management, as the company's next President and Chief Executive Officer. The appointment is subject to notification of the Annual General Meeting of shareholders on April 24, 2024.

Developing our competitive advantage (continued)

In conversation with our Executive Vice President and Chief Business Officer

Christophe D. Fouquet on his responsibility for the ESG sustainability strategy

Diversity is a true strength of ours as well as one of the key challenges we are addressing through the social element of the strategy. Our success springs from innovation and teamwork delivered by very effective, high-performing people. We believe that it is vital to have people who look at things differently – who come from different backgrounds, cultures and experiences. Although 144 different countries are represented in our workforce, there is an opportunity to be even more diverse. But we can only hire a diverse set of employees if education systems across the world provide them. When only around 25% of STEM

students are women, it is difficult to have a higher percentage in the business. This is why we engage so deeply with educational institutions – not only high schools and universities but also primary schools – because we need to show young children that a career in science and technology is a good and realistic option.

From a governance perspective, transparency and responsibility around our governance capability are non-negotiable. We are fully committed to complying with laws and regulations and are focused on internalizing upcoming legislation, such as

the Corporate Sustainability Reporting Directive (CSRD), which is phased in from the start of 2024 and raises the bar on ESG matters. But it is important to emphasize that we see ESG as far more than a compliance topic – we regard it as the right thing to do to secure the long-term success of our company. Our ESG sustainability activities are right for the people who work for us, right for everyone in our ecosystem and right for everybody on the planet.

Q Does the semiconductor industry have a positive or negative influence on the environment?

Christophe: I think our industry is on the positive side of the equation, because the benefits of the technologies, products and services we enable far outweigh the negatives.

Of course, you can't ignore the fact that double-digit growth for many years has led to an increase in the semiconductor industry's environmental footprint. Energy consumption by fabs and server farms is significant, and this adds to the energy used by the everyday electronics we all depend on. So at first glance our industry has a negative impact on the environment. On the other hand, semiconductors are essential to many of the technologies that aim to reduce energy consumption and emissions, such as electrification, smart grids and the whole energy transition. For example, smart grids

cannot exist without microprocessor-based measurement, control and switching.

As an industry leader, we're keen to share our expertise and use our influence to persuade our peers and our ecosystem to focus on sustainability. We were one of the founding members of the Semiconductor Climate Consortium (SCC) of the industry body SEMI, and we take part in many conferences every year. We also regularly engage with our customers, suppliers and others to identify ways to further reduce the industry's emissions. We not only talk with our suppliers about how they can do this, but also walk alongside them and give them realistic incentives to improve their environmental performance. For customers, ASML's EUV systems already use 30-40% less energy per wafer pass than they did five years ago, and we plan to improve this by another 30-35% by 2025.

Q How important are ASML's people to the company's success?

Christophe: Our vision is to enable ground-breaking technology to solve some of humanity's toughest challenges. We empower our people to deliver that vision by ensuring they are proud to work with us and engaged with our ambitions.

One of the reasons why talented individuals choose to work at ASML is because they want to make a positive contribution to the world. They want more than a career – they

want to help develop solutions that will ultimately transform everything from healthcare and transport to how humanity combats climate change.

We help them achieve those broad aims in many different ways. For example, we are ramping up our Community Partnership Program and aim to spend €2,500 per employee per year by 2025 on community projects that support education, inclusivity and ESG innovation as well as very practical initiatives that address local needs, such as the lack of housing in the Veldhoven area, close to our headquarters. Our teams worldwide are similarly energized in identifying opportunities where we can make a difference.

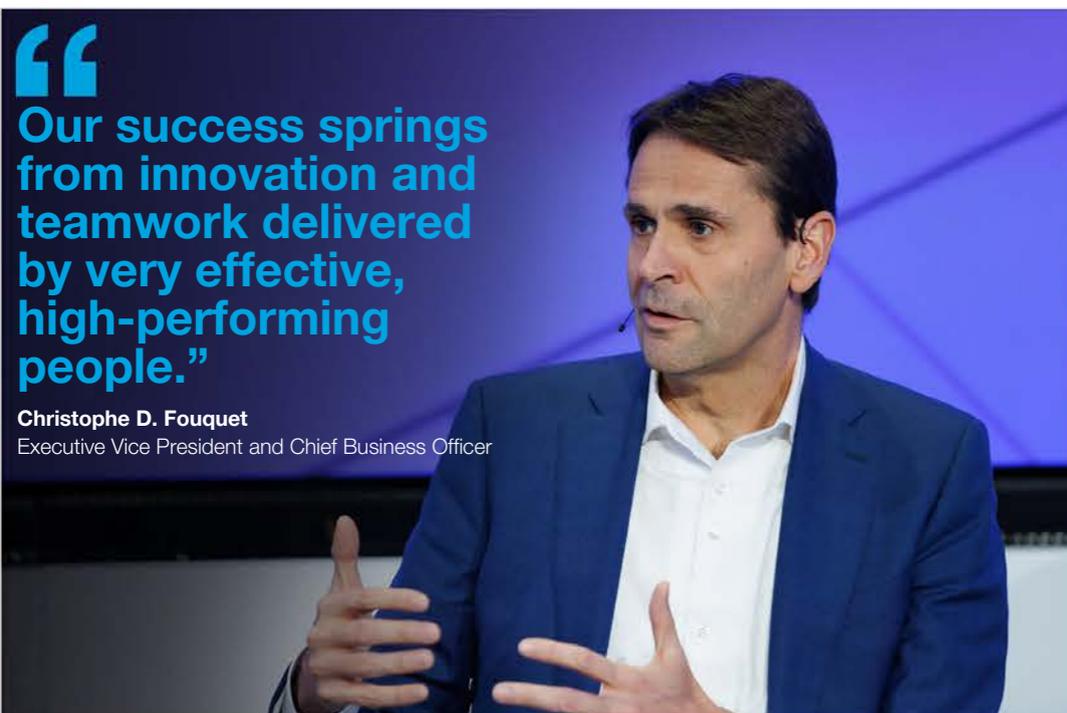
Q How would you sum up ASML's commitment to ESG sustainability?

Christophe: ASML has a big responsibility to lead the way on ESG sustainability. Not long ago, we were the biggest company that nobody had ever heard of. That's very different now, and with increased profile comes increased responsibility. People look up to us – so, by becoming role models on issues such as reducing our environmental footprint or increasing our diversity and inclusivity, we can inspire others to make good progress themselves.



Our success springs from innovation and teamwork delivered by very effective, high-performing people.”

Christophe D. Fouquet
Executive Vice President and Chief Business Officer



ESG at a glance

To be a sustainability leader, we must drive progress toward a sustainable society. This means enabling ground-breaking technology that solves some of humanity’s toughest challenges.

Our contribution to a digital, sustainable future

Increasing digitalization can pave the way to a society that is more environmentally and socially sustainable for everyone. The large-scale digitalization that is required to achieve a sustainable future relies on the semiconductor industry’s ability to produce faster, more powerful microchips that are energy-efficient and affordable. Together with our partners, we provide the patterning solutions that can help make this possible. The benefits our industry brings come at a cost, including energy and resource use. We are committed to innovating and investing to enable our company and the industry as a whole to reduce these and other negative impacts.

Our vision is to enable ground-breaking technology that solves some of humanity’s toughest challenges

Our core strategy

1 **Grow our holistic lithography business** > 2 **Secure unique supply chain capabilities to ensure business continuity** > 3 **Move toward adjacent business opportunities** > 4 **Deliver on our ESG sustainability commitments**

	Environmental	Social	Governance										
Our commitments	<p>Read more on page 75 ></p> <p>We want to help drive expanding computing power while minimizing waste, energy use and emissions. Our focus on energy efficiency and climate action, and the circular economy, is fundamental to achieving this goal.</p>	<p>Read more on page 104 ></p> <p>We also want to deliver responsible growth that benefits all our stakeholders – to provide an attractive workplace for all, build a responsible supply chain, fuel innovation in our ecosystem and be a valued partner to communities.</p>	<p>Read more on page 155 ></p> <p>As a foundation, we commit to act on our responsibilities and anchor them across our entire business through integrated governance, engaged stakeholders and transparent reporting.</p>										
Our key themes	<table border="1"> <tr> <td>Energy efficiency and climate action page 76 ></td> <td>Circular economy page 91 ></td> </tr> </table>	Energy efficiency and climate action page 76 >	Circular economy page 91 >	<table border="1"> <tr> <td>Attractive workplace for all page 107 ></td> <td>Responsible supply chain page 126 ></td> </tr> <tr> <td>Innovation ecosystem page 137 ></td> <td>Valued partner in our communities page 146 ></td> </tr> </table>	Attractive workplace for all page 107 >	Responsible supply chain page 126 >	Innovation ecosystem page 137 >	Valued partner in our communities page 146 >	<table border="1"> <tr> <td>ESG integrated governance page 156 ></td> <td>Engaged stakeholders page 37 ></td> </tr> <tr> <td>Transparent reporting page 174 ></td> <td></td> </tr> </table>	ESG integrated governance page 156 >	Engaged stakeholders page 37 >	Transparent reporting page 174 >	
Energy efficiency and climate action page 76 >	Circular economy page 91 >												
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Transparent reporting page 174 >													



Our ESG sustainability strategy is underpinned by targets which are detailed across the following pages

Our material ESG sustainability topics

To create long-term value for our stakeholders, we focus our strategy on the sustainability topics where we can have the greatest impact.

Why it matters

Environmental, social and governance (ESG) topics have become increasingly important to our customers, employees, suppliers, shareholders and society. We aim to respond to the continuously evolving needs of our stakeholders in the best way with our ESG sustainability strategy.

How we're managing our impact

When we act sustainably as a business, it benefits everyone. We want to grow our company and increase our positive impact while minimizing our negative impacts on the environment and people. We do this by focusing on the ESG sustainability topics where we can have the biggest impact. For these so-called material topics, we define policies, targets and actions, and disclose progress against them in our ESG sustainability reporting.

Environmental – We want to continue to expand computing power but with minimal waste, energy use and emissions. Our focus is on energy efficiency and climate action, and the transition to a circular economy.

Social – We want to ensure responsible growth that benefits all stakeholders – to provide an attractive workplace for all, build a responsible supply chain, fuel innovation in our ecosystems and be a valued partner to communities.

Governance – We want to anchor our responsibilities in the way we do business through integrated governance, engaged stakeholders and transparent reporting.

We update our material topics annually using insights from ongoing stakeholder engagement, developments within ASML and the evolving context in which we operate.

In 2023, a double materiality assessment was conducted as input for the ESG sustainability strategy and in preparation for the CSRD requirements that are currently being phased in.

Double materiality reflects the following: (1) our most significant impacts on people and the environment, and (2) the most significant sustainability-related risks and opportunities affecting our value drivers, competitive position and long-term shareholder value creation.

We used the 'impact' part of this assessment to determine the material topics for this Annual Report, in line with GRI (Global Reporting Initiative) requirements. Our process for determining impact materiality can be summarized in four steps, as shown on the right of this page. The assessment identified three new topics for 2023: Pollution of air, training and development, and quality of life.

How we identified our material topics

Step 1: Understand the context

Identifying affected stakeholders and users of sustainability information is the foundation of our materiality assessment process. We identify five relevant stakeholder groups: customers, employees, suppliers, shareholders and society. We continually engage with these groups to understand their concerns and how their interests may be impacted. This engagement informs improvement actions and feedback on performance and progress.

[Read more in Our business model - Engaging with our stakeholders](#)

Step 2: Identify sustainability matters and impacts

We use the insights gained from stakeholder engagement and other relevant sources to identify sustainability matters and impacts that are relevant to us. This results in an overview that includes positive and negative, actual and potential, and short-, medium- and long-term impacts. The aim of the overview is to cover all impacts that might be material, considering our business activities and relationships across our value chain.

Step 3: Assess the significance of the impacts

ASML subject matter experts assess the materiality of negative impacts based on scale, scope and irremediable character, also referred to as severity. In case of potential impacts, likelihood is considered. The materiality of positive impacts is assessed based on scale and scope, and, in case of potential impacts, likelihood. For potential negative human-rights-related impacts, severity takes precedence over likelihood.

Step 4: Prioritize the most significant impacts

The assessment results in a materiality score for each impact, and we use these materiality scores to determine thresholds for materiality. Thresholds are determined separately for negative impacts and positive impacts, as these cannot always be compared. Impacts that meet the materiality threshold are clustered into material sustainability matters. The outcomes of the materiality assessment are used to shape our strategy and targets, with the aim of sustainable long-term value creation for all our stakeholders. The Board of Management sets this strategy.

Our material ESG sustainability topics (continued)

Material topics (positive or negative, actual or potential) which are considered material for 2023 based on the materiality assessment					
Material topic name	Material impacts	Positive or negative impact	Actual or potential impact	Impact area value chain	Please read more in
Energy management & carbon footprint – Operations	Impact on climate change through energy use and GHG emissions from manufacturing, buildings, business travel and employee commuting	Negative	Actual	Own operations	Energy efficiency and climate action – Emissions from our own operations – Manufacturing and buildings and Business travel and commuting
Energy management & carbon footprint – Supply chain	Impact on climate change through energy use and GHG emissions from purchased goods and services and logistics	Negative	Actual	Upstream – suppliers	Energy efficiency and climate action – Emissions from our supply chain (including logistics)
Energy management & carbon footprint – Product use	Impact on climate change through energy use and GHG emissions from use of our products at our customers	Negative	Actual	Downstream – customers	Energy efficiency and climate action – Emissions from product use at our customers
Energy management & carbon footprint – Downstream impact	Impacts in the ICT industry and society through the use of our customers' products in all kinds of applications that contribute to climate change or support climate change mitigation and adaptation	Positive and negative	Actual	Downstream – beyond customers	Energy efficiency and climate action
Pollution of air	Impacts on the environment through emission of nitrogen oxides (NOx), non-methane volatile organic compounds (NMVOC) and hydrogen (H ₂) from manufacturing	Negative	Actual	Own operations	Energy efficiency and climate action – Emissions from our own operations – Manufacturing and buildings
Circular economy	Impacts on the environment through resource use and waste related to systems, parts, tools, packaging, real estate and non-product-related activities	Negative	Actual	Own operations & customers	Circular economy
Circular economy	Impact on the transition to a regenerative and circular economy through the use of our customers' products in all kinds of applications	Positive and negative	Actual	Downstream – beyond customers	Circular economy
Diversity and inclusion	Impact on employees by providing equal opportunities for all, including gender equality, fair remuneration, measures against discrimination and harassment, and promotion of diversity and inclusion	Positive	Actual	Own operations	Attractive workplace for all – Inspiring a unified culture

Our material ESG sustainability topics (continued)

Material topics (positive or negative, actual or potential) which are considered material for 2023 based on the materiality assessment (continued)					
Material topic name	Material impacts	Positive or negative impact	Actual or potential impact	Impact area value chain	Please read more in
Talent attraction, employee engagement and retention	Impact on employees' well-being through labor conditions, including social protection, fair remuneration practices, freedom of association and collective bargaining, and existence of works councils	Positive	Actual	Own operations	Attractive workplace – Providing the best employee experience
Training and skills development	Impact on employees' well-being and careers by providing training and development opportunities	Positive	Actual	Own operations	Attractive workplace – Providing the best employee experience
Occupational health and safety	Impacts on employee health, safety and well-being in case of incidents with hazardous substances or systems and work-related pressure on physical and mental health	Negative	Potential	Own operations	Attractive workplace – Ensuring employee health and safety and Providing the best employee experience
Responsible supply chain and product stewardship	Potential impacts on the environment and workers in the supply chain, including labor conditions, forced and child labor, and management of those impacts through product stewardship and supply chain due diligence	Positive and negative	Potential	Upstream – suppliers	Responsible supply chain
Innovation ecosystem	Impacts in society through supporting the innovation ecosystem and contributing to R&D, public – private partnerships, academic, industry and other research, STEM education and ESG innovation	Positive	Actual	Downstream – beyond customers	Innovation ecosystem and Valued partner in our communities
Community engagement	Impacts on local communities through job creation and pressure on housing, infrastructure, social cohesion and access to talent	Positive and negative	Actual	Own operations	Valued partner in our communities
Quality of life	Impacts on people's well-being, health, safety and human rights through the use of technology in all kinds of applications that affect quality of life	Positive and negative	Actual	Downstream – beyond customers	Responsible supply chain

Contributing to the UN's Sustainable Development Goals

The UN's 2030 Agenda for Sustainable Development provides a shared blueprint for peace and prosperity, for people and planet, now and in the future.

Why it matters

The UN's Sustainable Development Goals (SDGs) represent the global sustainable development agenda and inform public policy. As a responsible business, we support the SDGs, and it is critical that we accelerate action to play our part. Our ESG sustainability strategy supports this ambition, focusing on the six SDGs where we can contribute most. We also became a signatory to the UN Global Compact in 2023.

How we're managing our contribution

We contribute to SDG 4 (Quality education) by developing our people and promoting lifelong learning opportunities for the communities where we operate. SDG 8 (Decent work and economic growth) is covered by our commitment to provide an attractive workplace that promotes sustained, inclusive growth, full and productive employment, and decent work for all throughout our supply chain, including protecting labor rights and promoting a safe and secure working environment for everyone. Our contribution to SDG 9 (Industry, innovation and infrastructure) is demonstrated by our work to build a resilient ecosystem that fosters innovation while promoting inclusive and sustainable industrialization. We contribute to SDG 11 (Sustainable cities and communities) by working with our community outreach partners to make cities and human settlements inclusive, safe, resilient and sustainable. We contribute to SDG 12 (Responsible consumption and production) via our circular economy work and our work to achieve environmentally sound management of chemicals and all wastes throughout their life cycles, in accordance with agreed international frameworks. We contribute to SDG 13 (Climate action) by promoting energy efficiency and climate action across our value chain.



Environmental at a glance

We are committed to reducing the environmental footprint of our operations and supply chain as well as the environmental impacts of our products and services.

ENVIRONMENTAL

76 **Energy efficiency and climate action**

80 Scope 1 and 2 emissions from our own operations – Manufacturing and buildings

84 Scope 3 emissions from our own operations – Business travel and commuting

85 Scope 3 emissions from our supply chain (including logistics)

86 Scope 3 emissions from product use at our customers

91 **Circular economy**

94 Prevent waste

95 Extend the lifetime of our products

97 Reuse resources

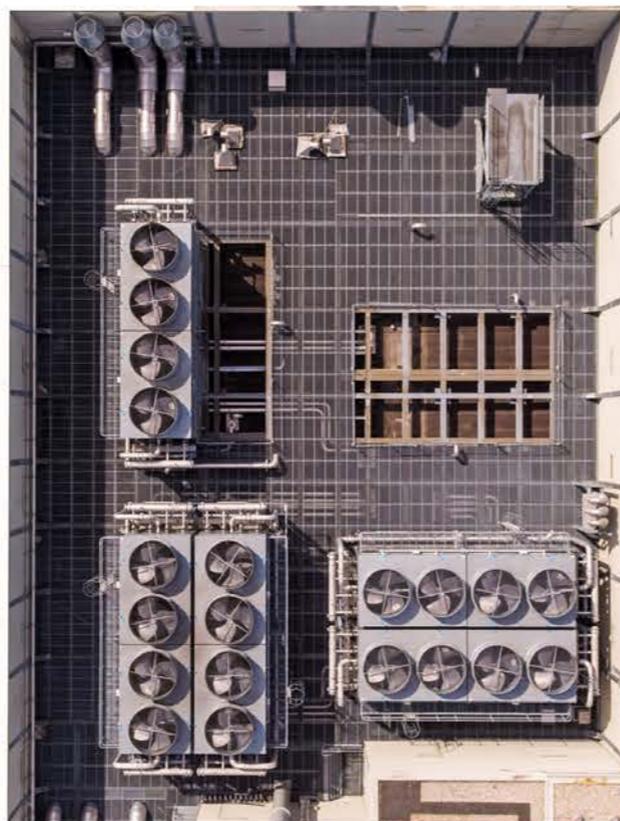
99 Recycle materials

103 **Water management**

Energy efficiency and climate action

We are working to reduce our carbon footprint to achieve net zero emissions across our value chain by 2040.

Broadening energy efficiency efforts across our product portfolio.



Circular economy

We aim to maximize the value of our systems, reusing resources as much as possible, while minimizing waste, decoupling our growth from resource consumption, and recycling materials.

Aiming for zero waste from operations to landfill or incineration by 2030.

Energy efficiency and climate action

We are working to reduce our carbon footprint to achieve net zero emissions across our value chain by 2040.

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- 84 Scope 3 emissions from our own operations – Business travel and commuting
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- 86 Scope 3 emissions from product use at our customers



Why it matters

As the world turns to technology to help solve its pressing challenges, our goal is to expand the availability of computing power and data storage capability while reducing the environmental footprint of our operations, our supply chain, and from the use of our products and services.

The growing demand for enhanced chip functionality means that the complexity and energy consumption of the overall microchip patterning process is increasing. Aiming for net zero emissions across our entire value chain by 2040 while energy demand is increasing is a complex challenge that can only be achieved by working closely with our partners, suppliers, customers and other stakeholders.

Our ambition is to achieve carbon neutrality with net zero emissions across our manufacturing and buildings (scope 1 and 2) by 2025. With regard to scope 3, we aim to achieve net zero emissions from business travel and commuting (travel to and from work) by 2025, in our supply chain (scope 3 upstream) by 2030, and from the use of our products and services by customers (scope 3 downstream) by 2040.

How we're managing our impact

Our goal is to reduce our climate impacts, working closely together with our peers in the entire semiconductor value chain – in our own operations together with our suppliers, in our customers' production process and through reducing the energy used by semiconductors in operation by enabling scaling.

Increasing energy efficiency is one of the key levers – our efforts range from optimizing the technical installations in our buildings to supplying more energy-efficient products (in terms of energy spent per wafer exposure) to customers. Other ways we are working to reduce our GHG emissions include reducing business travel, commuting more sustainably, using renewable electricity and minimizing our use of natural gas by reusing waste heat and electrification.

We measure our performance in the following ways:

- Scope 1 and 2 CO₂e emissions
- Scope 3 CO₂e emissions
- Scope 3 CO₂e emissions intensity (per €m gross profit)
- Scope 3 CO₂e emissions intensity (per €m revenue)
- NXE energy use per exposed wafer

Our environmental management system

We have implemented an environmental management system (EMS) to monitor energy use and emissions and improve performance and enhance efficiency across our global operations. The EMS is integrated into the overall environmental, health and safety (EHS) management system operated by all ASML facilities. This system was recertified for ISO 14001 (the standard for environmental management systems) in 2023 and structured in accordance with ISO 45001 (the standard for occupational health and safety management systems) requirements.



Energy efficiency and climate action (continued)

Our journey to net zero emissions in our value chain

We have set a target to achieve net zero emissions in our value chain by 2040. Our approach to achieving this is based on three principles:

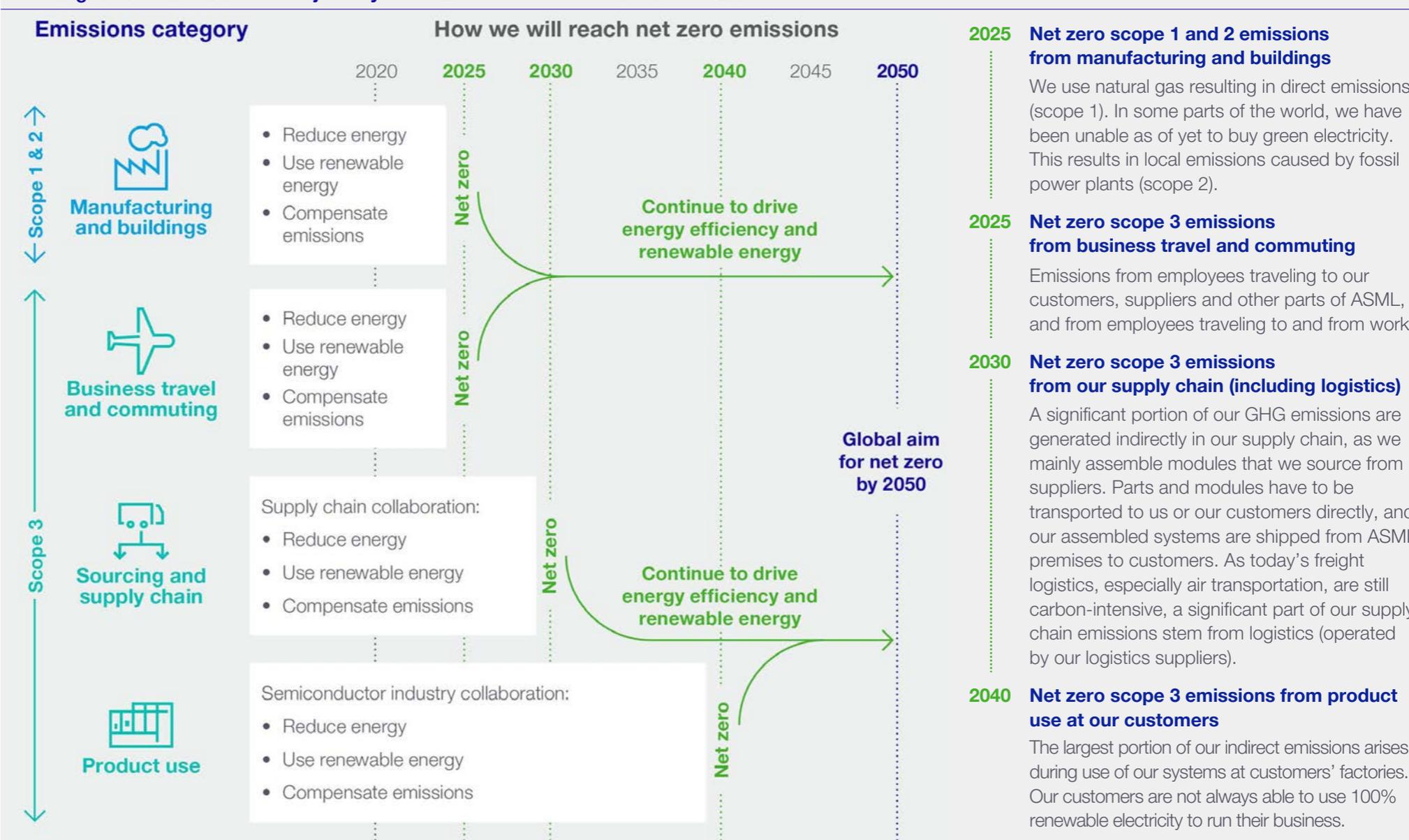
- 1 Reduce energy use and innovate to achieve greater energy efficiency by redesigning our assets, products and processes.
- 2 Aim to lead the shift toward 100% credible, renewable energy.
- 3 Compensate for residual emissions if no reasonable other improvement actions are available.

We will need to work closely with our customers, suppliers and partners to achieve the milestones in our journey to net zero emissions in our value chain.

As part of our journey to net zero emissions, we are a signatory to the Science Based Targets initiative (SBTi) and we currently have two SBTi-approved near-term targets. These are:

- Reduction of 25.2% of our combined scope 1 and 2 emissions in 2025, compared to base year 2019, without offsetting
- Reduction of 35.3% in scope 3 intensity (emissions per unit of gross profit) in 2025 compared to 2019, without offsetting

The diagram below illustrates our journey to net zero emissions in our value chain:



Energy efficiency and climate action (continued)

We identify and assess the impact of climate-related risks and opportunities using the assessment guidelines of the Task Force on Climate-related Financial Disclosures (TCFD).

[Read more in our TCFD Recommendations – Climate-related disclosure, available at **asml.com**](#)

Alongside our efforts to lower our carbon footprint, we are committed to using our innovations and digital technologies to enable the wider semiconductor industry to reduce its overall environmental footprint.

Our participation in the annual Carbon Disclosure Project (CDP) assessment helps steer our environmental initiatives. CDP runs the global disclosure system that drives actions and transparency for environment impacts. Our score in the most recent CDP Climate Change 2023 questionnaire was B, with C being the global average. We continuously aim to improve and execute emissions reduction plans throughout the value chain to achieve our net zero commitment, aiming to maintain good progress in fighting climate change and to be recognized by the CDP in the A-list.

How semiconductors support climate action

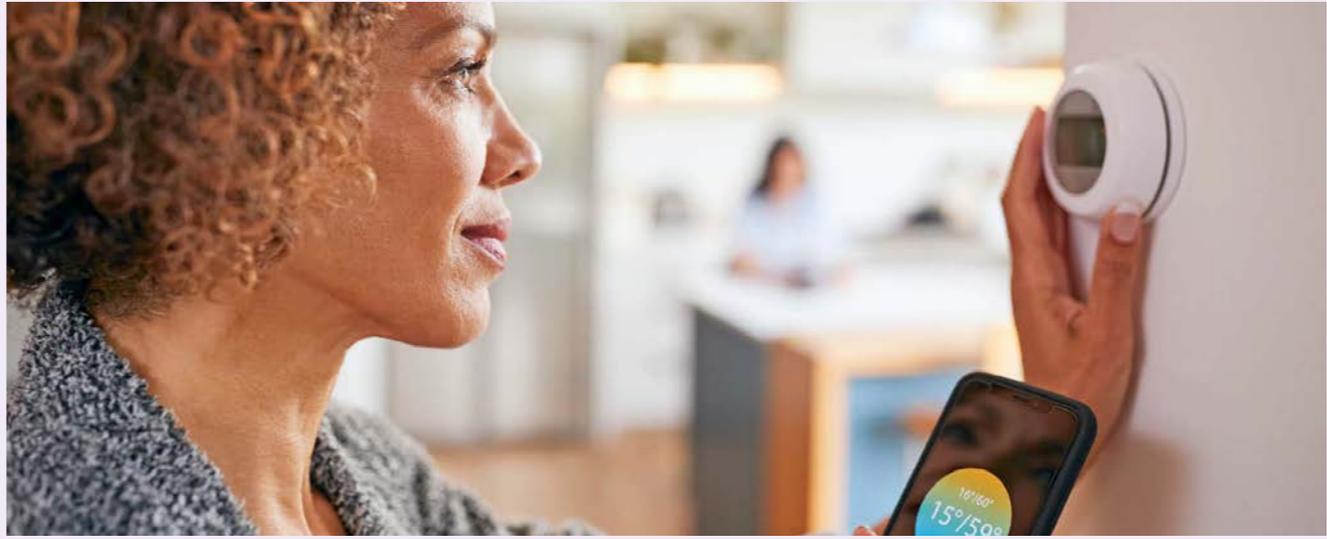
While we measure and aim to reduce the impacts of our operations, supply chain and product use, ASML’s climate impacts extend far beyond these areas to include the benefits and risks that our technology brings to society.

The technology pioneered by our R&D teams and partners sits at the heart of global digitalization and has the potential to transform how we all live and work. We enable our customers to innovate the semiconductor technologies that can help humanity manage its challenges and seize opportunities by facilitating sustainable living and mobility, accessible healthcare, food security and the transition to renewable energy.

For example, semiconductors are harnessing, converting, transferring and storing energy from sources such as solar and wind power as electricity and helping to ensure that national power grids are both responsive and robust.

Mitigating climate change means reducing energy demand by developing end-use applications that are as energy efficient as possible. Digital technology can help businesses and citizens cut energy consumption and save money. Smart sensors can detect room occupancy, allowing lights and heating to be switched off and on automatically. Smartphone applications make it possible for people to remotely control their appliances or get from A to B through car-sharing, ride-sharing or other demand-driven, flexible ways of transportation. And as we transition away from fossil fuels, electric vehicles will become the norm and will require new, potentially diverse electronic solutions.

On the adverse side, we acknowledge the effects of digital technologies that increase energy demand, such as AI, IoT, blockchain and cryptocurrency mining.



Energy efficiency and climate action (continued)

On track ●
Ongoing focus area ■

Our overall performance in 2023

Topic	Target 2025	Performance indicator	Progress tracking			Status
			2021	2022	2023	
Climate action 	Net zero	Scope 1 – Direct emissions from fossil fuels in our operations (kt)	19.3	17.3	19.2	●
	Net zero	Scope 2 – Indirect emissions from energy consumption (kt) [market-based] ²	20.1	20.8	15.9	●
	Net zero (2040)	Scope 3 – Indirect emissions from total value chain (kt) ³	11,426.2	11,936.3	15,025.2	■
	Total footprint (in kt)¹		11,465.6	11,974.4	15,060.3	■
	No target	Scope 3 CO ₂ e emissions intensity (per €m revenue) ³	0.61	0.56	0.55	n/a
	1.016	Scope 3 CO ₂ e emissions intensity (per €m gross profit) ³	1.165	1.116	1.060	●
	No target	Reduction in GHG emissions from projects (kt)	n/a	2.6	1.6	n/a
Energy efficiency 	5.1	Products – NXE energy use per wafer pass (in kWh)	8.3 (NXE:3600D)	8.3 (NXE:3600D)	7.7 (NXE:3600D)	■
	No target	Products – NXT energy use per wafer pass (in kWh) ⁴	0.56 (NXT:1980Ei)	0.55 (NXT:2100i)	0.52 (NXT:1980Fi)	n/a
	No target	Energy consumption (in TJ)	1,689	1,633	1,729	n/a
	100 TJ	Energy savings worldwide through projects (in TJ) ⁵	12.7	31.7	47.3	●
	100%	Renewable electricity (of total electricity purchased)	92%	91%	91%	■
	(10)%	Energy consumption (NXE) (reduction in % of baseline 2018 1.4 MW)	(6)% (NXE:3600D)	(6)% (NXE:3600D)	(12)% (NXE:3600D)	■
	No target	Throughput (in wph) (NXE)	160 (NXE:3600D)	160 (NXE:3600D)	160 (NXE:3600D)	n/a
	(60)%	Energy use per wafer pass (NXE) (reduction in % of baseline 2018) ⁶	(35)% (NXE:3600D)	(35)% (NXE:3600D)	(40)% (NXE:3600D)	■

1. The guidance from the GHG Protocol – the organization that provides widely used international standards for emissions reporting – is used for the calculation of the emission scope. Market-based conversion factors are used to calculate the scope 2 CO₂e emissions in kt.

2. We report the market-based emissions after purchase of renewable electricity – the electricity is proven emission-free by tracking energy attribute certificates. ASML currently does not compensate any emissions, resulting in no differences between our gross and net emissions.

3. The 2023 figure includes nine months of actual data and three months of estimates. The 2022 figure has been adjusted with data for the entire year (11,900 kt best estimate in the 2022 Annual Report). The 2021 figure has been adjusted to report the exact figure instead of a rounded figure.

4. Since 2023, when we measure the energy efficiency of our DUV immersion and DUV dry systems, the laser is included within the measurement. The comparative figures have been revised.

5. In 2021, we started a new master plan period for 2021-2025, with a target to achieve 100 TJ energy savings by the end of 2025. The savings reported are cumulated compared with the base year; therefore, they are not comparable between years.

6. The baseline figure of the NXE:3400B energy use per exposed wafer pass has been corrected, from 13.08 kWh to 12.8 kWh, due to an incorrect rounding being used in the past.

[Read more in Non-financial statements – Non-financial indicators – Energy efficiency and climate action](#)

Energy efficiency and climate action (continued)

Scope 1 and 2 emissions from our own operations – Manufacturing and buildings

How we're managing our impact

As we work toward net zero emissions in our value chain, our most immediate task is to manage the climate impacts of our own operations and buildings.

Scope 1 emissions comprise direct CO₂ emissions from use of fossil fuels – mainly natural gas – in our operations. The majority of natural gas consumption is used for heating our buildings and for humidification of our cleanrooms.

Scope 2 emissions arise from our purchased electricity, which accounts for 80% of the energy we use at ASML. Most of our electricity consumption relates to the manufacturing of chipmaking equipment – assembly and testing of lithography, metrology and inspection systems – and maintaining consistent climate conditions such as temperature, humidity and air quality.

We aim to achieve our targets for scope 1 and 2 by:

- 1 Reducing energy consumption
- 2 Using renewable energy
- 3 Compensating CO₂ emissions

Our targets and performance in 2023

Our target is to achieve net zero scope 1 and 2 emissions by 2025. This target exceeds the reductions needed to limit global warming to 1.5°C. We report market-based emissions after purchase of renewable electricity – the electricity is proven emission-free by tracking energy attribute certificates (EACs).

Despite an increase in our electricity and gas consumption due to company growth of 30.2%, the share of renewable electricity remained comparable to 2022 at around 91.4%.

For the third year in a row, our net scope 1 and 2 CO₂ emissions have decreased – from 39.4 kt in 2021 and 38.1 kt in 2022 to 35.1 kt in 2023. This decrease in 2023 was due to a combination of business growth (2 kt) and adding process CO₂ emissions (1 kt) to scope 1 reporting, consistent with reporting guidelines, compensated by a 4.9 kt reduction in Taiwan following a change in contract in 2022 to reduce our CO₂ (reduction of CO₂ emission scope 2), and a 1.1 kt reduction due to our energy savings master plan.

Our actions in 2023

1. Reducing energy consumption and use of natural gas

Our energy-saving master plan covers each of our five largest industrial sites and includes over 80 projects. It aims to reduce energy consumption through direct annual savings of at least 100 TJ (or 5 kt CO₂e). The main components of the master plan are improving the efficiency of our technical installations used for our operation, and optimizing our portfolio by building new offices that meet the latest green building standards, such as BREEAM (Building Research Establishment Environmental Assessment Method) in Europe, LEED (Leadership in Energy and Environmental Design) in the US or G-SEED (Green Standard for Energy and Environmental Design) in South Korea. We are also investing in renewable energy production at our sites.

Reducing our use of natural gas is a key objective. We have a multi-year project to implement an energy grid to reuse waste heat from our factories and offices on our site in Veldhoven. The energy grid is a two-pipe loop that makes waste heat available for heating in winter and energy-efficient cooling in summer. Based on our plans, we estimate that the use of natural gas in Veldhoven will be reduced from around 4.9 million m³ to around 1.2 million m³ in the next three to four years, driven by the energy grid and other energy-saving measures.

As we grow as a company, we strive to optimize our real estate portfolio because our buildings account for a significant percentage of our scope 1 and 2 emissions.

When building new offices and manufacturing sites, we seize the opportunity to make them sustainable, and several of our existing buildings have been assessed for performance against BREEAM guidelines. Two additional buildings in the Netherlands achieved a BREEAM 'Excellent' rating in 2023: our logistic center and one large office building. Five more buildings are in the process of achieving a BREEAM 'Excellent' rating in 2024.

With an eye on future growth, our new campus in Veldhoven is being designed with a strong focus on sustainability. We are applying the latest building sustainability standards to our real estate worldwide, wherever possible. Besides the Netherlands, we have projects ongoing in South Korea (G-SEED) and Taiwan (LEED).

Energy efficiency and climate action (continued)

Scope 1 and 2 emissions from our own operations – Manufacturing and buildings (continued)

Key projects in 2023

In 2023, as part of our energy savings master plan, we executed key projects in the Netherlands, the US and Taiwan which resulted in around 16 TJ annual energy savings. The total energy savings delivered by projects executed between 2021 and 2023 amounted to 47 TJ. In 2023, if we include part of the savings realized by projects started in 2022 and not accounted for in 2022, we realized savings of:

- 11 TJ per year through operationalizing systems of the energy grid and implementing H₂ venting in two manufacturing buildings in Veldhoven
- 3 TJ per year in Wilton by installing sand filters on cooling towers
- 1 TJ in San Diego through the installation of solar panels
- 1 TJ in Taiwan factories by optimizing the operation of cooling installations and replacing ventilation systems

The remaining 31 TJ is from savings realized by projects executed in 2021 and 2022.

2. Using renewable energy

We are driving a shift to renewable energy by increasing the share of direct green energy purchases (so-called bundled renewable electricity) from renewable electricity generated close to our premises. In the Netherlands, we are in the third year of a 10-year purchase agreement for green electricity for our installations. This enables us to achieve our goal of using 100% renewable electricity in the country. In 2023, 100% of the electricity used in our US and Chinese facilities was also from renewable sources.

In 2023, we managed to secure a long-term power purchase agreement (PPA) in Taiwan. The contract will be operational in 2024 and help us with our aim to reduce our emissions, with 16 kt on a yearly basis as of 2025. We continue to face challenges in South Korea, where there is little to no credible renewable electricity.

100%
of the electricity used in the EU, US and China was from renewable sources

3. Compensating for CO₂ emissions

We aim to reduce energy consumption and use renewable energy as much as possible. Where this is not feasible, we intend to purchase voluntary emission reduction certificates (VERs) no later than 2025.

Promoting industry-wide collaboration to reduce GHG emissions across the value chain

Established in November 2022 with ASML as a founding member, the Semiconductor Climate Consortium aims to address the challenges of climate change and speed up the industry's efforts to reduce GHG emissions throughout the value chain. Founding members have affirmed their support of the Paris Agreement and related accords driving the 1.5°C pathway.

The consortium's members are committed to working toward the following pillars and objectives:

Transparency – Publicly report progress and scope 1, 2 and 3 emissions annually

Ambition – Set near- and long-term decarbonization targets with the aim of reaching net zero emissions by 2040

Collaboration – Align on common approaches, technology innovations and communication channels to continuously reduce GHG emissions

On September 20, 2023, the SCC published its first report providing an in-depth analysis of the semiconductor value chain's carbon footprint and priority-ranked carbon emission sources for the industry to address. The main takeaways include:

1. Baseline of value chain emissions: Semiconductor devices produced in 2021 have a lifetime CO₂e footprint of 500 Mt – 16% from supply chain, 21% from manufacturing and 63% from device use.
2. Low-carbon energy is a key lever: Bold and decisive investments in low-carbon energy sources can address more than 80% of industry emissions primarily

by reducing the carbon footprint stemming from electricity usage for semiconductor manufacturing and for powering chips in electronics devices.

3. Investment and innovation to solve remaining 16%: Reducing emissions from the supply chain and from manufacturing process gases will require considerable R&D, necessitating investments now.

4. Future manufacturing emissions scenarios: Current government and company commitments will substantially reduce manufacturing emissions, but they are still forecasted to overshoot the carbon budget for the 1.5°C pathway.

5. Dilemma of value chain emissions: Digital technologies that require semiconductors play a crucial role in reducing energy use and emissions across industries while simultaneously adding to the overall carbon footprint.

[Read more at the Semiconductor Climate Consortium \(SCC\) website](#)

Energy efficiency and climate action (continued)

Scope 1 and 2 emissions from our own operations – Manufacturing and buildings (continued)

Looking ahead

Our energy savings master plan will continue to provide savings in 2024-2025. In 2024, we expect an acceleration of the energy-saving projects in the five-year energy master plan. These include installation of solar panels in San Diego that are expected to lead to 8 TJ per year savings in 2024, while the operationalization of the energy grid and renovation of buildings in the Netherlands are expected to lead to an additional 25 TJ per year at the end of 2024. We believe that this will enable us to achieve our target of 100 TJ (or 5 kt CO₂e) per year by 2025.

We have signed a five-year Corporate Power Purchase Agreement (CPPA) in Taiwan with the aim of providing our operations there with about 70% renewable electricity in 2024. Since we do not use gas in Taiwan, our ambition is to reach 100% renewable by the end of 2025. While the renewable electricity market in South Korea is limited, we will continue to look for alternative solutions to procure renewable energy in South Korea and will use offsetting in case we are not able to reach our net zero target.

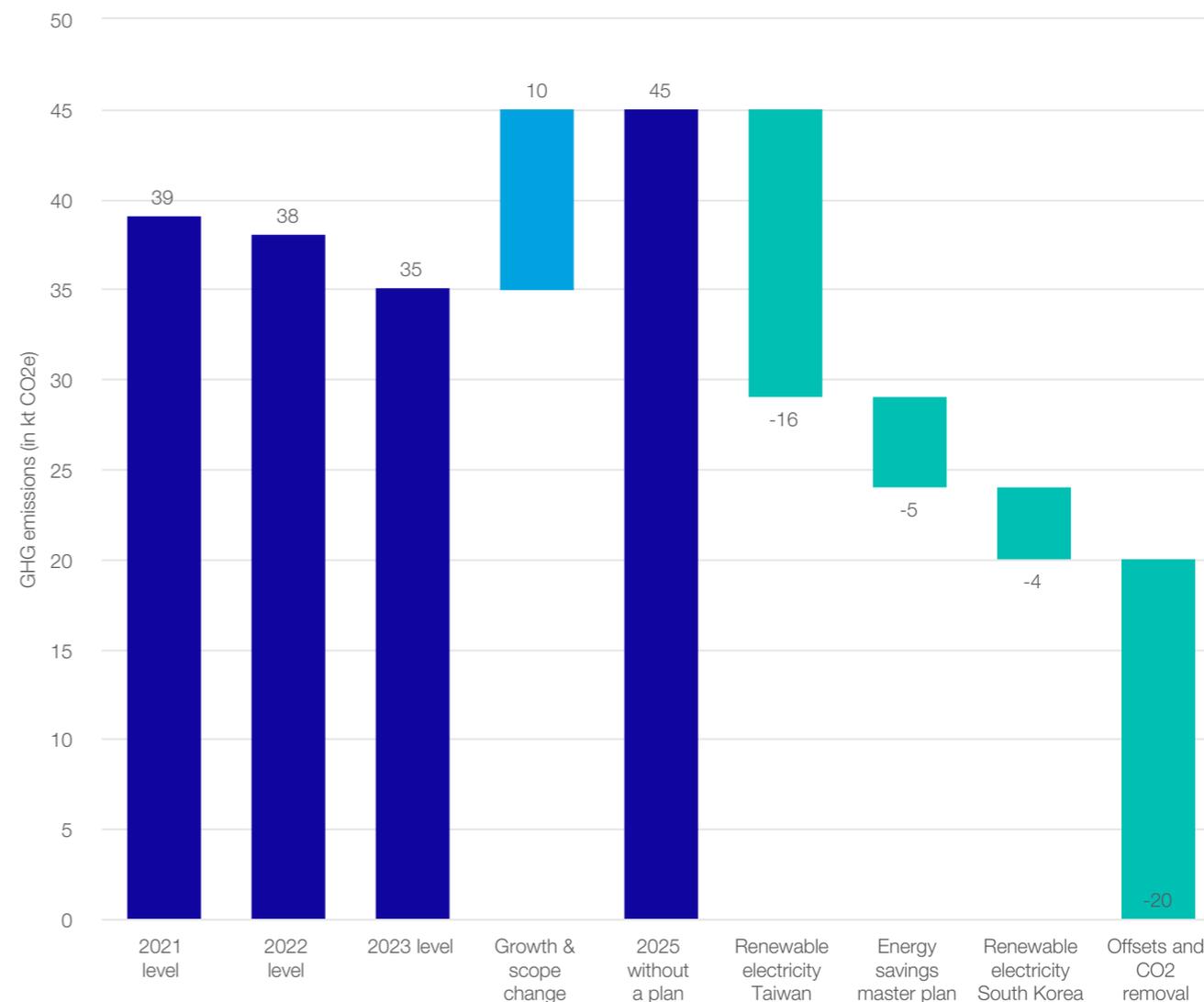
In the coming years, we plan to expand the use of solar panels on our sites in EMEA, the US and Asia. We aim to have more than 20,000 solar panels on our roofs by 2025. This would give us a total energy saving of around 40 TJ per year and a total CO₂ emission reduction of around 5 kt per year. This is equivalent to the energy use of (on average) 3,900 households per year, taking 2,100 cars off the road or planting around 250,000 new trees (around six trees for every ASML employee).

Lastly, we are working on a plan for compensating our emissions to reach net zero scope 1 and 2 emissions by 2025.

We will also work toward reporting on the environmental footprint of our approximately 160 buildings globally, which include ASML-owned buildings such as manufacturing buildings, offices and a few warehouses and buildings leased by ASML.

In 2023, we identified our impact on the environment through emission of nitrogen oxides (NO_x), non-methane volatile organic compounds (NMVOC) and hydrogen (H₂) from manufacturing as a new material topic. We are developing a process to formally manage and report this topic starting in 2024.

How we get to net zero emissions by 2025



Energy efficiency and climate action (continued)

Scope 3 emissions: An introduction

Reducing upstream and downstream scope 3 emissions

Scope 3 emissions include both upstream and downstream activities and comprise the emissions that are generated in our supply chain, through business travel and commuting, and through use of our products at our customers. We measure progress in reducing our scope 3 emissions by emission intensity, i.e. total scope 3 emissions (tonnes CO₂e) against total gross profit (€ millions).

Our overall target for 2025 is to reduce the intensity of scope 3 emissions to 1,016 tonnes CO₂e per € million gross profit, in line with our SBTi commitment. This represents a 35.3% intensity reduction compared with 2019.

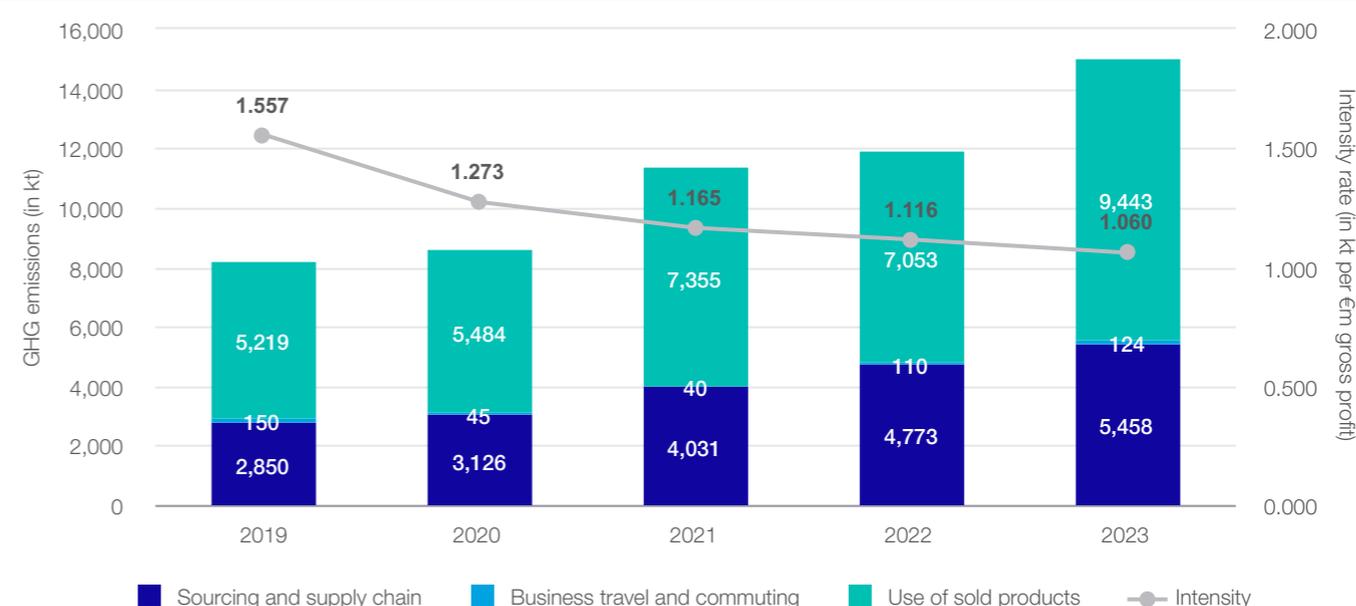
Our scope 3 intensity for 2023 was 1,060 tonnes CO₂e per € million gross profit (2022: 1,116 tonnes). Our results indicate that the scope 3 emissions account for 15.0 Mt, or 99.8%, of our total emissions footprint (scope 1, 2 and 3). Of this, 5.5 Mt are ‘upstream’ emissions (mainly related to the goods and services we buy and ship), 0.1 Mt are from business travel and commuting, and 9.4 Mt are indirect ‘downstream’ emissions (use of sold products at our customers’ sites). As of 2023, we report indirect climate change effects of air travel (radiative forcing, non-CO₂ emissions) separately and not as part of our scope 3 emissions. This is to align with current reporting practices of airlines and in line with recommendations from SBTi. This has resulted in comparative figures being updated.

[Read more in Non-financial statements – Non-financial indicators – Energy efficiency and climate action](#)

Our overall emissions are increasing due to the growth of ASML. We expect emissions to continue rising in the short term due to our continued growth and more complex products. To ensure that we meet our ambition for net zero emissions by 2040, we need to work closely with our value chain partners, for example on increasing the capacity of renewable electricity in some regions of the world.

We are still on track to achieve our SBTi target of 1,016 tonnes CO₂e per € million gross profit in 2025.

On the following pages you can read more about how we're tackling scope 3 emissions specifically related to business travel and commuting, our supply chain, and through the use of our products by customers.



Our overall target for 2025 is to reduce the intensity of scope 3 emissions to 1,016 tonnes CO₂e per € million gross profit, in line with our SBTi commitment.

Energy efficiency and climate action (continued)

Scope 3 emissions from our own operations – Business travel and commuting

How we're managing our impact

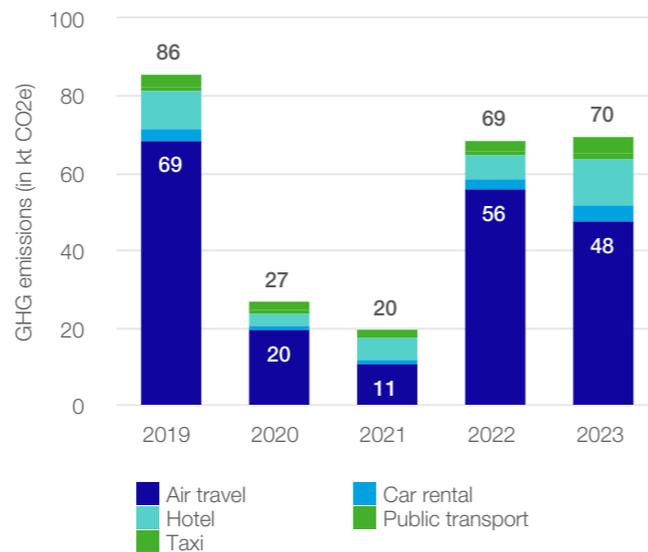
We are using the following levers, aiming to reduce our impact:

- Business travel: Reducing the volume of business travel through stricter policies, raising awareness and use of remote working and servicing options.
- Commuting: To reduce the percentage of car commutes in our Veldhoven region (NL), we focus on developing a mix of sustainable commuting options by encouraging people to travel to work by bicycle or public transport. Alongside this, we provide shuttle bus services from Park & Ride locations, offer satellite offices and promote a balanced working-from-home policy.

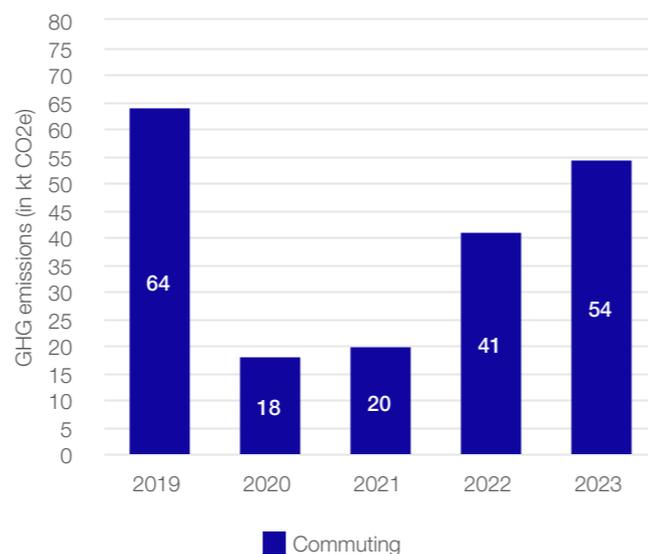
Our targets and performance in 2023

Our target is to achieve net zero emissions from business travel and commuting by 2025.

In 2023, taking into account Sustainable Aviation Fuel (SAF) purchases, our total emissions due to business travel and commuting were 70 kt CO₂e and 54 kt CO₂e, respectively (see graphs). Due to the increasing number of employees at all locations and the ending of COVID-19 travel restrictions, our emissions increased by 13% compared to 2022 (69 kt CO₂e and 41 kt CO₂e, respectively). Commuting emissions are predominantly related to commuting by car. The impact of the indirect climate change effects of air travel are excluded from our business travel emissions, as explained on the previous page.



Our annual emissions (in kt) from business travel (2019-2023)



Our annual emissions (in kt) from commuting (2019-2023)

Our actions in 2023

For business travel, we created and launched a travel dashboard for managers to provide clear insights into travel cost, broken down into the underlying elements such as hotel and air travel. This dashboard aims to drive behavioral change, as it also shows the related CO₂ emissions. We reduced our global travel budget per FTE by 30% from pre-COVID-19 travel patterns of 2019.

We stimulated green travel modes by encouraging employees to use train travel for specific destinations, such as Berlin and London. We have launched a project aiming to use SAF for air travel. In 2023, ASML purchased 4,341 tonnes of SAF, which has avoided 10,198 tonnes of CO₂ emissions. From January 2024, we aim to use only electric vehicles in our rental car program in Veldhoven.

In 2023, we also joined 'Anders Reizen', a coalition of more than 70 organizations in the Netherlands which aims to reduce CO₂ emissions related to business travel and commuting of its members by 50% in 2030 compared to 2016.

To enable employees in the Netherlands to commute for free between their home and work on public transport, we provided them with a business card of the Dutch railways ('Nederlandse Spoorwegen'). In addition, exclusive shuttle bus services have been set up between Eindhoven central station and the Veldhoven campus, and shared e-bikes are available as a successful, sustainable solution.

Looking ahead

For 2024, we aim to strengthen our partnership with KLM to further reduce our emissions from aviation so that we will be able to meet ASML's ambition of net zero CO₂ emissions in 2025 for business travel.

The year will also see us commence a project that will better quantify emissions from employee commuting in our operating regions outside the Netherlands. This is likely to lead to targeted interventions to further reduce the commuting emissions in later years.

Where there are no alternatives, we aim to offset our residual emissions from employee commuting and business travel by purchasing VERs in the coming years.

Energy efficiency and climate action (continued)

Scope 3 emissions from our supply chain (including logistics)

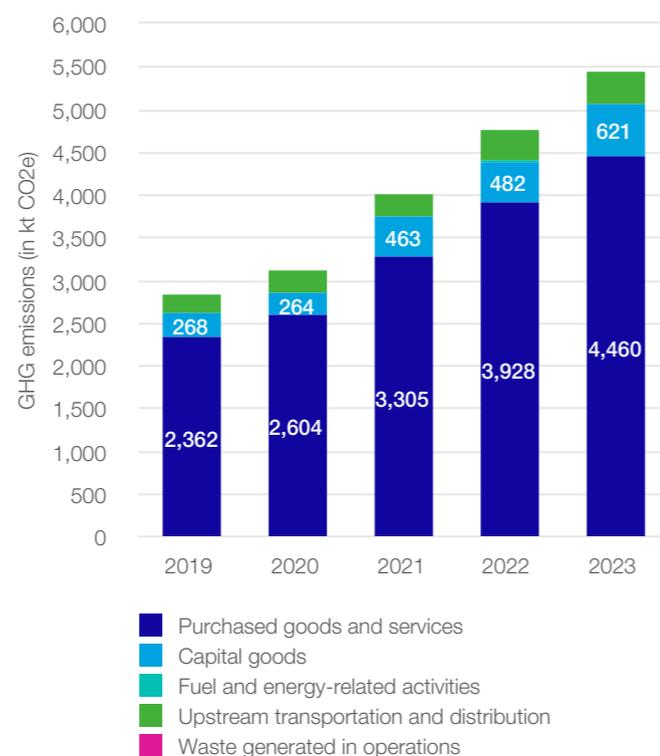
How we're managing our impact

Reducing emissions arising from upstream activities in our supply chain – for example, by sharing data and targets – requires close collaboration with our suppliers and other upstream stakeholders.

ESG sustainability has become a major theme in our supplier relationships. Our Sourcing & Procurement (S&P) ESG sustainability program is a key enabler in our efforts to reduce scope 3 emissions by actively engaging and collaborating with suppliers, to drive further progress. We depend on our suppliers and other upstream value chain partners to work with us to jointly reduce our carbon footprint.

Our targets and performance in 2023

In 2023, total emissions due to upstream activities (excluding business travel and commuting) were 5,458 kt CO₂e, an increase of 14% from 2022 in line with our increase in sales (since we use the spend-based approach for calculating emissions). Purchased goods and services and capital goods contribute to 82% of these emissions. Most of the remaining emissions are from transportation and distribution.



Our scope 3 CO₂e emissions in the (upstream) supply chain (2019-2023)

Our actions in 2023

Improving our scope 3 upstream emissions data quality

We calculate our scope 3 emissions using guidance from the GHG Protocol – the organization that provides widely used international standards for emissions reporting. We currently use the spend-based methodology for calculating supplier emissions.

We constantly seek to improve data quality by working with our suppliers – for example, while the spend-based methodology is useful, it fails to reflect improvements that reduce GHG emissions.

In previous years, we have seen a mix of supplier maturity levels in reporting scope 1 and 2 emissions data. We obtain GHG emissions data (scope 1, 2 and limited scope 3) from our suppliers. Our aim is to use this information to compare spend-based emissions data with actual emissions data, to help drive meaningful progress. We learned that spend-based emissions are overestimated compared to actual emissions data. As a result, our next step to improve data quality is to include actual supplier emissions data in our calculations for scope 3.

It will take time before we can reliably assess all our suppliers' scope 3 emissions data, as not all of them have visibility of their own supply chain emissions. To support them, we have introduced an IT dashboard that will capture and display the relevant data.

In 2023, we made progress by requesting CO₂e emissions data directly from our suppliers through our S&P ESG sustainability program. We aim to use this data as part of our move from spend-based to hybrid-based data.

In 2023 we also improved our knowledge within Development and Engineering (D&E) in estimating CO₂e emissions from our suppliers by building competence on life-cycle analysis. We are investigating how to determine the impact of the design and have started developing tooling for our engineers. With this, we aim at raising awareness, finding hotspots in the design and making a start with steering for design changes.

Looking ahead

One of our future key focuses will be building on the supplier GHG emissions baseline – and we will be working with our top 100 suppliers toward commitment on net zero scopes 1, 2 and 3 by 2030. We will also be encouraging suppliers to develop roadmaps for improving energy efficiency in their production processes, using renewable energy and (as a last resort) offsetting.

We expect that new EU regulations and other directives around mandatory disclosure of scope 3 emissions data will help to increase transparency across our supply chain, and will result in firm actions to reduce scope 3 upstream emissions.

Read more in Social – Responsible supply chain

To support the optimization of the design, in the D&E ESG sustainability program we will work toward improving the data, automating the GHG emissions calculations and providing consistent data on the design connected to a product roadmap. This will include actual supplier data where available. Also, we will aim to have a first CO₂e footprint estimate available based on the design information of an ASML product.

Energy efficiency and climate action (continued)

Scope 3 emissions from product use at our customers

How we're managing our impact

As demand for enhanced chip functionality grows, the complexity and energy consumption of the overall microchip patterning process – including that of our lithography and metrology and inspection systems – is increasing.

To measure CO₂e emissions from product use, we calculate emissions generated by our customers' electricity usage while operating ASML machines. In line with the GHG Protocol, we calculate these emissions based on the number of newly installed machines at our customers' sites during the reporting year multiplied by the lifetime of the machine (estimated at 20 years).

When we design new systems, we increasingly focus on reducing energy consumption and cost, while increasing performance and availability. The EUV light source is the key focus of our current engineering efforts, because it accounts for the largest portion of an EUV system's total energy consumption. In addition, we have started to better assess the energy efficiency of our other product families – in DUV, metrology and inspection, computational lithography, and scanner and process control software solutions.

We're working with peers and partners – including through the SCC (read more in our case study on page 81) – to accelerate efforts to reduce GHG emissions, share knowledge and technology and stimulate the adoption of renewable energy worldwide.

Reducing energy consumption by introducing sleep mode in our lithography systems

Semiconductor manufacturing processes are designed to maximize the utilization of the critical lithography systems. However, there will be times when a system is not in use. Up to now, the lithography system has remained fully powered on to ensure the system is perfectly conditioned at all times to deliver nanometer-accurate performance.

In order to reduce energy consumption of our systems, we have introduced a sleep mode, which allows for powering down of subsystems to conserve energy. This does affect thermal conditioning of the system, which requires a few minutes of reconditioning to get the system fully production-ready again.

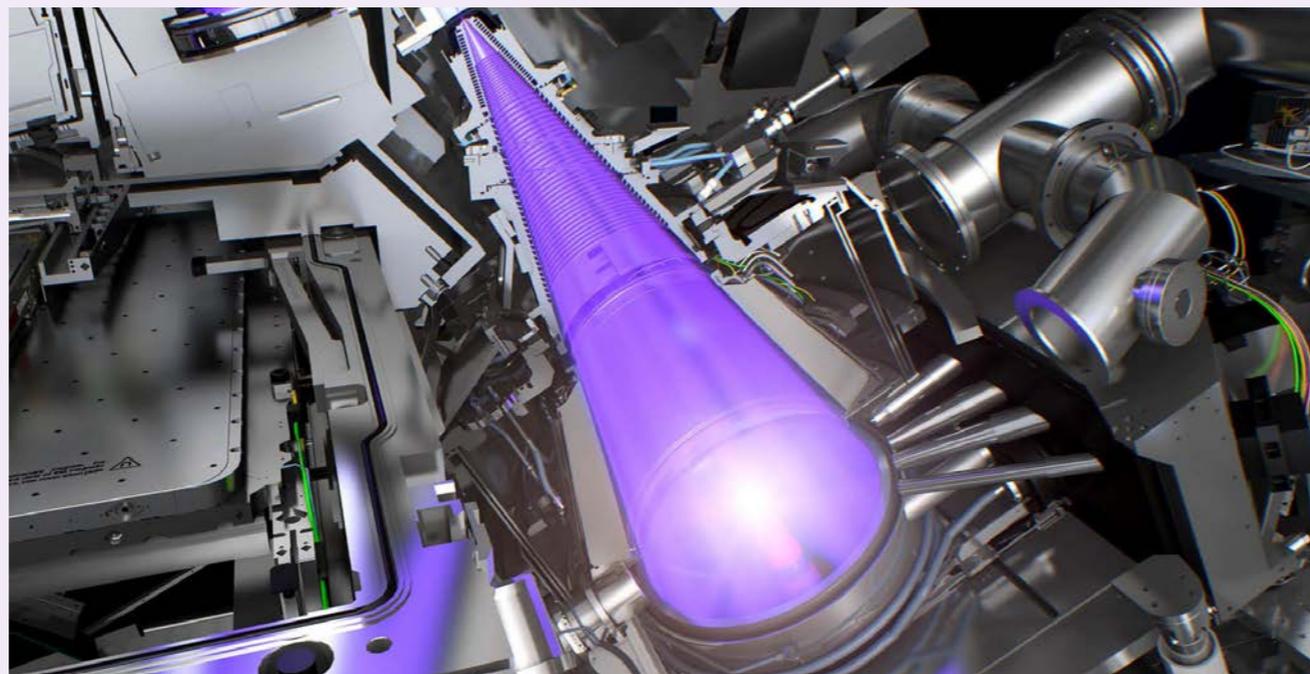
The key here is to give our customers control over a system's state. The customer has insight into when these idle periods occur, which enables them to put the lithography system into sleep mode without impacting wafer output. Triggered by a command from the fab automation system, the lithography system temporarily powers down some subsystems and then, again triggered by fab automation, returns them back to production mode in time for the next lot.

Most of the energy of an EUV lithography system is used by the CO₂ drive laser, so this is a prime candidate for introducing our sleep mode solution. In the drive laser, CO₂ gas is compressed and subsequently excited (via nitrogen) by radio frequency (RF) generators. A seed laser is used to trigger stimulated emission of infrared light, which is subsequently used to generate EUV light.

We will soon introduce sleep mode for the RF generators. We have developed a software interface that allows our customers to send sleep and wake-up commands to the system, which power down the RF generators via internal control software. This RF sleep mode has been tested in-house, confirming the energy-saving potential as well as fully meeting system specifications immediately after the reconditioning sequence.

RF sleep mode has the potential to reduce EUV system energy consumption by approximately 2.5%, averaged over time, when utilized in high-volume manufacturing at our customers' sites.

The sleep mode interface will also act as a foundation for implementing sleep mode in other sub-modules, further increasing the energy-saving potential.



Energy efficiency and climate action (continued)

Scope 3 emissions from product use at our customers (continued)

Our targets and performance in 2023

Our target is to reduce the overall energy consumption of our future-generation EUV systems by 10% compared with the 2018 baseline model (NXE:3400B) by 2025, while increasing productivity.

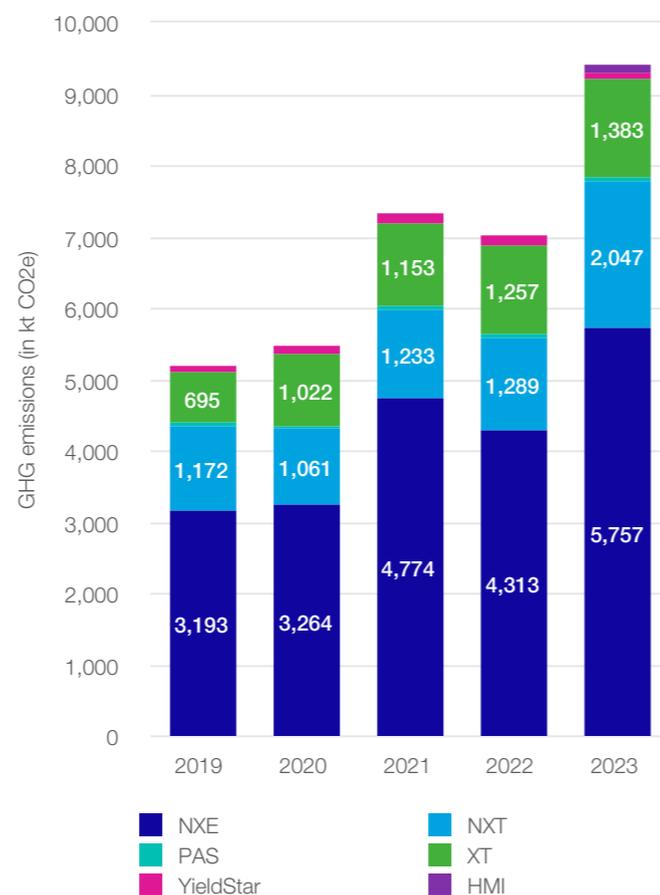
We have also set a 2025 target to reduce the energy consumption per exposed wafer by 60%, compared with the 2018 baseline (NXE:3400B).

Reaching our targets has our full attention, and we plan to measure our NXE:3800E in 2024, which we expect will bring us closer to achieving our 2025 target.

Based on the latest measurement of the NXE:3600D, energy use per exposed wafer pass was 7.7 kWh (versus our NXE platform 2025 target of 5.1 kWh) which shows an improvement from the last measurement taken in 2021 of 8.3 kWh.

Based on the latest measurement of the NXT:1980Fi, energy use per exposed wafer pass was 0.52 kWh.

In 2023, total emissions from the use of sold products were 9,443 kt CO₂e, of which EUV accounted for 5,757 kt CO₂e, DUV for 3,488 kt CO₂e and metrology and inspection systems for 198 kt CO₂e. The emissions have increased in line with an increase in sales.



Scope 3 CO₂e emissions (in kt) as a result of product use by our customers for each of our product categories

The table below provides an overview of our systems' energy use, acceptance test protocol (ATP) throughput and energy efficiency.

Platform	DUV immersion ¹						
	NXT:1980Di	NXT:2000i	NXT:2050i	NXT:1980Ei	NXT:1960B i + PEP-B	NXT:2100i	NXT:1980Fi
System type							
Year of energy measurement	2015	2017	2020	2021	2021	2022	2023
Energy consumption (in MW)	0.16	0.15	0.16	0.16	0.15	0.16	0.17
ATP throughput (in wph)	275	275	295	295	250	295	330
Energy use per wafer pass (in kWh)	0.59	0.56	0.54	0.56	0.60	0.55	0.52

Platform	DUV dry ¹						YieldStar			HMI	
	XT:860M	XT:1460	NXT:1470	XT:860N	NXT:870	XT:400M	YS350E	YS375F	YS-380	YS385	eScan 1100
System type											
Year of energy measurement	2017	2020	2020	2022	2022	2023	2017	2019	2020	2023	2023
Energy consumption (in MW)	0.07	0.07	0.13	0.07	0.13	0.07	0.01	0.01	0.01	0.01	0.06
ATP throughput (in wph)	240	209	277	260	330	250	n/a	n/a	n/a	n/a	n/a
Energy use per wafer pass (in kWh)	0.31	0.34	0.47	0.27	0.38	0.30	n/a	n/a	n/a	n/a	n/a

Platform	EUV 20 mJ/cm ² dose			EUV 30 mJ/cm ² dose	
	NXE:3350B	NXE:3400B	NXE:3400C	NXE:3600D	NXE:3600D
System type					
Year of energy measurement	2015	2018	2020	2021	2023
Energy consumption (in MW)	1.2	1.4	1.3	1.3	1.2
ATP throughput (in wph)	59	107	136	160	160
Energy use per wafer pass (in kWh) ²	19.5	12.8	9.6	8.3	7.7

1. Since 2023, when we measure the energy efficiency of our DUV immersion and DUV dry systems, the laser is included within the measurement. The comparative figures have been revised.

2. The baseline figure of the NXE:3400B energy use per exposed wafer pass has been corrected, from 13.08 kWh to 12.8 kWh, due to an incorrect rounding being used in the past.

Energy efficiency and climate action (continued)

Scope 3 emissions from product use at our customers (continued)

Our actions in 2023

In 2023, we continued working on energy efficiency improvements for future products, which require long lead times and take multiple years to achieve. Progress on these projects is monitored on a quarterly basis.

We proved the capability of the NXE:3600D system to reach productivity targeting 175 wph (as compared with the current specification of 160 wph). In 2024, this will be introduced to the market as the NXE:3600 PEP-D package.

For our DUV systems, we identified possible energy-saving options, among others around wafer stage and reticle stage magnet innovations, adaptive cooling water flows, reducing the power consumption when systems are idle (similar to the sleep mode in EUV) and reusing the otherwise directly emitted CO₂ from the immersion hood in our immersion scanners.

For our metrology and inspection systems, we also identified possible energy-saving options, among others around exhaust management and cooling and creating a sleep mode to reduce power consumption when systems are idle.

We also worked on improving the data quality of our inventory for scope 3 downstream emissions. This year we included the use of HMI e-beam inspection systems in our inventory. We also included the laser contribution into our reported values for DUV systems, as well as the process CO₂ gas, which is released during operation of some of our immersion scanners. Operation and idle time were updated to better represent actual usage, based on customer data.

Looking ahead

In 2024, we will continue to work on the energy efficiency of our systems and other product families. At the moment, we see no reason to adjust our 2025 targets regarding the energy consumption of our systems.

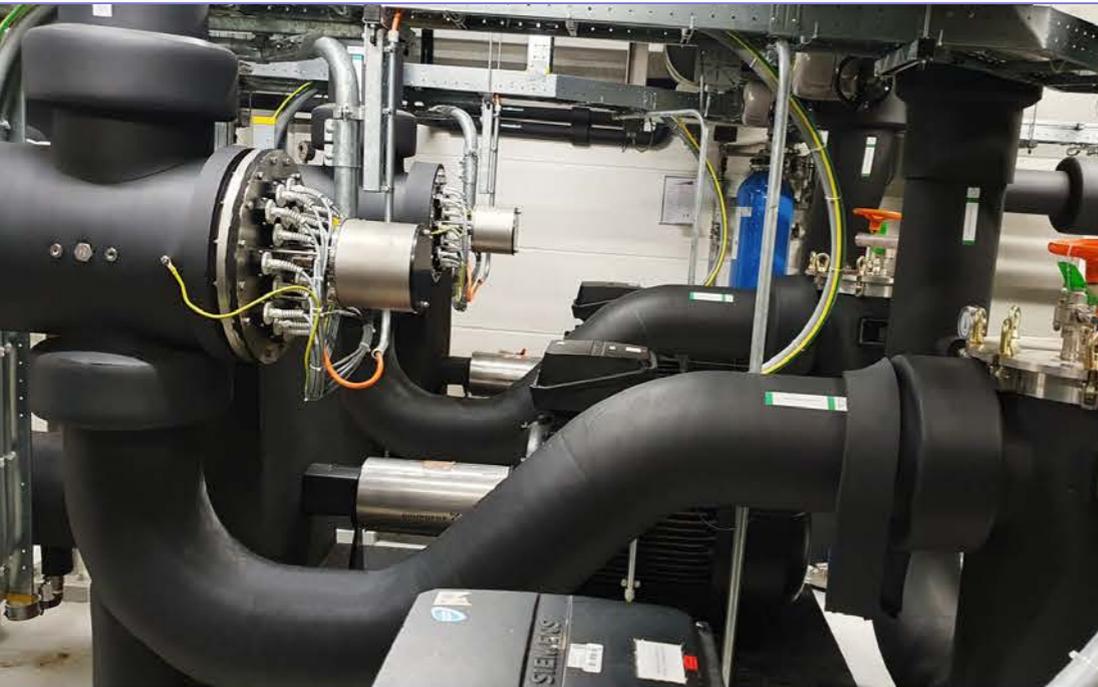


“Sustainability is a design challenge that must be solved in parallel with system cost and performance – that’s how we will make the biggest difference.”

Ton van der Net
Principal Architect, D&E
25 years at ASML

A sustainability mindset

Ton van der Net specializes in improving the energy efficiency and overall sustainability of lithography systems. He has been at the forefront of ASML’s sustainability efforts as they have grown from a team-led initiative to a corporate-level commitment that is becoming integral to how we develop our systems.



Taking the first steps

About seven years ago, in response to customers' concerns, we started looking at the scale of the infrastructure, like cooling and power, needed to run lithography systems. These support facilities needed as much space as the production lines. When we estimated the total power they required, it was huge – around 1.3 MW for our EUV systems (as much as a few thousand Dutch homes) – and projected to grow further.

Continuing that trajectory wasn't environmentally responsible. So, a small team of ASML engineers – including me – started exploring ways to reduce energy consumption in lithography. For example, a lot of that 1.3 MW went into cooling the system and handling the hydrogen flow used to prevent contamination build-up. Was all that cooling necessary? Could we handle the hydrogen more efficiently?

Our initial list of ideas inspired ASML's first KPI for sustainable system development. Some of these ideas looked at how the systems were used, while others required changes to the system. For example, if we redesigned the cooling features, customers could use warmer cooling water – reducing the need for power-hungry chillers.

Building a case for sustainability

Any redesign would need buy-in from the business. So, we teamed up with system engineering to engage the people who make the day-to-day design decisions. These early discussions triggered us to build a business case for our ideas. That meant thinking – and encouraging others to think – about the value of our changes beyond purely financial terms.

This is quite a radical change in mindset for any company. However, publications from the likes of McKinsey have shown that companies who perform well in sustainability typically outperform their competitors in market share and brand image. What's more, around this time, ASML announced a corporate commitment aiming to have net zero emissions in our value chain by 2040. And the largest contribution to our current carbon footprint is the energy our systems use at customers.

We have made good progress toward that goal. Between 2018 and 2023, we reduced the energy per wafer for EUV lithography by almost 40%. And we have a roadmap for another 20% of reductions by 2025.

The new normal

Sustainability is now becoming a business driver at ASML, due partly to the corporate commitment and partly to the internal motivation of individuals. Our Green ASML employee network has over 2,000 people looking at everything from the food we serve in the cafeteria to system energy consumption. We've even had internal 'Shark Tank' style events to generate new ideas to make our whole operation more sustainable.

Many of that initial team – including myself – are still active in driving a sustainable innovation culture within ASML. We are looking to embed sustainability even more fully into ASML's PGP, because you get better results faster and at lower cost if you build sustainability in from the start. To this end, our system design specifications – the handbook for what we want to achieve in a new system – now include maximum power consumption and a power breakdown as standard. By making sustainability part of our standard processes, we have switched on the innovation power of 20,000 ASML engineers.

A greener future

We are also looking at the materials we use to build our systems. There are standard ways of estimating the sustainability of materials in terms of their energy cost to produce and recyclability, but they are very approximate. We want to develop more accurate methods based on actual materials and processes. The sustainability of materials could then become another driver for innovation.

Sustainable innovation is becoming part of our business as usual, just another design specification for our engineers alongside performance, cost and time to delivery. Because, in the end, all those factors must be balanced. Our sustainability efforts only have value if they come in a system that meets our customers' business needs.



Circular economy

We aim to maximize the value of our systems, reusing resources as much as possible, while minimizing waste, decoupling our growth from resource consumption, and recycling materials.

IN THIS SECTION

- 93 Our overall performance in 2023
- 94 Prevent waste
- 95 Extend the lifetime of our products
- 97 Reuse resources
- 99 Recycle materials



Why it matters

Our materiality assessment identified the impact of our use of materials and resources as a material topic – and our focus on a circular economy is the cornerstone of our commitment to managing this challenge.

A circular economy enables sustainable economic growth by creating business loops, ensuring efficient use of resources and driving an innovative business model. This approach is an essential part of decoupling our growth from the increasing consumption of resources.

Through our circular economy initiative, we aim to ensure our products and services retain and create as much value as possible for us and our partners in the ecosystem.

Our circular economy strategy is based on the following four principles:

- Prevent waste
- Extend lifetime
- Reuse resources
- Recycle materials

How we're managing our impact

A successful transition toward a circular economy means improved designs, operational resilience, reduced emissions and reduced costs. Improved designs are achieved through learning from use cases – both successes and failures – to improve products, solutions and processes. The availability of parts and access to material to support ASML's growth, while decoupling it from material consumption and closing the loops, will be key for operational resilience. This will lead to reduced emissions through disposing locally and eliminating waste ending in incineration, energy recovery and landfill. Cost reduction can be achieved by optimizing the amount of purchased goods while avoiding surplus and reusing resources to eliminate waste. In summary, ASML's approach to circular economy is designing products for longevity and reuse, creating closed-loop supply chains and encouraging the recycling of materials.



95%

Systems sold in the past 30 years still active in the field

(2025 target: >95%)



88%

Reuse rate of parts returned from field and factory

(2025 target: 95%)



8,279 t

Total waste from operations

(excl. construction)



300 kg

Waste generated per €m revenue

(2025 target: 209 kg)



55%

Recycling rate

(excl. construction)
(2025 target: 90%)

Circular economy (continued)

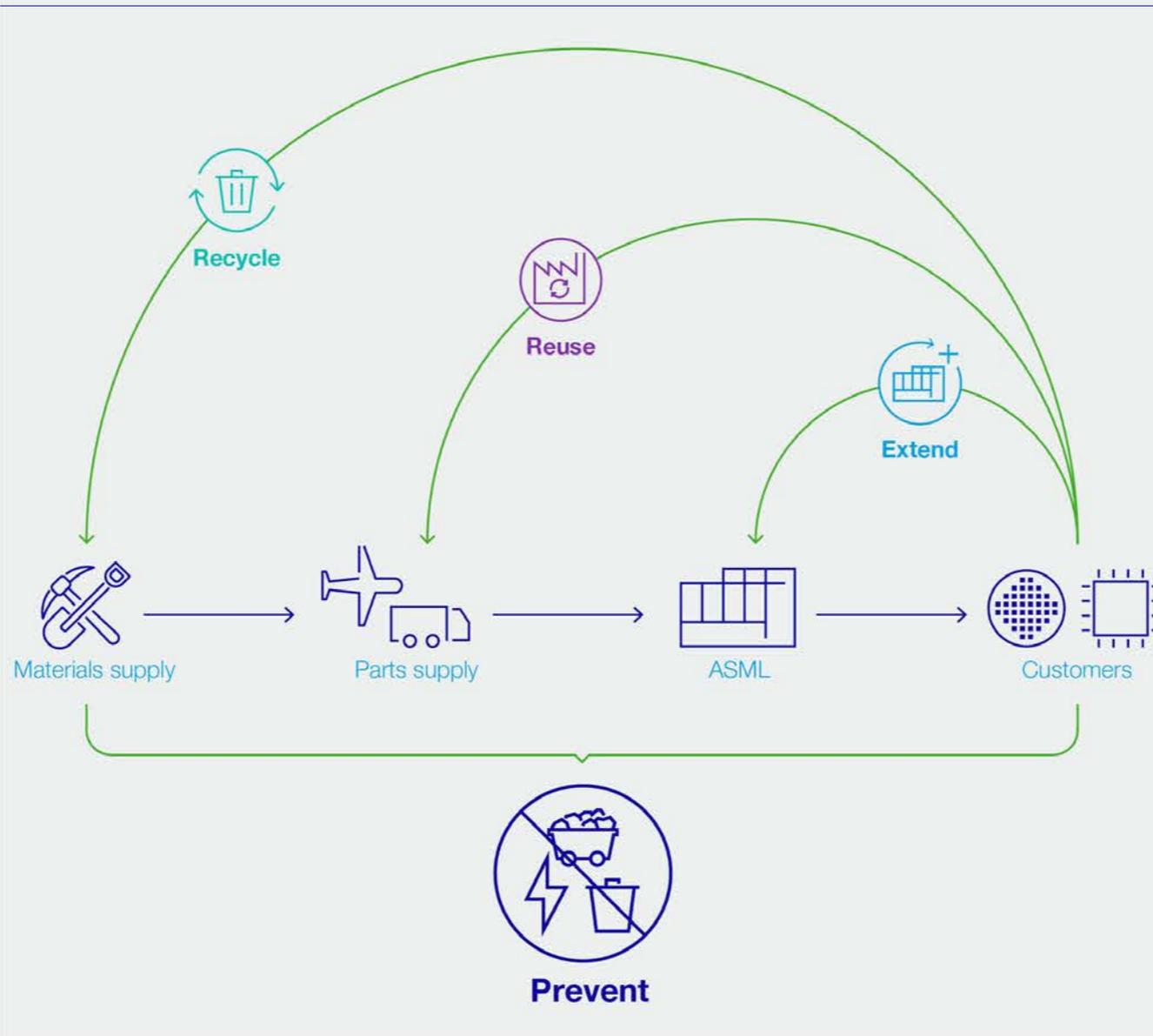
The diagram on the right illustrates our circular economy approach.

We have an ambition to reduce waste in our operations:

By 2030, we aim to send zero waste from operations to landfill or incineration¹.



Our circular economy approach



Our different types of waste

We measure our impact in tonnes of waste, by category (hazardous and non-hazardous) and by material type (such as plastics, paper, wood and hazardous liquids). We include data on the CO₂e impact of processing our waste in our scope 3 emissions. Within our operations, we divide our waste into two broad categories:

Non-hazardous waste, such as packaging material, product-related waste from parts resulting from upgrades or defects, and general waste. This category also includes construction waste from building activities – the amount of construction waste tends to fluctuate over the years.

Hazardous waste, such as the chemicals we use in our manufacturing processes. This can include everything from lamps, batteries and liquids to cleaning wipes and filters. Most of our hazardous waste is in the form of liquids, including acetone and piranha acid.

1. Incineration is defined to include processes with and without energy recovery.

Circular economy (continued)

On track ●
Ongoing focus area ■

Our overall performance in 2023

Topic	Target 2025	Performance indicator	Progress tracking			Status
			2021	2022	2023	
Circular economy 	>95%	% of lithography systems sold in the past 30 years still active in the field	94%	95%	95%	●
	95%	Reuse rate of parts returned from field and factory	85%	87%	88%	●
	No target	Savings from reused parts (€, in millions)	686	781	1,311	n/a
	No target	Value of scrapped parts (€, in millions) ¹	269	146	206	n/a
	209 kg/€m	Total waste from operations (excl. construction ²) normalized to revenue	305	315	300	■
	90%	Recycling rate (excl. construction ²)	77%	75%	55%	■
	No target	Total waste from operations (excl. construction ²) (in tonnes)	5,679	6,675	8,279	n/a

1. This reporting indicator follows the principle of prior-year indicator 'Value of scrapped parts (in € millions)'; however it does not include packaging. The 2022 comparative figure has been restated.

2. Construction waste is excluded from the calculation of this indicator. The amount of construction waste tends to fluctuate over the years and can therefore make the trend of the indicator unclear.

[Read more about our performance indicators \(PIs\) and related results in Non-financial statements – Non-financial indicators – Circular economy](#)

In 2023, we generated 8,932 tonnes of waste from our operations overall (including construction waste). This was an increase of 29% over 2022 (6,913 tonnes).

Our total amount of waste increased due to ASML's growth, despite the impact of projects to reduce waste. However, the amount of waste from operations normalized to revenue showed a decrease in 2023.

During the year, 7% of total waste (653 tonnes) was related to construction (2022: 238 tonnes, or 3%). The amount of construction waste increased compared to 2022. During 2023, significant demolition activities were ongoing on our Veldhoven main campus. Since we hand over the responsibility of the construction sites to the building contractor, the demolition waste is excluded from our waste data. Although we do not report on it, we work with our contractors to try to ensure maximum recycling of this waste.

In 2023, 43% of the total waste from operations (including construction waste) was sent to landfill, incineration with energy recovery or incineration (2022: 25%).

The presence of hazardous materials is a risk to our ability to achieve our goal of sending zero waste from operations to landfill or incineration. In some countries, there is also the risk that our waste hauler may not be able to identify companies able to recycle some of our waste.

Our total waste in 2023



Circular economy (continued)

Prevent waste

How we're managing our impact

The first principle of our circular economy is to prevent waste. This involves eliminating or limiting waste at its source by rethinking and redesigning processes to avoid waste, focusing on design, sourcing and quality, among others. We aim to design our systems, products and processes to maximize their value by focusing on commonality, modularity, compatibility, standardization, reusability, reliability and recyclability, while opting for mono-material components and eco-design methodology, minimizing the use of critical raw materials like rare earths and hazardous materials.

We aim to collaborate with product- and non-product-related suppliers that deliver durable and efficient products with recycled material, which can be upgraded, refurbished, repaired, reused and recycled. We improve the quality of our systems by avoiding defects on arrival, and implementing lean principles in all processes, specifically in manufacturing and logistics, to eliminate waste.

We design our systems to last for as long as possible in order to prevent waste. Built-in feedback loops ensure that we continuously improve product designs by learning from failure modes and repair activities.

We have a team dedicated to ensuring we take a sustainable packaging approach that maximizes the use of our resources and minimizes waste while ensuring the safe transport of our systems. We also have activities that aim to minimize waste across the value chain – from sourcing to customer support – enabling improvements in both hazardous and non-hazardous waste streams.

We actively prevent waste by agreeing with suppliers of IT hardware to deliver in bulk instead of individual packaging. This limits the amount of packaging material.

We also focus on preventing waste by agreeing with IT suppliers to only ship parts that we actually use. For example, the stands were previously included with every computer monitor ordered, even though we do not use those stands. Now the stands are no longer included in the order and therefore not produced by the manufacturer, which prevents waste.

Materials used in EUV sources undergo rigorous conditions, including exposure to high temperatures, thermal cycling, corrosive liquid tin, high pressures, pressure cycling and hydrogen. These materials, such as strategic tantalum alloys and molybdenum, are both limited in availability and costly. Ongoing trials are focused on preventing the use of virgin material by extending the lifespan of materials used in the system, enhancing material quality in the production process and improving application conditions.

Our targets and performance in 2023

Although addressing our waste performance is a relatively new focus area for us, we have already made some progress. For example, while our sales have grown by 30.2%, our waste generation from our own operations has increased at a lower rate of 24%.

[Read more in Our overall performance in 2023](#)

Our actions in 2023

We have continued to focus on embedding a circular approach more deeply in our design processes. By thinking about modularity, commonality and repairability during the design phase, we can extend the lifetime of our machines and increase reuse opportunities for parts in the future, aiming to prevent waste.

We have started a project to embed design for reuse in our PGP. This means that, as an example, the PGP includes a default design of a repair method for any service part. This enables parts in the installed base systems to be repaired even after any engineering change, so the new functionality may not hinder the repairability of the legacy parts.

Modular design of products and components enables future upgrades, worn parts and components to be replaced as a single unit. In 2023, we successfully concluded the first phase of a feasibility study demonstrating the manufacturability of modular wafer tables, aiming to secure the reusability of over 2,600 wafer tables by 2028.

We couple learnings from remanufacturing back to the design process. In 2023, for example, we improved the

design of our in-line refill module, which we have been remanufacturing since we designed it in our system.

Another example is the learnings from our local repair center team in South Korea. By enabling the repairability of one of our alignment lasers, they were able to correct for the key failure mode on the 'shutter' that lets the light out of the laser module.

Commonality in the parts design process enables a part to be used in multiple contexts within a product and in future product generations.

Looking ahead

Starting from 2024, we aim to have zero waste from operations to landfill or incineration from our newly designed products, with repair and reuse requirements as part of the product requirement specification. This is part of our customer proposition.

In our D&E teams, we will set up a specific 'repair competence', which will enable people to specialize and be the subject matter experts in this field. These dedicated repair-focused teams will work with all functions in D&E and across ASML's business.

We are setting up a packaging waste reduction program with the aim to reduce waste by 2025, with targets toward 2030 under discussion.

In 2024, the feasibility study for modular wafer tables for Wilton and Berlin will be finalized.

Circular economy (continued)

Extend the lifetime of our products

How we're managing our impact

As a well-maintained ASML system can last for decades and create value for more than one customer, the second principle in our circular economy approach is to extend the lifetime of our products.

ASML aims to maintain systems in use as long as economically and environmentally possible, focusing on service, upgrades and refurbishment of assets, systems and goods. We are establishing customer contracts to maintain systems in the market for as long as possible, maximizing their value and avoiding obsolescence. We develop refresh packages to extend the life while maintaining a high performance. We develop lifetime extension and performance packages – productivity enhancement packages (PEPs) and system node extension packages (SNEPs) – to enhance the systems' running period and performance.

We also refurbish systems across the business – our refurbishment strategy focuses on buying back systems that are not operational in the field, harvesting parts from decommissioned systems and managing the continued availability of spare parts. This is key to the extended lifetime service we offer for our systems. We also re-sell systems as long as we can guarantee the parts.

Once a fab needs to upgrade, an 'older' lithography system is given a new purpose in a new fab producing comparatively less sophisticated chips, such as accelerometers or radio-frequency chips.

We provide our customers with a guaranteed service roadmap until at least 2030. This means that all the support and necessary services and spare parts required to maintain their systems are expected to be available until at least 2030, subject to export control limitations.

We focus on refurbishing a number of product families: PAS 5500 (with almost 1,800 systems at customer sites worldwide), TWINSCAN XT systems (2,000 systems) and, as of 2021, NXT:1950-1980 systems (1,000 systems). For the approximately 200 TWINSCAN AT systems that are still in operation, we focus on measures to proactively manage their end of life. We do this by guaranteeing the availability of spare parts for as long as possible and providing customers with sufficient notice if we can no longer guarantee part supply.

Our targets and performance in 2023

Our target for 2025 is that more than 95% of systems sold in the past 30 years should still be active in the field.

To date, we have refurbished and resold almost 570 lithography systems. As of the end of 2023, 95% (2022: 95%) of all systems sold in the past 30 years are still active in the field.



Circular economy (continued) Extend the lifetime of our products (continued)

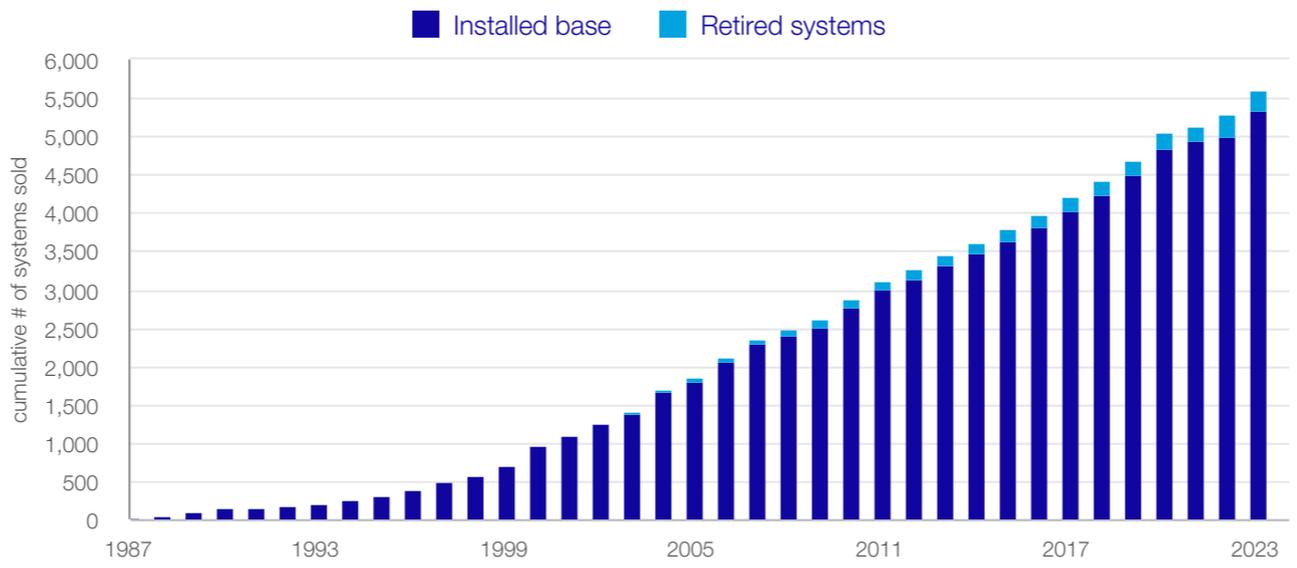
Our actions in 2023

Refurbishment is a multi-year program in which we continually invest to ensure the supply of more than 2,000 service parts for our PAS platform. This is achieved either through redesigns, harvesting parts or finding an alternative with the same form, fit and function. Where this is not possible, we are generally able to secure components through 'last time buy' – a supplier's 'last call' for a part or component before production switches to its successor. When a part is no longer available, we redesign the parts.

In 2023, we acquired a PAS 5500 parts repair company in the US that will support our ambition to sustain PAS not only through 2030, but also beyond. In addition, we intend to extend their capability to accelerate our XT parts repair competence.

We track the spare parts in our portfolio to see how they are being used and identify when we expect to run out of individual items. For PAS and XT systems, we use this information to update our priorities for redesign. For TWINSCAN AT systems, we aim to continue supplying parts by harvesting them from systems that are decommissioned by our customers.

95% of all lithography systems sold in the past 30 years still active in the field



Looking ahead

We have identified and plan to execute more than 100 redesign projects for nearly 300 parts in the coming years. This is particularly relevant for electronic parts, for which the evolution of technology has been faster than in any other field.

We will continue to increase our focus on local repair to extend the life of the mature installed base at lower cost, reducing the need to redesign and buy new materials and parts.

The refurbishment activities we have been doing for years on our PAS systems will be extended to cover both XT and NXT systems. We are currently on track to meet our target of >95%.

Circular economy (continued)

Reuse resources

How we're managing our impact

ASML is committed to reusing parts, packaging, tools and non-product-related resources in the value chain, focusing on the return, recondition and repurposing processes. We optimize return flows by collaborating with customers and suppliers, while learning from system usage and product returns. We recondition parts and packaging through global and local repair centers, suppliers and partners, at the best location with the lowest environmental impact. We repair buildings, assets and infrastructure. We enable the repurposing of parts, packaging, tools and devices in a new life cycle inside and outside ASML.

We maximize the reuse of system parts, packaging and tools in our value chain to reduce waste and meet customer demand.

Reuse is also a key contributor to our ability to ramp up capacity to cope with strong customer demand. We retrieve parts from inventory or through repair or harvesting.

88%
reuse rate of defective parts,
up from 87% in 2022

Reuse also offers learning opportunities to improve the performance and lifetime of our parts and systems. We work closely with our customers and suppliers to embed learnings in design and processes throughout the value chain.

We aim to reuse workplace IT assets obtained (e.g. monitors) when buildings are decommissioned. Instead of assets being disposed of at the end of their economic lifespan, they are used to set up work environments in other buildings where and when possible.

Key improvement areas

We focus on the following key improvement areas:

- **Repair centers:** Repair close to where parts are needed to improve parts repair yields by reducing cycle time of root-cause analysis and repairs.
- **Predictable external repair flow:** Simplify and standardize return and repair flows to enable us to scale activities.
- **Circular supplier collaboration:** Incentivize suppliers to prioritize reuse over new materials.
- **Return quality:** Ensure that parts are returned with reuse in mind – quality returns lead to quality repairs.
- **Packaging and transportation tools:** Increase reuse of packaging, which is the main contributor to our waste (from operations).

Our targets and performance in 2023

Our overall target is to increase the reuse rate of defective parts in ASML factories and in the field to 95% by 2025. This means successfully reconditioning at least 95% of our parts.

In 2023, our reuse rate of parts was 88%, up from 87% in 2022 – on target to achieve our goal. The savings we generated from reused parts amounted to €1,311 million (2022: €781 million) and the value of scrapped parts was €206 million (2022: €146 million).

Our actions in 2023

Repair centers

We are extending the number of repair centers worldwide to support the reuse of parts by returning, cleaning and reconditioning them close to where they are needed. Demand for these parts can be driven by our customers needing service parts for their installed base, or by our factories requiring parts for new systems.

Currently, we have several repair centers in Asia (South Korea, Taiwan and China), the US (Wilton, San Diego) and the EU (Veldhoven). We are investigating our options to extend our network of local repair centers to other locations.

Our repair centers work with local suppliers and specialized repair partners to create a local ecosystem. By enabling repair and reuse activities and taking ownership of repairs close to where materials are needed, we are able to reduce logistics time, cost of stocking parts and our environmental impact (by reducing scrap and GHG emissions). Our customers benefit from reduced service costs and improved material availability.

In 2023, we launched a dedicated cross-company team to further explore local reuse activities in Taiwan, and have begun the process of setting up a similar operation in the US. We intend to empower local teams to initiate reuse activities, as local business requirements and situations may vary. The central reuse team provides guidance and support where needed and drives roll-out of local best practices across other locations.

With over 1,200 m² of cleanroom, our dedicated reuse facilities in Veldhoven will be instrumental in this.

Predictable external repair flow

We are working to increase the scalability and predictability of our reuse flows in order to future-proof return and recondition processes to deal with growing demand. This includes forecasting repairs to help suppliers prepare capacity. By combining service and factory return flows – and simplifying and automating operational planning and repair order management – we are increasing the availability of repaired parts. Our aim is to maximize reuse of parts and ensure it is the preferred option over new purchases.

Circular economy (continued)

Reuse resources (continued)

Circular supplier collaboration

We are collaborating with suppliers to incentivize reuse over new purchases. We are investigating transferring used parts back to our suppliers to repair, refurbish or harvest for reuse in their new buying process, giving them more flexibility in how they can reuse parts.

In 2023, we investigated how to support a new collaboration model with suppliers for reusing materials and how to adjust our processes and systems to enable it. We piloted the new way of working with eight suppliers and have started engagements with additional suppliers.

Return quality

Challenges that occur downstream in the value chain during the repair phase often have their origins upstream and are related to the quality of returns, for example through incorrect labeling or packaging.

In 2023, we started piloting barcode scanning of defect parts in the return flow to support correct labeling. In 2024, this project will ramp up to a program to also cover all root causes of poor return quality.

Packaging and transportation tools

Valuable transportation materials – such as packaging, locking and plug materials – are used to safely transport our modules and systems, either from our suppliers to our factories or from our factories to our customers. Instead of being thrown away once they reach their destination, these materials are reused.

Before parts are returned for reuse, they undergo an identification process and quality check, followed by the logistical and financial processes required to bring them back into the supply chain (either to the original module suppliers or to ASML). Our goal is to standardize these processes and create a network-related solution to enable high flexibility and reduce transport, which also reduces our CO₂e footprint.

We are improving the reuse of packaging, lockings and plugs from the field and factory. We aim toward 100% recyclable packaging with an eye on minimizing waste and environmental impact.

In 2023, we made progress in reusing thousands of small auxiliary materials, such as plugs, flanges, caps and brackets. These are now being reused for system parts in our factories or for shipping machines to our customers. Furthermore, we developed a solution to embed the reuse requirements in our design processes – and this will be fully implemented in 2024.

Circular Innovation Program

The circular innovation program (CIP) is a collaboration with ImpactX and Brainport Industries. It is a four-day tailor-made program focusing on building a stronger relationship with our supply base by creating circular competencies.

In 2023, we consolidated CIP with the participation of eight suppliers divided into two cohorts. We run two cohorts per year and four suppliers are invited each time. Through the program we are able to close business loops, boost supplier impact and strengthen collaboration overall. The benefits are the creation of a shared vision on the circular economy, peer learning, and the joint building of competencies and knowledge around reusing products, parts and materials in the value chain.

The participants invited so far are first-tier suppliers; however, we want to extend the program to other tiers as well. Additionally, we have the ambition to expand CIP beyond the Brainport Eindhoven region in the Netherlands, to other locations around the world.

Looking ahead

Reuse roadmap

In 2024, we will have more focus on the reuse program, with teams dedicated to repairs, reverse logistics, reuse-related engineering, local harvesting and repair centers worldwide.

In the context of supplier capacity, our supplier backlog is building up. We need stronger supplier collaboration, focusing on reuse over new, and working on forecasting and planning of repairs to reduce supplier repair cycle time.

We are implementing a structural improvement roadmap related to repair and reuse across all functions in ASML in order to meet our 2025 targets.



Circular economy (continued)
Recycle materials

How we're managing our impact

ASML's aim is to recycle material at end of life, focusing on the collection, analysis and reporting processes. We define the collection and sorting methods in collaboration with partners to increase recycling rates of both hazardous and non-hazardous materials, including local recycling at end of life and construction waste. We identify drivers of waste, gain insights into reasons for disposal, provide feedback to prevent waste, and improve designs and opportunities for recycling.

Following our principles hierarchy, recycling materials is the final step in the process, in case we have not been able to prevent the waste, extend the lifetime of our systems and assets, or reuse our resources.

As our company grows, so too does the number of our employees, the number of systems we produce, and the number and size of our facilities. We are determined to decouple growth from our overall resource consumption.

Recycling our waste plays a key role in closing the material loop – by 2030, we want to avoid energy recovery, incineration and landfill as much as possible. Our aim is to recycle materials instead of incinerating or disposing of them to landfill. Understanding our waste streams is key to identifying opportunities to increase recycling of both hazardous and non-hazardous waste.

We aim to maximize waste separation at our sites to enable increased recycling rates and easy recycling at the waste haulers'.

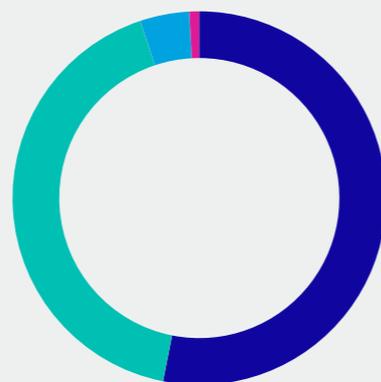
Understanding and managing our waste flows and impacts

The effective monitoring and managing of waste relies on the availability of detailed and accurate insights into waste streams to and from ASML. We manage our waste through proper classification, separation, and safe disposal by waste vendors. Our contracts with waste vendors state the need for compliance with local legislation and we aim to improve how this is monitored.

Waste data is managed through our myEHS system, which collects information from our local waste vendors along with the relevant supporting documentation, such as invoices. The data entered is checked internally and by an independent party against the supporting documentation.

Distribution of waste streams

(Total: 8,932 tonnes)

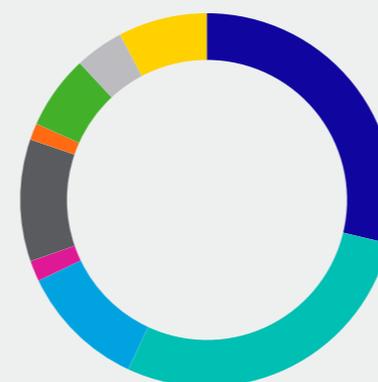


Non-hazardous waste recycling	53%
Non-hazardous waste disposed of	42%
Hazardous waste recycling	4%
Hazardous waste disposed of	1%

Non-hazardous waste accounted for 95% (2022: 95% (6,533 tonnes)) of our total waste in 2023, of which 53% was recycled.

Distribution of non-hazardous waste

(Total: 8,474 tonnes)

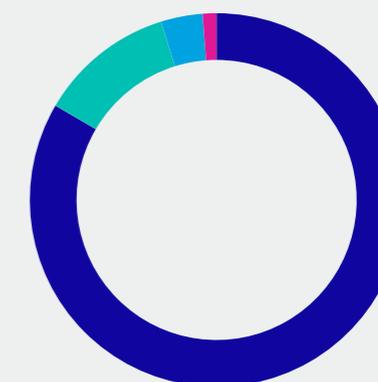


Wood	29%
General waste	28%
Paper and cardboard	11%
Electronics	2%
Metals	11%
Other non-hazardous waste	1%
Plastic	6%
Organic waste	4%
Construction waste	8%

Hazardous waste accounted for 5% (458 tonnes) of our total waste generated, compared with 5% (380 tonnes) in 2022. Of this, 83% was recycled.

Distribution of hazardous waste

(Total: 458 tonnes)



Hazardous liquids	83%
Other hazardous waste (e.g. packaging, filters, lamps, etc.)	12%
Cleaning wipes	4%
Batteries	1%

Circular economy (continued)

Recycle materials (continued)

Recycling materials conserves natural resources and reduces carbon emissions. In the Netherlands, after investigating non-product-related activities, some construction waste – such as concrete – has been reused (after processing) in the construction of new buildings.

Our targets and performance in 2023

Our waste intensity in 2023 was 300 kg per €m revenue, down from 315 kg per €m revenue in 2022. This remains below the pre-COVID-19 waste intensity. To achieve our target of 209 kg per €m revenue, we need to scale up our efforts to reduce our waste streams in absolute terms and improve our recycling rate.

We are increasing our efforts to reduce waste by setting up specific projects on packaging, general waste and hazardous materials. The main contributors to our packaging waste are wooden pallets. We need to extend their reuse even further and make a transition in waste treatment, from energy recovery to recycling. Another big challenge we are working on is to reduce packaging waste generated by the materials used to transport our systems and parts around the world. General waste from our offices and facilities represented 28% of the total waste in 2023. We have started projects on separation and sorting to improve its recyclability and prevent its generation.

Our aim is to avoid landfill and incineration by 2030. In 2023, this accounted for 43% of our waste, including hazardous substances and construction waste. We are currently piloting an ASML solution which aims to reduce our hazardous waste by approximately 65%.

Our target is to achieve a recycling rate (excluding construction waste) of 90% by 2025.

We saw a significant decrease in the recycling rate, from 75% in 2022 to 55% in 2023.

The lower recycling rate in 2023 can be explained by an increased focus on our waste. New insights show that waste companies reported recycling rates using different definitions. We will continue to improve the quality of data next year and start initiatives with our waste companies to increase the recycling rate.

[Read more on our waste figures in Non-financial indicators - Circular economy](#)

Our actions in 2023

Waste reduction program

During the year we launched a program to reduce waste coming from non-product-related resources. This program features several different initiatives, with the first focusing on creating clear governance processes to improve waste recycling, and working on obtaining more accurate and reliable data from our waste haulers. We also gained a better overview of our waste and mapped our waste streams at the Veldhoven site, which represent 60% of our total waste. We created a circularity plan for our five largest industrial sites to improve our waste data quality and recycling rate.

The full program, which covers plans for both hazardous and non-hazardous waste, includes:

- Identifying where the waste comes from (inbound versus operations) by organizing Gemba Walks (opportunities for staff to walk the work floor) to see the waste in the warehouse, factory and offices, and also by visiting our waste haulers to understand how our waste is processed
- Examining what the waste consists of through a detailed sorting test (performed by one of our waste haulers)
- Assessing the quantity of hazardous and non-hazardous waste
- Identifying potentially large waste flows. The Veldhoven campus non-product-related waste flows are shown in the diagram on the next page
- Proposing actions and process optimizations to achieve our targets

Other recycling initiatives

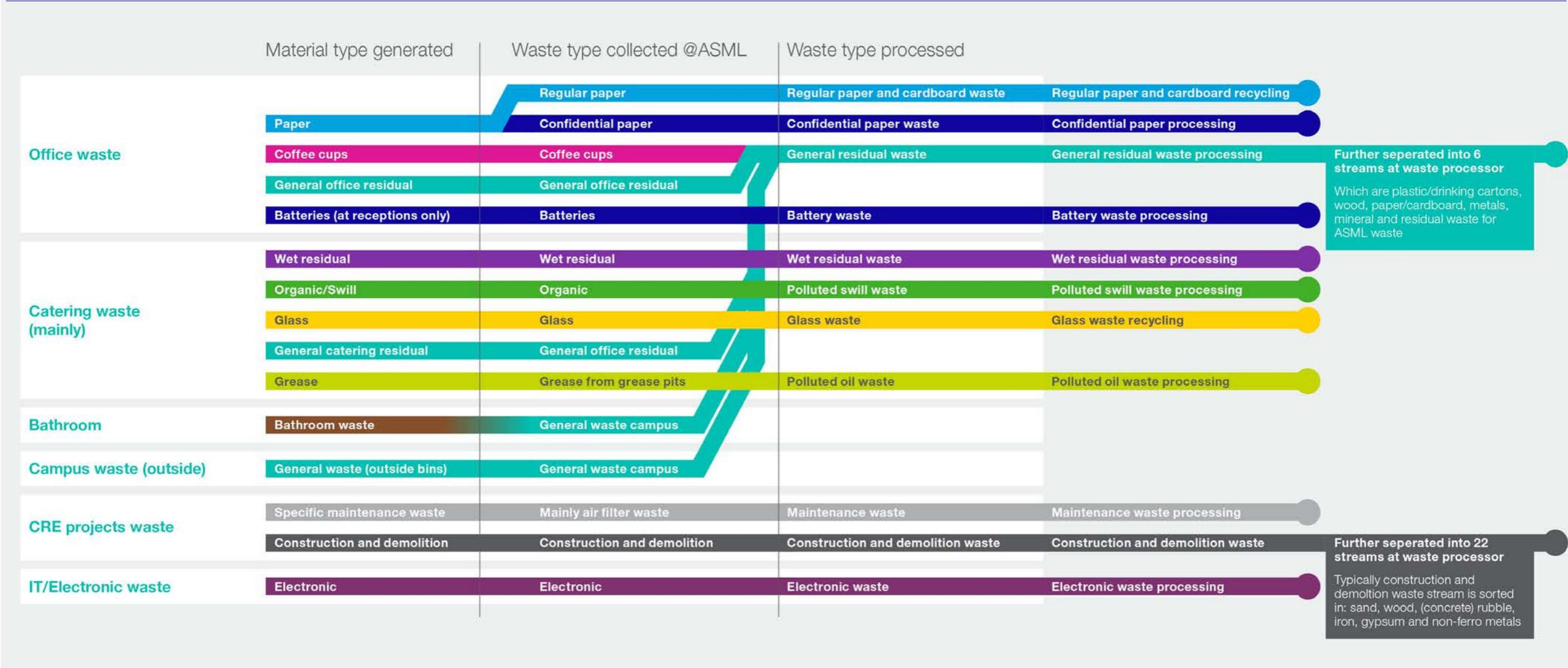
In 2023, we started local remanufacturing of modules that capture tin from the EUV light source. As tin is a consumable, these ‘tin catch’ modules fill up and get contaminated by design. Local remanufacturing enables fast, efficient reuse with minimal shipment miles, as well as the possibility to reclaim tin for the next cycle of use.

We actively support extending the life cycle of IT assets by giving them another life outside of ASML. In 2023, we donated over 300 laptops to multiple charities, mainly in the area of children's education.

All IT assets that ASML can no longer use are professionally processed by a specialized partner after the end of their life cycle, with the aim of life cycle extension outside of ASML.

Circular economy (continued)
Recycle materials (continued)

Veldhoven 2023 insight current non-product-related (NPR) campus waste flows



Circular economy (continued)

Recycle materials (continued)

Improving waste stream management

We have improved the accuracy of our waste reporting by increasing actual measurements of the amounts of waste at our main production site in Veldhoven.

In addition, we have made progress across our wider portfolio, including:

1. Preparing to align our boundary reporting from 57 locations to all locations worldwide – ready for implementation in 2024
2. Recognizing the need to manage recycling centrally, with implementation delegated to three groups with central governance
3. Developing circularity master plans for infrastructure and facility-related activities at the largest ASML industrial sites – Veldhoven, San Diego, Wilton, Linkou and Tainan. The master plans cover three work streams with initiatives to: 1. Improve data quality, 2. Prevent, extend, reuse during construction and 3. Reduce waste/improve recycling in the short term
4. Implementing a specific waste reduction program for non-product-related resources:
 - a. Recognizing that waste is a challenge across the organization
 - b. Focusing on our real estate, global manufacturing and IT department in the coming years to reduce waste
 - c. Initiating Gemba Walks in all of our largest sites to improve understanding of waste composition for future reduction initiatives, and to educate stakeholders on improving waste stream quality

- d. Improving waste data integrity (including data completeness and relevance, among others). This is being rolled out firstly in our large factories and includes gap assessments, construction waste definitions, improved reporting and an overview of waste haulers
- e. Implementing a program in the Netherlands to improve waste segregation upstream/downstream, as part of our objective to increase waste recycling in the country to more than 90%
- f. Engaging with a new waste hauler in Taiwan. We anticipate that this change should lead to a 46% improvement of our waste recycling in Tainan and 18% in Linkou in 2024
- g. Implementing reuse of furniture in Taiwan
- h. Starting to audit waste management in our factory in Wilton (US)
- i. Improving scrutiny of accurate binning of waste categories in San Diego (US). This will provide better direction for future waste reduction initiatives
- j. Removing single-use plastic-containing food disposables (coffee cups/plastics in catering) in line with new laws in the Netherlands

Construction waste

As we continue to expand our facilities, we aim to maximize the recycling of waste from our construction activities.

In 2023, we began to assess the completeness, accuracy and consistency of our construction waste reporting at four of our large industrial sites.

Our conclusion is that we need to focus on two specific areas. Firstly, we must improve the data collection process around our construction waste streams. Secondly, we must improve data quality as part of our circularity roadmap. This is a significant challenge, because it means identifying construction waste over several hundred projects every year, some of which have already started, with multiple construction waste haulers. We currently have circularity master plans in place at our five biggest industrial sites and are working on improving the waste data.

Looking ahead

Despite our many initiatives, achieving our waste recycling targets remains a challenge.

Our actions in 2023 included the decision to reorganize how we manage our waste. In the months ahead, we intend to investigate the impact of this decision and prepare to implement an organizational structure that will be designed to help us achieve our recycling rate target. Based on the insights gained in 2023, we will re-evaluate the recycling rate target set for 2025.

When implemented, the changes will impact how we categorize and manage our waste and will be designed to improve the integrity of waste data across the company. These enhancements will enable us to extend our waste reporting to all sites during 2024.

Our so-called piranha solution – used in etching processes to remove organic residues from substrates – represents about two-thirds of our hazardous waste. We will investigate specific solutions, such as the feasibility of reprocessing our piranha solution for reuse as sulfuric acid in a different market.

We will also investigate the feasibility of replacing single-use disposable plastics for food and drinks in other large industrial sites with reusable alternatives, which we believe will lead to further reduction of our waste.

Finally, we will investigate scaling up our waste segregation – collection and sorting – onsite to improve the recycling rate.

Water management

Why it matters

Climate change and increased water demand combine to mean that droughts have become more extreme and unpredictable, and water is becoming a scarce resource in some locations.

Water consumption at ASML accounts for only a tiny fraction of the water consumed by the semiconductor industry. Our water-related risk is therefore low compared to that of our customers, who use a significant amount of water during the semiconductor manufacturing processes.

How we're managing our impact

Despite our relatively low level of water usage, as a responsible business we promote efficient water use and recycling across our sites and processes.

[Read more in our TCFD Recommendations – Climate-related disclosure, available at \[asml.com\]\(https://www.asml.com\)](#)

In our factories, we use water in three key ways: Firstly, we use it to remove heat loads and maintain the systems at a constant temperature. Internal cooling circuits are all designed as 'closed-loop' (recycling) systems to limit water consumption. Secondly, these heat loads are eventually removed in cooling towers using evaporation of lower-quality water. Finally, DUV systems use ultrapure water in the immersion hood – this water is currently only partially recycled.

Our water consumption in 2023 remained stable around 1% higher at 1,173,990 m³, if compared to 1,161,850 m³ in 2022.



Social at a glance

We aim to have a positive social impact by providing an attractive workplace, ensuring a responsible supply chain, supporting an innovation ecosystem and being a valued partner in our communities.

SOCIAL

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Responsible supply chain

We depend on our suppliers to help deliver our innovations. They are critical to our value chain and our ambition to be a sustainable leader in the semiconductor industry.

57%
% supplier spend covered with a commitment to sustainability



Innovation ecosystem

We never innovate in isolation because developing technology in collaboration with partners across the innovation ecosystem maximizes our collective impact.

€4.0bn
R&D investments

Valued partner in our communities

We play an active role in the communities where we operate, recognizing that when the community thrives, we thrive.

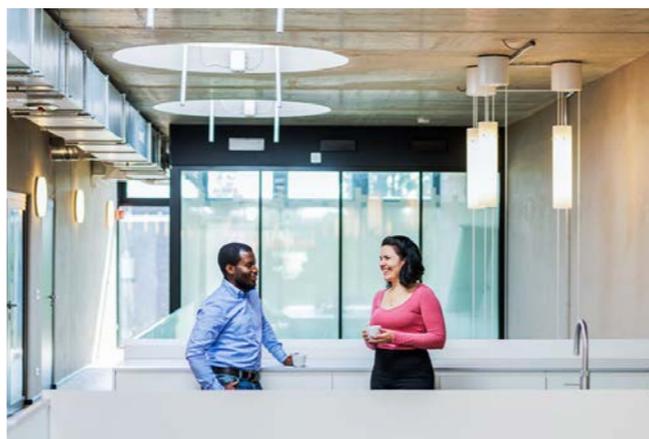
€413
Community partnership program and amount invested per employee



Attractive workplace for all

We need to empower our employees to deliver our vision by ensuring they are proud to be part of ASML and engaged with our ambitions as a company.

80.3%
employee engagement score



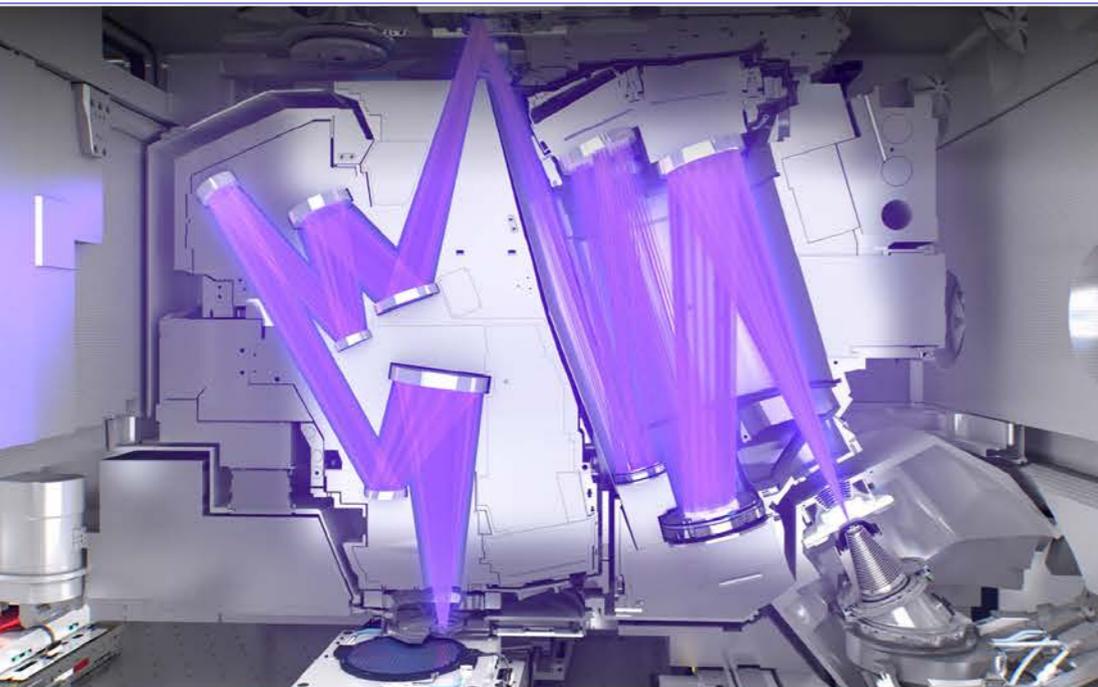


“
ASML’s focus on technology and its supportive culture mean you can go wherever your talent and ambition take you.”

Anya Kish
Program Director, EUV Source
8 years at ASML

Making a difference

Anya Kish moved from Russia to the US for her graduate studies in plasma physics. That willingness to take opportunities however they present themselves has seen her build a career at ASML as a problem solver who thrives under pressure. She now works as project manager for the light source for our next extreme ultraviolet lithography system.



Finding a place to grow

I had wanted to work at ASML ever since I was a graduate student, and a course mate told me about the company. I read more online and watched all the YouTube videos I could find. I was blown away by the cutting-edge technology.

Soon after graduating, I was lucky enough to get a temporary contract and then a permanent position as an engineer in the Source Performance team in San Diego, working to improve the performance of EUV light sources. A fantastic manager suggested that I may have a talent for project management. I am someone who thrives on a fast pace, pressure and action, so I said why not?

A new journey

I started small, leading a team of one – me. But I loved the energy and was eager for more. The next opportunity came out of the blue. I was on a trip to Veldhoven when key customers reported an issue that was impacting the lifetime of mirrors used in our EUV light sources. This had become our number one customer issue and could have delayed the introduction of EUV lithography into mass production.

ASML's senior management needed an update, and fast. As the subject matter expert was absent and I was onsite, I was asked to give a presentation the next day. I had no prior knowledge of the issue, but spent the night learning everything I could. I read all the materials and phoned round colleagues for more information. Everyone was happy to help. The presentation went so well that I was asked to head up a task force to address the issue. A year later, the project won awards from key customers and within ASML, and mirror lifetime had gone from the number one customer issue to something people hardly ever mentioned.

A culture of support

That unexpected opportunity was the first real step on my project management journey. And it highlights two of my favorite things about working at ASML: The technology and the culture. I couldn't have given that presentation without the support of the colleagues who took my calls and answered my questions. The supportive culture is why I feel confident to take on new challenges here: There are always people around who want to help you and ASML succeed.

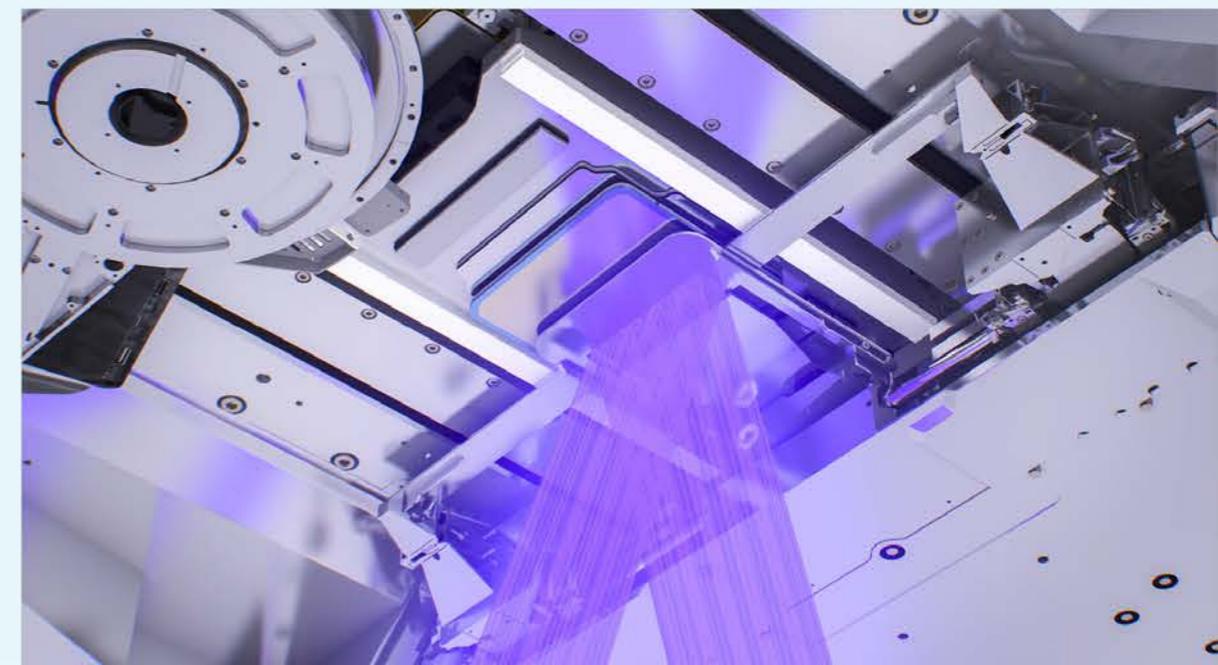
Friends from outside ASML sometimes ask me about working in technology as a woman or working in the US as a Russian. Those questions surprise me, as who I am has never been a factor in my experience and the opportunities I have had at ASML.

Yes, the industry has been male dominated, but it is changing. When I started eight years ago, I used to joke that I was given my own private bathroom, as I was the only woman on my floor. But that certainly isn't true anymore. And in my experience, ideas are always judged on their merit.

There are programs to support different groups within ASML. They do great things bringing people together and raising issues, but people here really don't need much education.

Source of inspiration

I joined ASML because I was blown away by the technology as a student. And I still am. I recently moved on to a new stage in my journey here, managing the entire NXE:3800 source that will be introduced to customers in 2024. But even now, I sometimes go down to the lab just to look at a source prototype with its thousands of components. That we can make that work seems almost like magic, even after eight years of working for ASML.



Attractive workplace for all

We need to empower our employees to deliver our vision by ensuring they are proud to be part of ASML and engaged with our ambitions as a company.

IN THIS SECTION:

- 109 Our overall performance in 2023
- 111 Inspiring a unified culture
- 114 Providing the best employee experience
- 120 Enabling strong leadership
- 122 Ensuring employee health and safety



Why it matters

To maintain our fast pace of innovation and our leadership position for the long term, we need to attract and retain the best talent and create a working environment where people can develop their talents, feel respected and safe, be healthy and thrive.

We work hard to attract the world’s top talent and invest in helping them reach their full potential. The more we can help our people to grow within ASML, the more our company can grow.

Our growth in recent years has been accompanied by a large increase in our workforce. This has brought benefits – such as a more diverse employee base – as well as challenges. As the organization becomes more complex, and the expectations of our customers and stakeholders increase, the need to engage all our employees and ensure a truly inclusive environment becomes even more crucial.

How we’re managing our impact

ASML’s people vision sets our ambition for the long term, supporting our values – challenge, collaborate and care – and what we stand for:

We empower each other to thrive, fueling our growth, happiness and business success.

Everyone throughout the organization has an important role to play in realizing this vision. We work hard to create an environment and tools that support the collaboration, knowledge-sharing and autonomy of our diverse and interdependent teams.



42,416

Total employees (FTE)

40,747 FTE excluding Berliner Glas (ASML Berlin GmbH) (basis for the non-financial reporting)
(EMEA: 23,413 | Asia: 9,111 | US: 8,223)



27%

Gender diversity

(% inflow of women)
(2025 target: 24%)



80.3%

Employee engagement score

(2025 target: -2% vs. top 25% performing companies. Employee engagement score against benchmark 2023 (1.3%))



3.6%

Attrition rate

(2025 target: <7%)

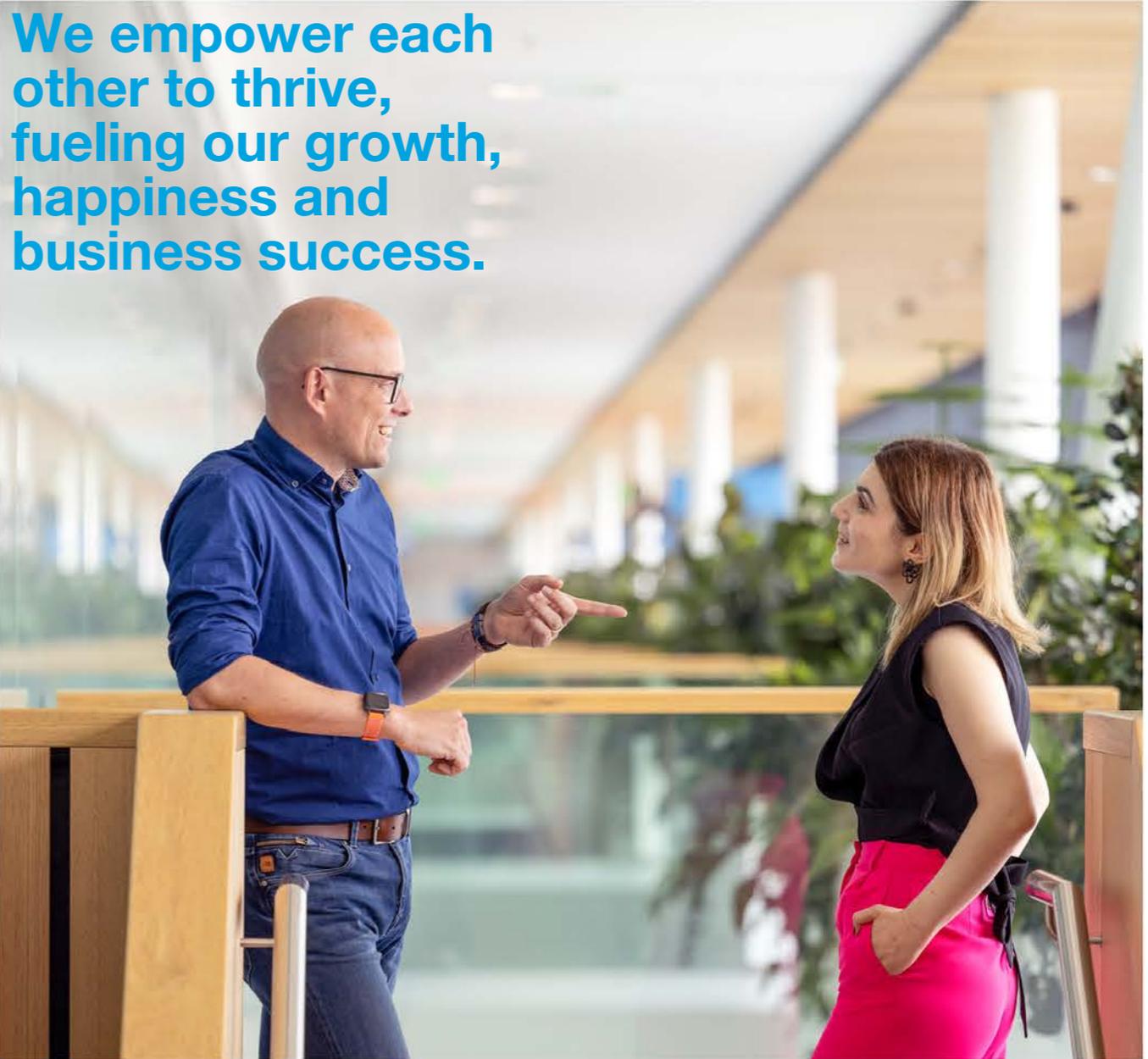
Attractive workplace for all (continued)

As shown in the diagram below, our people strategy focuses on three key areas to deliver on our commitments to stakeholders and manage our day-to-day challenges in attracting, onboarding, developing and retaining talent.

Since the pandemic, employee expectations have continued to change, especially around work-life balance, hybrid working and well-being. Staying on top of these trends and understanding how the world of work and expectations is evolving is a key part of our strategy to attract and retain talent.

Across the business, targeted programs empower our people with the autonomy to steer their development and career aspirations in a safe environment and enable leaders to guide the growth of the company.

We prioritize providing injury-free and healthy working conditions for everyone on our premises by eliminating hazards and reducing safety risks.



We empower each other to thrive, fueling our growth, happiness and business success.

Our people strategy

Our people strategy is our pathway to stay successful and meet our future goals

Inspiring a unified culture
Our values – challenge, collaborate and care – guide our decisions and behavior to deliver on our strategy.

Providing the best possible employee experience
This will enable us to attract, develop and retain the best talent.

Enabling our leadership to bring out the best in people
We aim to lead through trust, empowerment and accountability.

Attractive workplace for all (continued)

On track ●
Ongoing focus area ■

Our overall performance in 2023

Topic	Target 2025 ⁶	Performance indicator	Progress tracking			Status
			2021	2022	2023	
Attractive workplace for all 	24%	Gender diversity – % inflow of women	21%	24%	27%	●
	24%	Gender diversity – % inflow of women to job grade 9+ ¹	n/a	n/a	25%	●
	20% (2024)	Gender diversity – % inflow of women to job grade 13+ ¹	12%	35%	12%	■
	12% (2024)	Gender diversity – % representation of women in job grade 13+	8%	10%	11%	●
	Target is relative to the score of the top 25% of performing companies by +/-3% (2024)	Inclusion index	83.0%	85.2%	81.8%	●
	NL top 5 Taiwan top 5 US top 75 China top 150	Attractiveness to talent (employer brand score) ²	NL 6 Taiwan 6 S Korea ³ 14 US 177 China 148	NL 4 Taiwan 6 S Korea n/a US 159 China 188	NL 1 Taiwan 5 S Korea n/a US 167 China 189	■
	2% below benchmark of top 25% performing companies	Employee engagement score	78.0%	77.9%	80.3%	
			n/a	(2.9)% ⁴	(1.3)%	●
	<7%	Attrition rate	5.4%	6.0%	3.6%	●
0.16	Recordable incident rate ⁵	0.17	0.18	0.21	■	

1. We report the % inflow of women to job grade 13+, which includes both external hires and internal promotions. The % inflow of women to job grade 9+ is only external hires.

2. Employer brand ranking from Universum: engineering students. The 2025 targets have been adjusted in 2023 from the targets we reported last year which were NL top 10, Taiwan top 20, S Korea top 20, US top 75 and China top 100.

3. As of 2021, overall ranking for South Korea is no longer conducted by Universum. The result reported for 2021 is based on a customized ranking report.

4. In our 2022 Annual Report, we reported for our we@ASML survey a delta of (4.3)% instead of (2.9)% in comparison to our benchmark. This was due to the fact that the latest update of the benchmark numbers of our external vendor were not yet loaded into our systems when reporting on our employee engagement scores. This led to a restatement of the external benchmark of the top 25% performing companies score in 2022 from 82.2% (reported last year) to 80.8%.

5. The 2021 recordable incident rates include recordable incidents related to workers who are not employees and are the number of cases that required more than first aid in a year per 100 FTE. From 2022, and in line with the GRI 403 standard, we separate incidents related to employees and workers who are not employees, so the 2022 recordable incident rate only includes recordable incidents related to employees.

6. Our targets and performance do not include ASML Berlin GmbH except for we@ASML results, which do include Berliner Glas (ASML Berlin GmbH).

[Read more in Non-financial statements – Non-financial indicators – Attractive workplace for all](#)

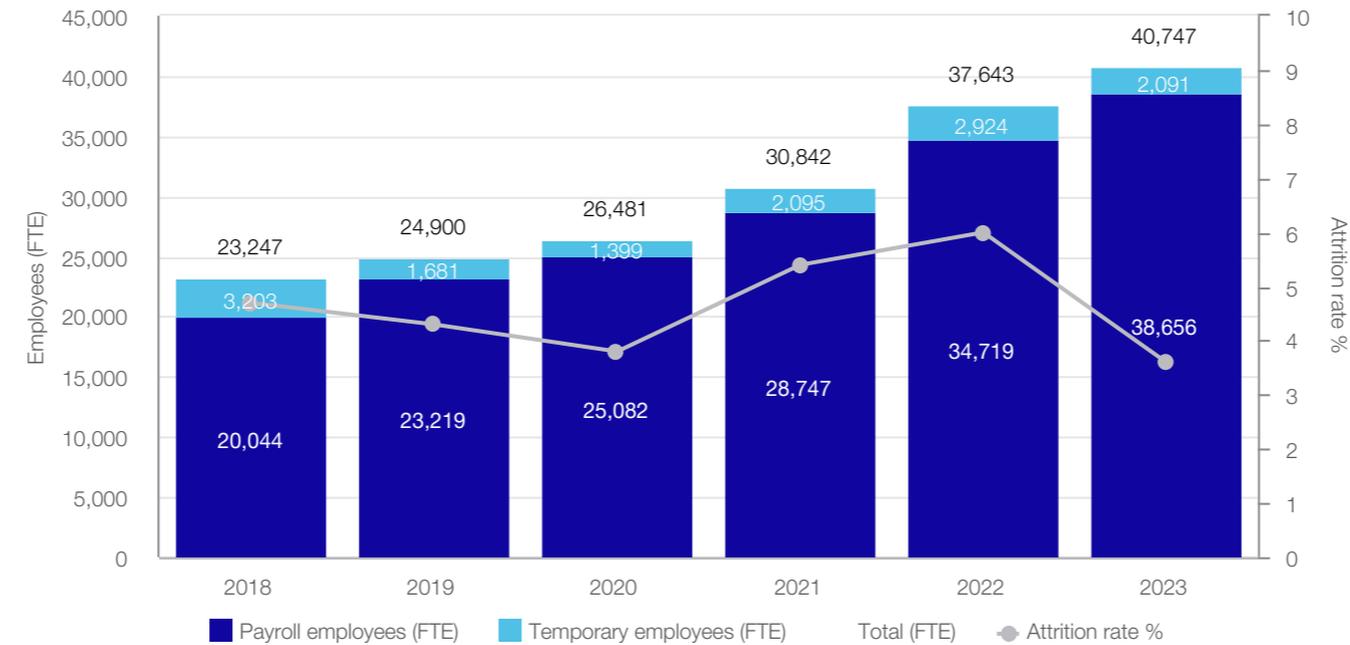
Attractive workplace for all (continued)

Our workforce in numbers

We hired 4,129 new payroll employees in 2023, compared with 7,130 in 2022, growing our workforce to 40,747 employees (FTEs) at the year end (with a new hires rate of 11%, down from 21% last year). In addition, we employ 1,669 FTEs in our ASML Berlin entity, which is not yet fully integrated in our reporting – this increases our total workforce to 42,416 FTE. Our workforce increased significantly over the past years.

[Read more in Non-financial statements – Non-financial indicators – Attractive workplace for all](#)

Our workforce trend¹



1. The 2020 to 2023 FTEs in the chart above do not include the FTEs acquired through the acquisition of Berliner Glas (ASML Berlin GmbH).

Attractive workplace for all (continued)

Inspiring a unified culture

How we're managing our impact

Our unique and diverse teams provide the skills and capabilities we need to deliver our vision. As an equal opportunity employer, we aim to cultivate a diverse and inclusive workforce to drive innovation and accelerate creativity.

We believe that promoting greater diversity in our workforce will help us to attract and retain smart, talented people, enabling us to drive technological innovations that meet our customers' needs. This means diversity in all its dimensions, including but not limited to gender, neurodiversity, nationality, sexual orientation, people with disabilities and under-represented minorities.

Our core values – challenge, collaborate and care – are at the heart of what we do and how we do it. They drive our behaviors and lay the foundation for the culture we aspire to. In this context, we aim to provide a working environment where everyone feels valued and respected and where employees at every level can fully contribute and thrive.

We have made great strides, but we also realize we have opportunities to be more inclusive and diverse. For example, we are working to increase our diversity across different dimensions, including increasing the number of women at all levels and better understanding the inclusivity of our work environment for all demographics, including LGBTQIA+, under-represented minorities and people with disabilities and neurodiversity.

Embedding diversity and inclusion in our company

The years 2020 through to 2022 were foundational in terms of assessing our position and building our strategic approach to diversity and inclusion (D&I). In 2023, we leveled up to broaden accountability and strengthen leadership on D&I, both internally and externally. Our long-term goal is for inclusive practices to be fully integrated into our ways of working. To help us achieve this, we are aligning our work streams with the pillars of ASML's people strategy: culture, talent and leadership.

Our Global D&I Council (GDIC), founded in 2021, consists of senior leaders who act on behalf of ASML to provide thought leadership. Chaired by a member of the Board of Management, the GDIC proposes the D&I strategy to the Board of Management, sets, promotes and monitors D&I initiatives and leads company-wide accountability for our goals. Our D&I team includes a Global Chief Diversity Officer who is responsible for driving initiatives across ASML. There is also a US D&I Council with a similar make-up of business leaders across the US. Currently, D&I initiatives are ramping up in Asia, and the goal is to eventually have a similar governance structure for this region.

ASML employee networks bring together employees from diverse backgrounds with a common interest and purpose, while at the same time spreading cultural awareness across the organization. The networks help nurture the connection between employees' expectations and perspectives, and our global D&I strategy. They also provide social and development opportunities and events. These networks – which include Atypical for neurodivergent employees, and Proud for the LGBTQIA+ community – play an important role in informing our approach, and we encourage everyone to participate.

Our D&I approach

Our D&I approach is integrated in our people strategy and focuses on three key areas, as shown in the diagram below:

Talent

We aim to increase the representation of under-represented groups by addressing our systems and end-to-end people processes, including talent acquisition, and by providing career advancement programs, that positively impact under-represented groups.

Leadership

We are developing inclusive leadership programs and starting to build accountability into our performance and development processes. We engage leaders to foster their commitment to creating an inclusive culture and building a diverse workforce.

Our people strategy



Culture

We strive to create an inclusive culture for all in line with ASML's values by increasing the capabilities of employees and leaders to act inclusively and by empowering our employee networks to expand their impact and reach.

Attractive workplace for all (continued)
Inspiring a unified culture (continued)

Our targets and performance in 2023

We set targets to allow us to measure the effectiveness of our approach:

- 1 Reach 24% women new hires by 2025
- 2 Reach 24% inflow of women to leadership levels (job grade 9+) by 2025
- 3 Reach 20% inflow of women to leadership levels (job grade 13+) by 2024
- 4 Reach 12% women at leadership levels (job grade 13+) by 2024
- 5 Score on par +/- 3 percentage points for inclusion, against the top 25% of top-performing global companies

We are highly motivated to see more women pursuing careers in engineering and science.

Women new hires



Reach
24%

women new hires by 2025

We aim to create an inclusive environment by proactively seeking out talented women from various backgrounds and experiences to bring in fresh perspectives and innovative approaches while fostering a dynamic organizational culture.

In 2023, we increased the percentage of new women hires to 27%, up by three percentage points over 2022.

We are highly motivated to see more women pursuing careers in engineering and science to further diversify the workforce at the heart of ASML. This requires a variety of approaches, and the highly specialized nature of our work means it will be a long-term process. We acknowledge that the global science, technology, engineering, and math (STEM) talent pool is thinly populated with women. At the same time, almost 90% of our job positions are STEM-related. Therefore, taking a multifaceted approach is crucial if we are to achieve our target of 24% in 2025. We believe we are well on track to meet this target.

Women and inflow at leadership levels



Reach
12%

women at leadership levels (job grade 13+) by 2024

The representation of women at leadership levels plays a pivotal role in our commitment to D&I. We recognize the importance that exemplary role models have for our entire workforce and beyond, because they inspire others to follow the same path. In line with this target, we continue to support the development and advancement of women within ASML. This includes mentorship programs, leadership training, as well as reviewing performance and succession plans to ensure equal treatment and unbiased decision-making.

Current representation of women at leadership level is 11%, while our ambition is to reach 12% by 2024. Achieving our ambition will require a significant inflow throughout our entire leadership pipeline, starting with job grade 9+ and the more senior level of 13+. We have significant gaps at the 13+ level, so we need to strengthen our efforts throughout the entire pipeline to meet this ambition of 20% inflow of women at leadership levels (job grade 13+) – we are working on specific plans to achieve this. In 2023, there was an 25% inflow of women to job grade 9+ (2025 target of 24%) and a 12% inflow of women to job grade 13+.

Inclusion index



Score on par
+/- 3

percentage points for inclusion, against the top 25% of top-performing global companies

We are dedicated to creating a global workplace where every individual feels valued, respected, and empowered, regardless of their background. By comparing our inclusion score with the top-performing global companies, we aim to drive continuous progress.

In 2023, our inclusion score was 82% (women: 80% and men: 83%), in line with the benchmark of top-performing global companies (82%).

In 2023, we added additional questions to the Inclusion Index portion of the we@ASML engagement survey in order to better understand each employee's experience and garner a sense of their level of belonging. Therefore, this year's results cannot be compared directly to the 2022 results.

Overall, we were pleased to see feedback from employees and gained insight on areas of opportunity. Our goal is to meet or increase this level of inclusion among our employees on an ongoing basis.

[Read more in Corporate Governance - Other Board-related matters](#)

Attractive workplace for all (continued)
Inspiring a unified culture (continued)

Our actions in 2023

Women new hires

- Engaged actively with educational programs to grow the talent pipeline, deploying multiple initiatives to promote STEM education among the future female talent pool
- Collaborated with universities and organizations dedicated to building diversity and creating opportunities for professional development and engagement. ASML is a sponsor of the GEM Fellowship Program in the US, which provides funding for graduate education through corporate sponsorships and a partnership with universities. Students selected for the GEM Fellowship Program are required to complete a corporate internship during the summer and attend graduate school during the fall and spring semesters. In 2023, we had seven GEM engineering Fellows on campus in the US.
- Provided financial support to six young women pursuing engineering or computer science degrees

Women and inflow at leadership levels

- Launched a global sponsorship program for ASML women, as well as a program to empower women to amplify their unique style and voice
- Engaged new specialized recruiting agencies focusing on recruiting senior leaders
- Sponsored the European Women in Tech Conference for the first time, with women from our technology employee network speaking on the main stage
- Organized and participated in global and regional events to attract diverse technical profiles and promote ASML as an attractive employer, especially to increase women leadership inflow

Inclusion index

- Added a module on inclusive leadership to all our leadership programs and worked to ensure inclusive language in all programs
- Organized a global D&I month consisting of numerous panels and events
- Continued to build our D&I curriculum by delivering awareness sessions and incorporating D&I in our global and sector onboarding programs
- Continued to grow our employee networks, establishing additional chapters in the US (Atypical, Women @ CS Sites) and Germany (Green, Next)

Listening to our female workforce

After input and feedback from female employees, we organized several female listening sessions to have an open dialogue within the company on any issues and concerns related to inclusion of female employees. Based on the feedback that we received in those sessions, we will follow up on those aspects to ensure that we safeguard and improve the inclusion of female employees from a behavioral perspective and in our processes.

Looking ahead

In 2023, we continued to build on our initial D&I strategy. The GDIC, together with the D&I Center of Excellence (CoE), conducted an assessment of the current state of the D&I agenda within ASML and defined priority areas for 2023-2025:

- **Increase representation of women in leadership**, including senior management positions (JG13+)
- **Increase representation of under-represented ethnic minorities in the US**, while acknowledging their relative under-representation in STEM fields
- Further recognize the wide range of nationalities employed at ASML and **support the promotion and development of non-local employees globally**, as well as the retention of non-local employees in the Netherlands

We will set targets for each priority, supported by a roadmap to create impactful and systemic change within ASML. Each of the defined priority areas will consist of multiple initiatives that will be tackled integrally across the employee journey (from recruitment, onboarding and development to retirement or exit). Furthermore, we will continuously reflect on the D&I dimensions currently prioritized and aim to increase our scope in the years ahead.

Our commitment to our core values – challenge, collaborate and care – will continue to drive our focus on strengthening the diversity of our workforce and ensuring our culture is inclusive for all employees. This will be exemplified by the D&I initiatives we plan to launch in early 2024, all of which will support our priority areas.

Attractive workplace for all (continued)

Providing the best employee experience - Talent attraction and retention

How we're managing our impact

We want to offer our people the best possible employee experience at all our sites. This means enabling them to develop their talent, feel respected and achieve to the best of their abilities.

By offering an outstanding employee experience, we are able to attract and retain the best talent to support the increased productivity and growth of the company. This requires specific commitments related to delivering a best-in-class employee experience and driving a unified culture where people are supported in their learning, leadership, advancement and well-being.

We define the employee experience as the sum of all experiences an employee gains through the interactions with ASML at each stage of the employee life cycle, from attracting and onboarding to exit. To achieve the best employee experience, we focus on our employer branding and employee engagement. Our approach covers a wide variety of factors and activities, including talent attraction and retention, as well as employee engagement and development – including the onboarding experience and training – and labor practices such as fair remuneration, working conditions and well-being.

We measure our impact on the total employee experience through our annual we@ASML employee engagement survey.

Talent attraction and retention

Our aligned employer value proposition is the key strategic lever that defines our global positioning and embodies our strategic direction as an employer. It outlines the beliefs and values we want current and potential employees to feel, see and experience with us as an employer. The employer value proposition is used in communications with employees and potential employees to drive engagement and retention both in the short and long term.

Our targets and performance in 2023

We have set a number of targets to drive progress and measure the effectiveness of our approach:

- 1 Employer brand score** – By 2025, maintain our position in the Netherlands and Taiwan top 5, US top 75 and China top 150
- 2 By 2025 have an attrition rate** (the percentage of employees leaving our company) of < 7%

Employer brand

We measure our employer brand in the main locations where we operate – the Netherlands, Germany, the US, China, Taiwan and South Korea. These rankings show us how we are converting talent through the attraction-to-hire funnel. They look at how well ASML is known and considered as an employer by external audiences and potential employees, in particular by monitoring our position in an independent external survey.

We have defined 2025 targets for our ranking in our different local labor markets:

Country	Target 2025	2022 Ranking	2023 Ranking
The Netherlands	Top 5	4	1
Germany	N/A	N/A	N/A
Taiwan	Top 5	6	5
South Korea	N/A	N/A	N/A
US	Top 75	159	167
China	Top 150	188	189

Note: ranking from engineering students only

In 2023, we were ranked #1 in the Netherlands, #5 in Taiwan, #167 in the US and #189 in China, with ranking unavailable in South Korea. These rankings provide detailed student preference research insights that we use to create greater understanding of what technical talent expects from an employer and whether we are a competitive and an attractive employer.

Our score has improved significantly in the Netherlands, where we moved up to the number one position for most attractive employers for students and into the top three for professionals. In Taiwan, an extremely competitive market for semiconductor talent, we have moved up a notch from position six to five through differentiated and consistent engagement and communications with top-tier universities.

The Chinese market is large and fragmented, and it remains a huge challenge for ASML as a non-consumer brand to become known among the general population. In an unaided ideal employer ranking for students, we are sixth out of 10 competitors in IT/high-tech (vs. no ranking in 2020), and third out of 10 competitors in the semiconductor sector (vs. no ranking in 2020).

The US is a large and fragmented market in which it is difficult to reach everyone. We focus our employer-branding efforts on the specific states where we operate and target certain fields of study. Based on our survey of the top 15 target schools, ASML reached 78% awareness as an employer, an increase of 36% over 2021. Based on this same survey, ASML now ranks ninth on the list of ideal employers out of a total of 25, overtaking 12 competitors.

87%
of new hires indicated that they had a positive onboarding experience in 2023, with good support from their managers.

Attractive workplace for all (continued)

Providing the best employee experience - Talent attraction and retention (continued)

In 2022, we launched employer branding in Germany, which mainly focuses on building brand awareness for our R&D and manufacturing location in Berlin. Because we are a new employer brand in Germany, we are not yet included in the local research as a company of choice.

We use the Universum research data to ensure a consistent method of measuring our employer brand, but also to understand what is most important to these students when choosing an employer. In 2021, Universum ceased providing its standard report for South Korea, and we are unable to obtain comparable data.

However, based on our 2023 survey of the top 10 target universities in South Korea, we ranked 13th out of 21 competitors. In addition, we were certified by the Ministry of Employment and Labor of South Korea as one of 'Korea's best job creators', and have twice won 'Best Family-Friendly Management' approval from the Ministry of Gender Equality and Family.

Employee retention

While employees leaving the company can lead to knowledge gaps, we also view these events as opportunities to bring in new talent and enhance existing talent. We strive for a healthy attrition rate of below 7%.

Our overall attrition rate in 2023 was 3.6%, down from 6.0% in 2022. Our attrition rate is well within our target range and below the industry average in every country in which we operate. We attribute the decrease to the fact that the labor market has cooled down industry-wide and people are currently more cautious before changing jobs. While this trend is relevant to many companies, our efforts in employee onboarding and employee engagement are also reflected in a lower attrition rate.

Our actions in 2023

To achieve our targets, we:

- Asked employees to share their stories on why they join and stay with ASML and supported them as ambassadors in sharing their stories with their networks. This credible way of messaging helps us target talent within earned media and drive awareness and referrals – a high-quality source of hires.
- Continued to recognize that employees are our best advocates and one of the most credible sources of information about who we are as an employer. In 2023, we expanded the Digital Ambassador program to China alongside the Netherlands, Germany, the US, Taiwan and South Korea. Over 1,000 employees globally are now sharing curated content with their local social media networks, generating millions of impressions throughout each month.
- Held our Internal Career Festival onsite and virtually in China, Germany, South Korea, the Netherlands, the US and Taiwan. This global hybrid event aims to retain talent by driving internal mobility and development.
- Ran 27 executive interviews, a global internal survey with over 10,000 responses and targeted external talent surveys in each ASML location. All were intended to help us understand what (potential) employees expect from an employer and how we stack up. Based on these insights, we have updated our employer value proposition to communicate who we are and what we offer, authentically and in a differentiated way.

[Read more in Enabling strong leadership](#)

Looking ahead

Our key priorities for 2024 are the attraction and retention of skilled talent to support our business growth. We intend to do this by continuing to monitor and drive a strong employer brand reputation.

We will continue to support and enable a (potentially) best-in-class employee experience through focused programs and communications around learning and development, our commitment to well-being, diversity and inclusion, and strong leadership. In doing this, we aim to truly drive an employer brand experience from the inside out.

We will run both global campaigns and events and drive segmented outreach in each of our key locations. In this way, we hope to showcase ASML and let potential employees see, feel and experience what it's like to work for us. We will also focus on key areas such as talent engagement with top-tier universities, candidate and employee experience, and talent attraction to key roles.

To support and measure the effectiveness of our efforts we will carry out talent surveys in each key location either every 12 or every 18 months to monitor our progress in each of the countries.

Lastly, we will continue to monitor and listen to (potential) employees in an effort to continuously improve their experience both before and after they join us.

Attractive workplace for all (continued)

Providing the best employee experience - Employee engagement and development

How we're managing our impact

We empower our people to take responsibility for their own personal development, pursue their career ambitions and thrive, by listening to their views and offering tailor-made development opportunities.

We only succeed as an organization when everyone can give their best. It is crucial that we take care of and ensure the well-being of all our colleagues. This means building and maintaining a working environment where we can work together with positive energy and achieve a healthy work-life balance.

We must ensure that our people have the right knowledge and expertise to maintain our technological leadership and the pace of innovation our industry demands. To build a strong employer brand that attracts talented people who are committed to their personal and professional growth, we promote a culture of continuous learning and development.

Onboarding and developing our people

A positive onboarding experience is vital to building a sense of connection, and helping our employees add value and quickly feel at home. Right from the start, we want to unlock the potential of people and society by pushing technology to new limits.

We measure the quality of our onboarding experience through pulse surveys. On average, 87% of new colleagues indicated that they had a positive experience in 2023, with good support from their managers. 9% of new colleagues had a neutral experience, while 4% indicated that there is room for improvement in the onboarding experience, particularly in the areas of

training and access to relevant tools and information.

We use learning solutions and knowledge management to unlock people's potential and foster a culture of learning. Once employees are on board, we continuously invest in them in response to evolving business requirements and developments in the labor market. Enabling employees to identify and pursue opportunities for professional development is central to our approach, and we offer a wide range of career paths and tools to support our employees' career navigation.

The ASML Academy unites all learning and knowledge management within ASML, enabling our employees to easily access the knowledge, skills and expertise they need to perform well in their roles. The new Learning eXperience Platform (LXP) further enables people to drive their own development and learn from each other, and intuitively connects them to best-in-class learning content created by ASML and external providers.

We aim to provide the best possible employee experience by enabling learning and knowledge management to take place on the job, guided by the 70-20-10 approach for learning: 70% on-the-job learning, 20% coaching and 10% training courses. We are also focused on providing performance support to employees when they need to learn while performing on their job. Compared to 2022, the growth of our workforce slowed significantly in 2023, and in some areas we did not have nearly as many new roles as in the previous year. We therefore shifted our focus toward creating awareness and engagement. This also allowed us to concentrate resources on supporting programs and communications related to internal mobility and development, and onboarding the large number of people we hired in 2022 and 2023.



Attractive workplace for all (continued)

Providing the best employee experience - Employee engagement and development (continued)

Our targets and performance in 2023

Two key targets measure the effectiveness of our approach:

- 1 Employee engagement score** – By 2025 to be within a 2% range of the top 25% performing companies benchmark for our we@ASML employee engagement survey
- 2 Achieve 78% for well-being** in our engagement survey in 2023

Employee engagement

We measure the overall impact of our activities on the total employee experience using our we@ASML employee engagement survey.

This annual survey provides insights that enable us to improve the employee experience and refine our policies and processes. To measure how well our values are embedded in the organization, the survey also includes questions about our culture and values that go beyond the 'what' to the 'how'.

Our 2023 we@ASML employee engagement survey reported good results and a high participation rate of 86% (in line with previous years), along with valuable feedback for improvement.

The engagement survey score was 80.3% in 2023 – five percentage points above our external global benchmark of 75.2%, and an increase of 2.4 percentage points on the score from 2022. Against the 2025 target, we already score within the 2% range of the top 25% performing companies (with our 2023 engagement score just over 1.3 percentage points lower). On all underlying topics, we see an improvement compared to the previous year. Overall, we conclude that ASML has a highly engaged population. People are proud to work for ASML and would recommend ASML to others.

Responses indicate a high level of team spirit, where sharing knowledge and getting the job done are strongly embedded in our way of working. Our employees feel respected and have trust in each other. They continue to raise concerns about effective processes, and they like to have more opportunities to participate in sustainability initiatives. Cross-collaboration and sharing knowledge across teams also remain subjects for improvement. Inclusion, well-being and job enablement are the key themes we will focus on to further increase our engagement.

In the past year, we have improved the awareness on our sustainability initiatives and opportunities for employees to contribute to it. Our sustainability initiatives nowadays make 79% of our employees proud and convinced that they have a positive impact on the world. This is an improvement of 9 percentage points compared to last year and 1 percentage point above the external average (78%). Next to this, 53% see the opportunity to participate in sustainability initiatives. A positive effect compared to last year (39%), but we will nevertheless continue focusing to further improve this score.

Social protection and fair labor conditions and remuneration for our employees

Working practices and remuneration

ASML is committed to providing fair labor conditions and social protection for all its employees, regardless of their location and whether they are on fixed or temporary contracts. We support the principles of the International Labour Organization (ILO) and respect the rights of all employees to form and join trade unions of their own choosing, to bargain collectively and to engage in peaceful assembly.

Freedom of association

We have no indication that we operate in countries where the freedom of association and collective bargaining for ASML employees is restricted. We strive to comply with the relevant legislation in every country where we operate.

In those countries where we have employee representation, we engage in regular dialogue with the different organizations representing our employees. Topics are put forward and discussed by both the company and the employee representatives. The working conditions and terms of employment of employees not directly covered by collective bargaining agreements are influenced or determined based on other collective bargaining agreements, labor market developments and usage and habits in the specific country.

Fair remuneration

Our approach to remuneration is to be fair and balanced. In our Remuneration Policy, we are committed to gender equality and we strive for global consistency while respecting common practice in local markets. We continuously review how our remuneration compares with the market benchmark for technology professionals in each region where we operate and, where necessary, make changes to our remuneration policies and levels.

ASML is committed to meeting adequate living-wage requirements. This means that employees earn salaries that meet their and their families' basic needs to maintain an adequate standard of life in the circumstances of each country where we operate, and we also provide some discretionary income. Our company has a predominantly highly educated workforce with relatively high levels of remuneration and, on average, our salaries are significantly above the local living wage.

In 2022, as part of a two-year cycle, we conducted an analysis of how our lowest base salary compared with the local minimum wage and local 'living wage' in the countries and regions where we operate. We did not detect any gaps. We also analyze paid salaries for gender disparity annually. In 2023, as in previous years, we found no major differences in these salaries. However, we would like to further investigate this domain in the future, to ensure that we do not have any major challenges.

Attractive workplace for all (continued)

Providing the best employee experience - Employee engagement and development (continued)

Employee well-being

Care is one of our values and we support our employees in maintaining a healthy, productive and balanced life. Our well-being framework brings together all well-being activities at ASML and allows us to drive our initiatives region-by-region to meet local needs.

We look at well-being from a holistic perspective, striving to integrate it into everyone's day-to-day work. We have identified four well-being dimensions around which we have defined and created our programs, tools and resources – mental, physical, social and financial well-being. We provide specific resources and initiatives for teams and managers to get the right conversations going and guide their well-being journeys.

Our offerings include general support for employees and leaders, training courses and masterclasses, well-being events, and physical and mental health checks. At our head office in Veldhoven, a dedicated health and well-being center provides several employee services including an in-house physiotherapist and psychologist, career center, indoor gym, yoga room and a running track.

The biggest challenge we face is in encouraging people to get into the habit of prioritizing their well-being as part of their day-to-day work, and to help them find and use the available support in their well-being journeys. We have close to 300 well-being ambassadors helping us to spread well-being across our global organization, and the network continues to expand.

Well-being is measured primarily through the well-being score in our we@ASML engagement survey. Our target was to improve from 77% in 2022 to 78% in 2023.

	2019	2020	2021	2022	2023
Well-being	74%	77%	69%	77%	81%

From the 2023 survey, our well-being score improved from 77% in 2022 to 81% in 2023, which is above our targeted score.

Through a deep dive into the actual survey results, we have identified those groups of employees where well-being scores need to be improved, and we will define tailored interventions to execute on this in close cooperation with managers and HR business partners.

For 2024, we aim to maintain an overall well-being score of 81%, and no scores on individual questions within the well-being index below 75%. We expect this to be a stretch considering the circumstances in the world and the semiconductor industry. Our key focus areas will be maintaining a healthy work-life balance and managing stress – we will work with leaders and managers to consistently reduce work pressure.

~300
well-being ambassadors



Attractive workplace for all (continued)

Providing the best employee experience - Employee engagement and development (continued)

Our actions in 2023

We saw significant progress within the Learning eXperience Platform (LXP) in 2023, with content curation and the creation of learning journeys helping our employees to easily find the learning they need, when they need it. We also embedded well-being principles in learning program delivery.

We stepped up our use of data and metrics to improve how we strategize our well-being programming and updated the well-being section of the we@ASML survey. We carried out additional research into well-being needs, both in general and within diversity groups through our employee networks.

We held the first Global Health & Well-being Week in June and launched an enriched self-facilitation tool for teams to work on well-being in 2023. A development program that consisted of several workshops and interactive sessions was exclusively offered to our network of well-being ambassadors, which grew from 200 to 300 members.

In July, we launched an employee assistance program (EAP) for Europe. As was already the case through EAPs in Asia and the US, ASML employees and their families in the EU can now also get 24/7 support, counseling and help with anything that negatively impacts their mental health, work-life balance and/or productivity at work.

Looking ahead

Our plans for 2024 are to:

- Create an ASML-wide learning and knowledge management onboarding and off-boarding experience, aligned across the ASML Academy.
- Strengthen the well-being strategy, governance and internal branding
- Host a Global Well-being Month in June, with online and onsite events, workshops and keynotes in all key locations.
- Launch a new digital well-being platform as part of the new ASML intranet, a digital hub for internal use to connect, communicate, and collaborate. This will allow employees to find and access the well-being resources they need, quickly and easily, when they need them.
- Improve development for complex roles, functions and skills by defining specific and targeted learning journeys.

- Increase our focus on integrating well-being into our day-to-day work by:

- Deploying the well-being framework in additional parts of the company and countries
- Equipping leaders and people managers to act as role models and hold regular well-being conversations with their teams
- Strengthening and professionalizing the well-being ambassador network

- Enhance the use of data and metrics to gain insight into the well-being of our people and strategize well-being interventions.

In 2023, we identified a new material topic – how providing opportunities for training and development can impact employees' well-being and careers. We are developing a process to formally manage and report on this topic, starting in 2024.

Attractive workplace for all (continued)

Enabling strong leadership

How we're managing our impact

We operate in a world of volatility, uncertainty, complexity and ambiguity. Successfully navigating these challenges requires leaders with emotional intelligence and strong business and people leadership skills.

Furthermore, to remain a market leader, we must provide unified direction based on authentic leadership that gives our people a clear picture of where ASML is heading. This offers opportunities for all of us to contribute to ASML's success and make an impact.

As our company grows, so does the need for clarity around roles and expectations – as well as our strategic approach and vision. Our leaders play an important role in communicating this. We strive to formulate and capture the roles of our leaders and employees clearly so that everyone understands what is expected of them and can perform their roles to the best of their ability.

Launched in 2020, our leadership framework outlines and clarifies a leader's role in the business, role-modeling the values within the company, and what it means to be a people manager and coach for employees.

Leadership development

In 2023, we evaluated our leadership development curriculum with the aim to:

- Support our leaders with easier access to development opportunities
- Increase the scalability of our leadership curriculum
- Improve the quality of our leadership program materials
- Improve how we measure the impact (ROI methodology) of the leadership training programs
- Improve the content of and the relationship between our leadership programs

We are evolving our approach to leadership development. In addition to self-directed learning, we now include organizational learning and invite leaders from all target groups to join our leadership courses. We develop roughly one-third of our leadership population each year. We maintain our fast-track career programs for our most promising managers – our future leaders.

Leadership framework

Role model

- Live the values
- Self-developing and renew
- Show courage
- Personal well-being

Business leader

- Own your content
- Self-developing and renew
- Show courage
- Personal well-being



Coach

- Connect
- Enable
- Develop
- Trust

People leader

- Create the setting
- Adapt the situation
- Share vision and set direction
- Make it happen

Attractive workplace for all (continued)
Enabling strong leadership (continued)

Our targets and performance in 2023

We facilitated leadership journeys for 1,520 leaders and we started leadership acceleration programs for 264 high-potential leaders.

Since 2022, we have specifically measured the quality of each pillar of our leadership framework using our we@ASML employee survey. In 2023, all four dimensions of our leadership framework were evaluated: 82% of our employees see their manager as a role model, 80% as a coach, 79% as a business leader and 82% as a people leader. We are happy with this upward trend and will continue to invest in leadership development, as this is of critical importance to us to ensure our growth.

Our actions in 2023

To support our leaders in understanding and adopting our leadership model, we deployed a new leadership curriculum for our total leadership population and adjusted the content in line with their leadership responsibilities (first-line leaders, leader of leaders, executives) and their years in the role.

We also strengthened the narrative and content of our leadership curriculum. For our learning initiatives we implemented the ROI methodology to measure our performance and will be able to monitor the performance in 2024. We plan to update our whole curriculum every year, with 25% of the curriculum based on the strategy of ASML and 75% on the future or current skills and behavior we expect from a leader, using the leadership model as a basis. Based on the results of the we@ASML employee survey in 2022, we specifically focused on adding business acumen to our leadership curriculum, for example in Taiwan.

In addition, we provided support to help our senior leaders improve their coaching and mentoring skills, which we believe will have a positive impact on business acumen for all leaders in ASML. We also implemented a new coaching and mentoring platform, and coaching is now part of all our leadership programs.

Looking ahead

We plan to roll out a shared services platform for learning in each region so that we are ready to develop even more leaders in the future. While our plan is for this to be completed by 2024, this target will be challenging. We have identified that our structure and resources are currently not able to deliver on the demand that we have for our leadership programs – and we recognize the need to step up our ability to deliver more efficiently.

Our key priority is to focus on scalability and quality – making sure our leaders are accessing best-in-class programs in an efficient and effective way. To be able to do that, we will set up Learning Shared Service centers in Asia in 2024. We already have these centers in Europe and the US. Secondly, we will focus on improving the impact of our programs, which will lead to a yearly improvement process incorporating the feedback and strategic direction we want to take.

Attractive workplace for all (continued)

Ensuring employee health and safety

How we're managing our impact

More than just a priority, safety is central to everything we do.

Our goal is to prevent occupational health and safety incidents because in our view all are preventable. As such, we are working toward a long-term ambition of zero injuries and work-related illnesses.

We aim to provide injury-free and healthy working conditions for everyone on our premises – employees, contractors, suppliers, customers and visitors – by eliminating hazards and reducing safety risks. To achieve this, we focus on continuous improvement in our processes, working conditions and mindset.

ASML is a complex, global organization. To improve, we need to share and learn together, starting from our core values – challenge, collaborate and care. With continuous improvement as a key principle, we rely on every person working at and for ASML to share our safety commitment, because only by working together to common standards can we keep each other safe.

While it is impossible to completely eradicate risk, we work proactively at all levels to identify potential issues or concerns and develop measures toward reducing them. To minimize risk, we provide our people with the right protection, procedures and processes to keep them safe. We follow all government guidelines and safety measures, and where appropriate we go further.

We focus our efforts on an environment, health and safety (EHS) management system, safety culture and training. Our commitment to employee and product

safety is captured in our Sustainability Policy, which applies to ASML colleagues worldwide.

[Read our Sustainability Policy at asml.com.](#)

Occupational Health and Safety Environment competence center

Our Occupational Health and Safety Environment (OHSE) competence center drives learning and knowledge sharing across the organization. It also connects subject matter experts who cover EHS competences across the organization. EHS Experts bring together best practices, define the EHS standards for ASML and support managers to implement these standards in the workplace. Together, they drive improvement on EHS matters to ensure employees can work safely, identify areas for improvement and meet legal requirements.

EHS management system

ASML's well-established EHS management system enables our managers and employees to effectively integrate EHS objectives, plans, processes, standards and behaviors into their daily work and protect our people, products, assets and the environment. The system is based on and compliant with the ISO 45001 occupational health and safety standard. It is assessed annually as part of our internal Corporate EHS audit program, although it is not certified or audited by an external party. We have implemented the system worldwide at all our sites and customer services locations. It covers everyone whose workplace is controlled by ASML, including all our employees and other workers not employed by us.

The Corporate EHS Committee, chaired by our Chief Operations Officer, oversees and approves our EHS strategy. Line managers are responsible for day-to-day EHS management and performance.

The EHS standards describe the EHS requirements ASML must adhere to worldwide. Locally, more stringent requirements may apply. The ASML EHS Guide, available on our intranet, provides practical, useful and essential information for employees, contractors and any other parties working for us. The guide explains our aims and objectives, and how employees can contribute to a safe and healthy workplace with minimum impact on the environment.

Incident and risk management are key elements of the EHS management system. An incident report must be completed by any ASML employee who is involved in or observes an unsafe situation or incident. We record and investigate all incidents and high-risk unsafe situations to determine the root cause and take actions to prevent them from recurring.

EHS Experts conduct regular hazard and risk evaluations, with a focus on preventing employees' potential exposure to hazards such as chemicals, radiation, mechanical handling and ergonomic risks. These provide us with further insights into the main hazard and risk areas at ASML. We take appropriate action to mitigate these risks and ensure continuous improvement through internal EHS audits as well as inspections, risk assessments and incident investigations. These are complemented by regular 'Safety Gemba Walks', where managers visit the employees' workplace, helping to increase safety performance and strengthen our safety culture.

In the event of any incidents, company doctors or external health services are available on all our sites.

Strengthening our safety culture

Safety extends beyond procedures, rules and the right equipment to include human mindset, behavior, attitude and habits. We carried out our second safety maturity assessment based on the Bradley Curve in 2022, and we continued the deployment of improvement roadmaps in 2023. Improvement areas are focused around leadership, structure and process. As an example, we have continued our improvement actions around the ASML life-saving rules with focus on isolation and lock-out. Our leadership development has continued with specific training for leadership teams and providing a sound foundation for all our people leaders. Across the company, initiatives to develop the safety mindset are being deployed with programs to increase risk awareness and speaking up.

Our ambition is to reach the next level of safety maturity by 2025. Improvement plans at corporate and sector levels have been identified and are implemented, supported by solid management commitment. We will continue to engage with our partners, main suppliers and customers to align our safety principles and processes.

To help build a strong safety culture and prevent serious injury and fatalities in our operations, we apply basic safety rules for five situations. Based on incident analysis, these are: verify isolation and lockout before beginning work; get authorization before entering a confined space; take precautions while moving heavy loads; protect yourself while working at heights; and drive safely.

Attractive workplace for all (continued)

Ensuring employee health and safety (continued)

To improve our EHS performance, we encourage employees to speak up whenever they encounter safety risks. Every employee is empowered to stop working if they feel unsafe. Line managers are responsible for ensuring safe work conditions to enable their team to work safely, and for following up on reported safety incidents or unsafe situations by team members.

Dedicated EHS teams support our employees and their line managers to work in a safe and healthy environment.

Safety training and engagement

At ASML, it is standard practice to inform our employees and anyone else accessing our premises and customer sites independently – including contractors and suppliers – about our safety rules. Training ensures that our people are prepared and informed about these safety requirements.

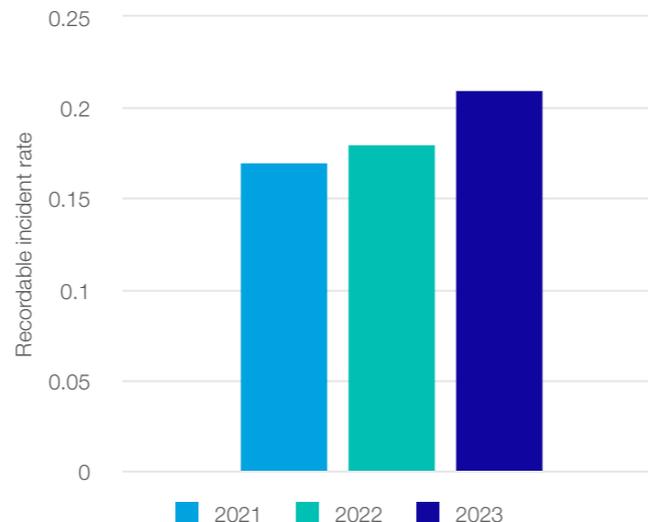
Mandatory safety training is defined for different job roles depending on the risk profile of the work activities:

- All new employees joining ASML are required to complete our EHS Fundamentals e-learning module, which covers all the ASML safety guiding principles to recognize hazards and prevent injuries, as well as where and how to find safety information. This training is refreshed for all employees on an annual basis
- Our EHS Cleanroom Fundamentals training module is mandatory to enter and stay safe within our cleanroom environments
- Our EHS Fundamentals training for line managers focuses on how to be a leader on safety. It comprises three elements: risk management, enabling teams to work safely, and following up after incidents

Our targets and performance in 2023

To benchmark our performance against industry standards, we use a benchmark recordable incident rate of 0.16, which represents world-class performance.

We register EHS-related incidents in line with the US Occupational Safety and Health Act (OSHA). Our recordable incident rate – the number of cases that required more than first aid in a year per 100 FTE – increased from 0.18 in 2022 to 0.21 in 2023, higher than our desired benchmark of 0.16.



We have seen an increase in our recordable incident rate. We maintain our focus and actions to improve safety in technology, systems and culture. First analysis shows the increase over 2023 is primarily found within the customer support area. An improvement plan has been set regarding safety awareness (prevention slips, trips and falls) and the use of cut-resistant gloves (to prevent injuries from sharp objects). Our benchmark compared to the OSHA industry data shows we remain below the average recordable incident rate for the semi-conductor industry. However, the increase has our full attention. As part of our 2023 management review, an overall deep dive into our performance will help to identify necessary improvements.

As in previous years, we did not encounter any ASML work-related fatalities. We reported four injuries due to which the employee was away from work or had a job transfer for >180 days.

Our actions in 2023

We must ensure people are informed, instructed and supported while doing their work.

In response to the increased recordable incident rate in 2022 from 2021, during 2023 we deployed health and safety improvements.

Following the five safety rules, we deployed various department-specific awareness programs. For example, we delivered safety and risk awareness campaigns to further develop our safety maturity. We have also further improved our EHS systems and processes, such as industrial hygiene and incident management.

Based on our findings in 2022 that ergonomics was the most common root cause for work-related illnesses experienced by our employees, we developed and rolled out new industrial ergonomics training to our operations teams, supported by ergonomic workplace assessments and improvements where needed. This includes mandatory ergonomics training for all engineers in our operations to prevent work-related illness due to manual lifting, pushing and pulling, and awkward work postures.

We increased our focus on occupational health, with ergonomics and hazardous substance management as main topics, and on emergency response at large industrial sites. With regard to travel safety, and to reduce the risk of driving while fatigued, we have taken measures to ensure our employees do not drive following a flight of more than six hours.

Looking ahead

We will continue to deploy our safety maturity improvement roadmaps and adapt our EHS processes to the growth of the company to ensure safe and healthy work conditions for all.

In 2024 we will focus on working at height improvements, risk management, and further embedding occupational health processes in the operations and safety at our campuses.

“
**Managing expansion in
high-stress situations means
focusing on your people
and their well-being.”**

Mark Bergkotte
Director, Logistics Operations
13 years at ASML

Helping our teams thrive

Mark Bergkotte has worked at ASML for 13 years managing our supply chain and logistics in various roles. As Director Logistics Operations, he oversaw the ramp-up of our logistics to meet increased customer demand in the face of formidable internal and external pressures.





Scaling up logistics under pressure

In 2020, I started a new position with responsibility for delivering materials and tooling into our factories in Veldhoven and shipping finished systems to our customers. This was a time of rapid evolution for my team. ASML was ramping up delivery of new systems, which meant taking on many new employees. And six months after I started, we launched a new logistics setup including new IT systems and much more automation.

All this was happening at the height of the COVID-19 pandemic. Needless to say, stress levels were really high and, consequently, so were sickness and employee absence. As a logistics organization, we were struggling to meet targets.

Something had to change. There needed to be more focus on the health and well-being of our people. It's a cliché to say that people are our most important asset, but it's a cliché because it's true.

Developing a culture of well-being

The combination of work pressure and external stress from the COVID-19 situation was very difficult for many people. Working with ASML's health services team, we hired a personal coach to help individuals find ways to switch off at the weekends so that the stress didn't become too much. This proved so popular that we have continued it through the cost-of-living crisis and other global events. Obviously, we can't solve external non-work-related events, but we can help our people to deal with these in the best possible way.

We also made some organizational changes to put the right people in the right jobs. A key step was creating a new management culture based on 'servant leaders', managers who have the empathy to understand what their people need to do their job effectively. I also adapted my own management style to become more visible on the shop floor and set an example of how things should run. For instance, as I really don't like mess, I would make a point of picking up any rubbish I saw as I walked through the warehouse. As a manager, I may be higher up the organizational structure, but I still need to tidy up!

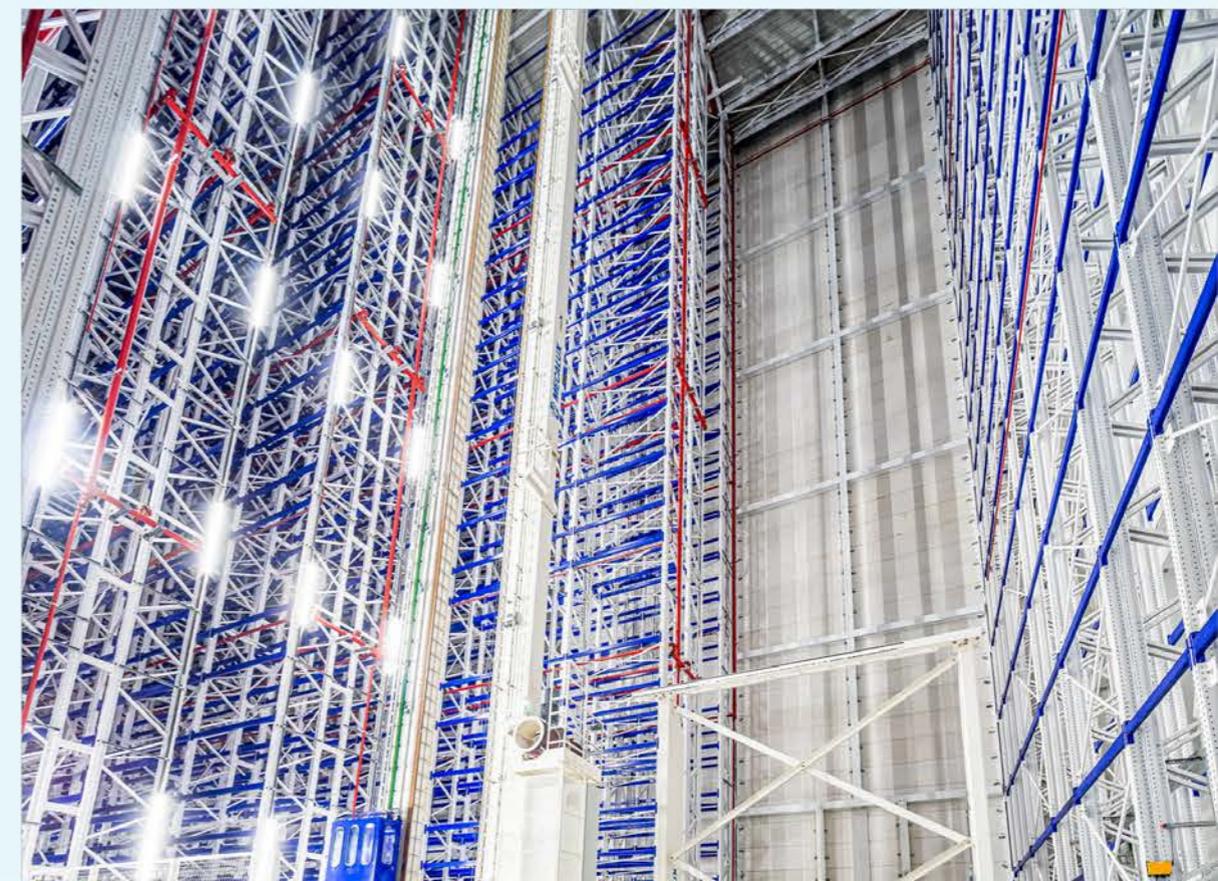
Focusing on health and well-being is working. Sickness and absentee rates are back to pre-COVID levels, and people are more motivated and engaged in their work. You see that in our employee engagement numbers and, more importantly, the atmosphere in the department. As a result, our KPIs for on-time delivery have improved from 98% to 99.9%.

Building a bright future

Throughout this process, we recruited many new people. We made this growth as painless as possible by decoupling our day-to-day work from the onboarding of new recruits. One team leader was focused exclusively on supporting new hires, and each team was supported by an onboarding coordinator.

We also teamed up with Summa College in Eindhoven to create a new logistics degree-level course – to give back to the institutions that produce new talent and invest in future generations. Students work at ASML for four days a week. On the fifth day, teachers from Summa come to ASML to give lessons and join the students on the shop floor. This gives us a chance to tailor the syllabus to our specific challenges – for example, cleanroom logistics.

Students rotate through our various teams every four months. Each team has a designated 'buddy' to support and mentor students during their rotation. One of the most rewarding aspects of this initiative is seeing how many of these buddies have enjoyed their mentoring experience so much that they are now stepping up to leadership roles.



Responsible supply chain

We depend on our suppliers to help deliver our innovations. They are critical to our value chain and our ambition to be a sustainable leader in the semiconductor industry.

IN THIS SECTION

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130 Managing supplier capabilities



Why it matters

A responsible supply chain is essential to deliver the systems and new technologies that can provide answers to the challenges faced by society.

ASML's business success is centered on long-term relationships and close cooperation with our suppliers and partners. The performance and resilience of our entire supply chain are critical to our ability to respond to customer demand. To be able to deal with the highly cyclical nature of our industry, we need to work closely together. Our customers' trust is key – greater transparency and collaboration earn trust and are crucial to success. Under dynamic market circumstances which present challenges in their own right, we need our suppliers to follow suit. Building strong, strategic, 'win-win' relationships with our partners, while navigating short-term challenges, is essential to our future success.

We operate in a niche market characterized by the production of high-value products in relatively small quantities and involving thousands of specialized parts.

We also experience fast development cycles and business volatility due to supply-demand mismatches and a changing global economic and geopolitical outlook. We must be able to source the products, materials and services we need to meet our short- and long-term needs and support our operations from the earliest moment of development to the end-of-life stages of our systems. Developing and introducing new systems and system enhancements, such as EUV lithography and e-beam metrology and inspection, requires considerable investment and collaboration. To make sure this runs smoothly, we need to involve our suppliers at the earliest possible stage in the product generation process (PGP). This also enables us to increase product performance and ensure manufacturability and serviceability.

Building strong relationships with suppliers

With around 5,100 suppliers in our total supplier base, we aim to develop and maintain strong, collaborative and transparent relationships. We distinguish between two types of suppliers: product-related and non-product-related.

Product-related suppliers provide materials, equipment, parts and tools used directly to produce our systems. This category comprises approximately 800 suppliers and represents the highest percentage (69%) of our procurement volume. We define around 280 of these suppliers as 'critical suppliers', accounting for roughly 94% of the product-related spend. Critical suppliers are responsible for delivering a unique part and/or are single sourced, involve a switching time to an alternative supplier of more than 12 weeks, or supply parts with long production times.

Non-product-related suppliers are goods and services suppliers, providing the products and services that support our operations, from temporary labor to logistics, and from cafeteria services to IT services. With around 4,300 suppliers, this group represents 84% of our total supplier base.



€15.5bn

Total sourcing spend¹

(Netherlands: 40% | EMEA (excl. NL): 40%
North America: 13% | Asia: 7%)



5,100

Total suppliers

(Netherlands: 1,600 | EMEA (excl. NL): 750
North America: 1,350 | Asia: 1,400)



57%

**% supplier spend covered
by commitment
to sustainability**

(2025 target: 80%)

¹ Reported for non-financial (GRI) reporting purposes

Responsible supply chain (continued)

How we're managing our impact

We work with our world-class supplier network to ensure our sustainability principles are upheld throughout the value chain. To maximize what we can achieve, we develop the next generation of technology through our knowledge and innovation ecosystem.

We focus on adding value through system integration and developing key performance requirements for our supply base. We are stepping up to achieve our net zero upstream emissions by collaborating with our suppliers while integrating this in our operational general, quality, logistics, technology, cost and sustainability (GQLTCS) performance targets and capability requirements.

To drive a sustainable and resilient supply chain, we place high importance on supplier performance management, supply chain risk management and playing a full part in a responsible supply chain. We require our suppliers to:

- Secure materials from their suppliers to respond to customer demand
- Enable our product roadmap through the development and maintenance of best-in-class supplier competencies and capabilities to secure the most advanced technology and quickest time to market
- Drive cost reductions, quality and capability improvements through efficient and dedicated operations
- Build a sufficiently broad customer base and scale to share and spread the risks of volatile market cycles and to increase flexibility and cost competitiveness
- Collaborate with us to achieve our ambition of net zero GHG emissions in our supply chain by 2030

We have reorganized our sourcing and supply chain organization, which is now known as Sourcing & Procurement (S&P), to get closer to our suppliers, better understand their capabilities and work with them to build and improve our shared opportunities. We are working to focus the efforts of our S&P organization through clear interfaces and ways of working with our suppliers and other parts of ASML. These changes reflect our commitment to strengthening partnerships and optimizing efficiency within our supplier network, while increasing focus on our ESG sustainability strategy. In addition, our planning- and delivery-related activities have now been brought together to create a new Planning & Delivery (P&D) department. The overall goal of this transformation is to strengthen customer and supplier trust with reliable and transparent planning, bringing demand and supply perspectives closer together.

Supplier performance management

We continue to improve our key business processes to manage ASML's growth and future ambitions. Tight risk control and continuous supply chain improvements are crucial to securing product quality, long-term business continuity and sustainability.

We develop and monitor our supply landscape to help suppliers meet our requirements with regard to GQLTCS. Our supplier profiling methodology measures supplier performance, supplier capability and risk profile in all of these fields.

In 2023, we updated our supplier performance methodology by:

- Introducing an overarching General (G) element to bring more focus on topics such as strategic alignment, cultural fit, performance management, N-tier management and continuous improvement in our relationship with suppliers

- Upgrading the Sustainability (S) element to better reflect our ambition to be a leader in this field and to continue driving progress toward inclusive and sustainable growth for all. This is in addition to the existing Responsible Business Alliance (RBA) Self-Assessment Questionnaire (SAQ) and measures the maturity of a supplier's ESG policy, vision and ambition. It also assesses their capability to measure environmental and social performance and if they have a roadmap in place to meet ASML's ESG ambitions related to the reduction of CO₂e emissions, increase of reuse, reduction of waste and a responsible supply chain

We have a framework in place to communicate clear process requirements and compliance expectations to our suppliers. This framework outlines our approach to supplier management and development toward the desired ASML supplier landscape. It also provides an enhanced knowledge base to improve our dialog with suppliers around their performance and development potential.

Our suppliers have access to our senior account leaders (SALs) or our strategic account teams (SATs), whose job is to manage supplier relationships. We conduct regular operational and performance review meetings to ensure suppliers continue to improve their performance and processes. When supplier performance drops below our set thresholds and persistently fails to recover upon request and within a reasonable time frame, our policy is to take action to secure reliable future supplies.

A structural internal audit program, led by a skilled and experienced audit team, enables us to assess supply chain risks and identify areas of improvement to mitigate or reduce those risks.

Supply chain risk management

Due to the highly specialized nature of many of our parts and modules, as well as the low volumes, it is not always economical to source from more than one supplier. In many instances, our sourcing strategy prescribes 'single sourcing, dual competence', which requires us to proactively manage supplier performance and risk.

In our risk management framework, we assess six risk domains – business continuity management, ownership, finance, intellectual property ownership, information security and cyber resilience, and compliance. Since suppliers operating in the same industry or market are typically exposed to similar risks, we evaluate suppliers' risk and performance within the context of their supply market category. We adjust our category strategies where required to meet ASML's short- and long-term business needs. In cases where risk exceeds the agreed threshold, mitigation measures are taken. For example, we have long-term supplier agreements (LTSAs) and/or continuous supply agreements in place and we ensure the availability of intellectual property in escrow.

Read more in Risk - How we manage risk

We conduct robust performance and risk management of our supply base to assure and improve performance and prevent business disruption and reputational damage. Two key programs are central to our approach: the suppliers' business continuity program is aimed at securing continuity of supply; and the information security and cyber resilience program is intended to protect our intellectual property, maintain our leading technology position and secure continuity of supply.

Responsible supply chain (continued)

Strengthening our due diligence

As part of our supply chain due diligence, we have adopted the RBA Code of Conduct, which sets out ethical, labor, health and safety and environmental standards. We expect our suppliers and their suppliers to acknowledge and comply with its requirements. This requirement is included in our long-term product-related suppliers' contracts and in the Master Service Agreement for non-product-related suppliers.

With almost 5,100 Tier 1 (direct) suppliers in our supplier base, it is important for us to identify and prioritize suppliers at risk. We apply a risk-based approach to determine which suppliers are in scope for our more detailed due diligence process, which consists of three layers:

- 1 Determine inherent risk level by screening our full supplier base on ethics, labor, health and safety and environmental practices and management systems using the RBA Risk Assessment Platform
- 2 Apply supplier risk profiling to critical suppliers. For these suppliers we conduct risk assessment of GQLTCS capability elements
- 3 Apply an RBA SAQ to major product-related and non-product-related suppliers, labor agents and onsite service providers, in which we consider the type and geographical location of the supplier, as well as our leverage over them. We focus on our product-related suppliers, covering 80% of our product-related annual spend, business-critical suppliers including non-product-related suppliers, labor agents and on-site service providers, and suppliers deemed high risk from our annual RBA risk screening

We expect suppliers in scope for these detailed procedures to complete the RBA SAQ each year to validate their compliance with the RBA Code of Conduct and to determine any potential gaps in relation to its standards. We review all RBA SAQ results, evaluate high-risk findings (if any) and determine the severity of the finding. It is our policy to discuss all high-risk findings with the supplier to evaluate the risk and determine if an improvement plan is needed.

We actively pursue sustainable development of our supply chain to ensure Tier 1 suppliers and contractors conduct their business in a caring and accountable manner, and that they act as responsible business partners. Our responsible supply chain programs focus on RBA commitments and standards, strengthening our due diligence and delivering our S&P ESG Program.

In 2023, we investigated how we can step up our due diligence in line with and in preparation for CSRD – we will expand due diligence activities on environmental and social themes further in the supply chain also incorporating N-tier suppliers.

[Read more in ESG integrated governance - Business ethics and Code of Conduct](#)

We work with our world-class supplier network to ensure our sustainability principles are upheld throughout the value chain.

Conflict minerals

Our products contain minerals and metals necessary to the functionality or production of our products. Such minerals and metals include tantalum, tungsten, tin and gold. These are 3TG minerals, or so-called 'conflict minerals'. While we do not use a significant amount of these in the manufacturing of our products, certain 3TG minerals are necessary. Gold, for example, is used in coating critical electronic connectors and tin is used for welding electronic components and creating EUV light.

We have a conflict minerals policy for responsible sourcing of materials in our supply chain. We support international efforts to ensure the mining and trading of 3TG minerals from high-risk locations does not contribute to conditions of armed conflict and/or serious human rights abuses.

We have adopted a series of compliance measures based on the legal requirements and guidelines of the five-step framework set out by the OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas. As part of our responsible sourcing program, we implement a reasonable country of origin inquiry focusing on five areas: a robust management system; risk identification; risk mitigation; industry collaboration with the Responsible Minerals Initiative (RMI); and public reporting.

Despite our continuous efforts, we are unable to determine the precise origin of the 3TG minerals included in all our products.

This is due to several reasons: 3TG supply chain complexity, the number of tiers of suppliers to trace the source and the limited number of certified conflict-free smelters for all conflict minerals. Obtaining correct data from our supply chain is a challenge, and we continue to encourage our suppliers to trace the origins of the 3TG minerals within their supply chain in accordance with applicable conflict minerals rules and regulations. We also request our suppliers to report smelters who are not listed or identified on the RMI smelters list to the Responsible Minerals Assurance Process (RMAP) audit for smelters.

In 2022, we expanded the scope of our conflict minerals survey to global, reaching 319 suppliers in total, with no non-compliances being recorded. We received confirmation from 185 suppliers that their sourced minerals were conflict-free, while 67 suppliers confirmed there were no 3TGs in their product and 67 suppliers did not respond to the survey.

[Read more in our Conflict Minerals report available at \[asml.com\]\(https://www.asml.com\)](#)

Responsible supply chain (continued)

On track ●
Ongoing focus area ■

Our overall performance in 2023

Topic	Target 2025	Performance indicator	Progress tracking			Status
			2021	2022	2023	
 <p>Our supply chain</p>	80%	% supplier spend covered by commitment to sustainability (LOI)	n/a	59%	57%	■
	90%	RBA self-assessment completed (in %)	89%	93%	90%	●
	100%	Suppliers with high risk on sustainability elements evaluated and follow-up agreed (in %)	100%	100%	98%	●

[Read more in Non-financial statements – Non-financial indicators – Responsible supply chain](#)

Responsible supply chain (continued)

Managing supplier capabilities

How we're managing our impact

Through our S&P ESG program, we aim to increase suppliers' engagement with our ESG sustainability strategy. By organizing knowledge-sharing sessions, we share knowledge and expertise on scope 1, 2 and 3 GHG emissions. Engaging with our suppliers in a transparent way helps us reach mutual understanding. We are collaborating on sharing actual GHG emissions, transitioning from spend-based to hybrid-based environmental data and driving GHG emissions down.

The program focuses on helping suppliers engage with our ESG ambitions around three key themes:

- Environmental (E) is related to energy efficiency, climate action and circular economy. We work with our suppliers toward net zero emissions by 2030, maximizing reuse of materials and reducing waste.
- Social (S) focuses on creating and maintaining an attractive workplace for all, a responsible value chain, an efficient innovation ecosystem, and being a valued partner in our communities.
- Governance (G) is related to integrated governance, engaged stakeholders and transparent reporting. We work together with internal stakeholders on internal and external reporting.

We work with our suppliers to minimize adverse environmental and social impact in the supply chain.

[Read more in ESG at a glance](#)

An important element in our S&P ESG program is the 'Letter of Intent' (LOI). By signing this letter, suppliers agree to comply with a number of measures:

- To continue adhering to the latest version of the RBA Code of Conduct
- To measure and share their CO₂e emission data with ecosystem partners
- To set ambitious targets to reduce CO₂e emissions
- To collaborate with ASML and ecosystem partners to remanufacture used system parts, tools, packaging and other materials to maximize the reuse of materials

We work with our suppliers to minimize adverse environmental and social impact in the supply chain.

Responsible supply chain (continued)
Managing supplier capabilities (continued)

Our targets and performance in 2023

We have three targets to drive a more sustainable supply chain:

- 1 To have 80% of our top 60 suppliers (based on spend) covered with a commitment to sustainability (via LOI or by providing us with their scope 1, 2 and 3 CO2e emissions data by 2025
2 For 90% of all suppliers in scope of the RBA self-assessment to have completed it by 2025
3 For 100% of our suppliers identified by the RBA self-assessment as having high-risk sustainability elements to be evaluated and follow-up action agreed by 2025

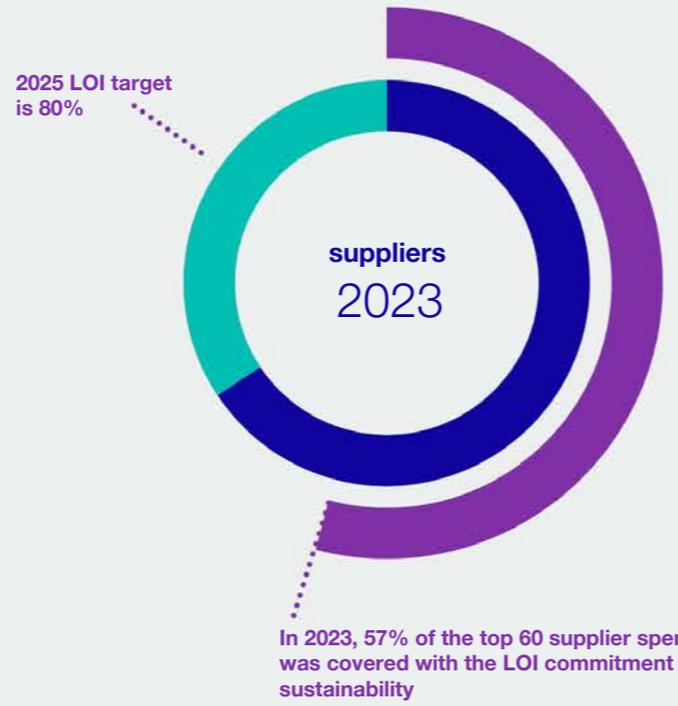
We monitor targets and commitments monthly, tracking progress and following up with the account lead and supplier as needed.

Performance-driven scenarios

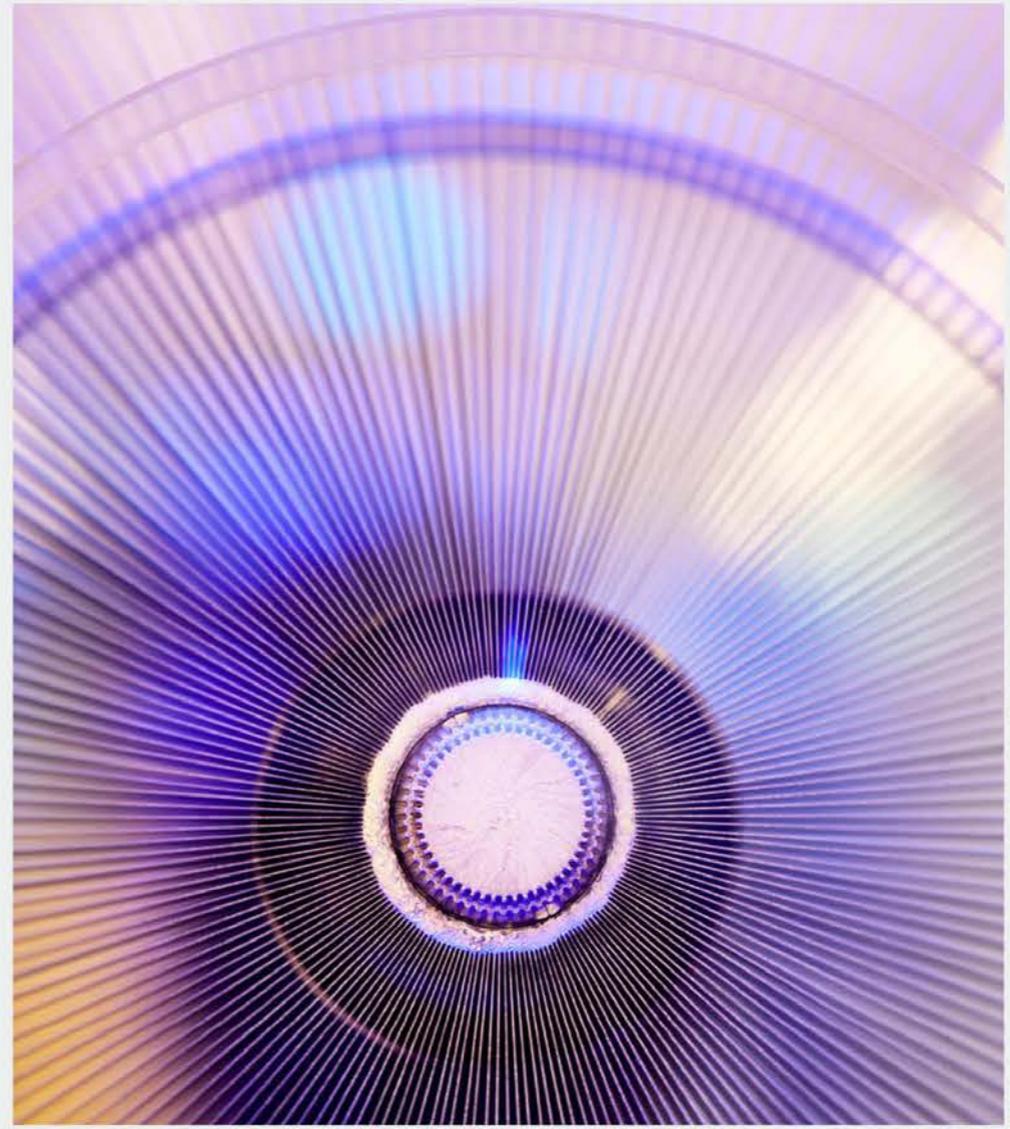
Total supplier base

€15.5bn
Total spend

Table with 2 columns: Supplier Type, % of total spend. Rows: 800 Product-related suppliers (69%), 4,300 Non-product-related suppliers (31%)



We apply due diligence screening to the total supplier base using the RBA Risk Assessment Platform. Suppliers in scope are determined by prior year total spend.



Responsible supply chain (continued) Managing supplier capabilities (continued)

By year end 2023, 57% of the top 60 suppliers in scope (based on spend) had signed the LOI, acknowledging their joint responsibility and commitment to reducing the collective environmental footprint – in particular, the CO₂e emissions contributing to our scope 3 reduction and waste contributing to our reuse ambitions. This % is below our original target set for 2025 of 80%. In 2023, we focused on setting up the new strategy and targets for the coming years, including drafting a new version of the LOI focusing on obtaining the actual commitment of suppliers to our net zero target. More than 35 suppliers had provided data on CO₂e emissions, which contributes to our goal of being able to use actual emission data rather than estimation based on spend. Therefore, due to the focus on getting a signed commitment from suppliers, less focus has been put into driving progress on the current target.

We have asked a total of 128 suppliers to complete the detailed RBA SAQ, which is an increase in scope of 69 suppliers from 2022, when 59 suppliers were asked to complete. In general, the RBA SAQ results show a relatively low risk level in our supply base, as most of our suppliers operate in countries which we believe generally have a strong rule of law. By the end of 2023, 90% of the suppliers in scope had completed the RBA SAQ (93% in 2022).

The RBA process did indicate high risks on labor, health and safety, environment or ethics standards for several suppliers. Further assessment of identified high risks revealed that the risks were related to a missing 'third-party' management system in place. After follow-up discussions, we assessed the risk as low/medium. ASML does not require suppliers to have a formal environmental/labor management system in place. All suppliers that were followed up were able to show that they have a policy/procedure in place to ensure compliance with ethics, labor, safety and environmental requirements. At year end, there was one supplier with an overall high risk. Since the RBA assessment was completed at the end of December, our investigation is ongoing – follow-up questions have been asked and follow-up actions will be agreed. More details can be found in the table below for 2021-2023.

ASML suppliers

5,100
Suppliers

€15.5bn
Total spend

Supplier base geographic split by percent spend



Supplier risk profiles, created for business-critical, strategically important suppliers*

€10.6bn



The Responsible Business Alliance (RBA) self-assessment questionnaire completed by major suppliers¹

€10.6bn



¹ Major suppliers are those that account for 80% of PR spend and any business-critical NPR suppliers. Suppliers in scope are determined by prior year total spend.

Responsible supply chain (continued)

Managing supplier capabilities (continued)

Standard	RBA commitment	Number of high risks identified from RBA SAQ			Main findings 2023
		2021	2022	2023 ¹	
Labor	To uphold the human rights of all workers (direct and indirect), and to treat them with dignity and respect as understood by the international community, including the International Labour Organization's (ILO) eight fundamental conventions	0	0	0	
Health and safety	To minimize the incidence of work-related injury and illness and to ensure a safe and healthy working environment. Communication and education are essential to identifying and solving health and safety issues in the workplace	0	1	1	Related to one supplier that is missing a Health and Safety and Environmental policy and missing guidelines/ Code of Conduct related to Health and Safety towards their suppliers.
Environment	Environmental responsibility is integral to producing world-class products and services. Adverse effects on the community, environment and natural resources are to be minimized while safeguarding the health and safety of the public	0	3	1	Related to one supplier that is missing a Health and Safety and Environmental policy and missing guidelines/ Code of Conduct related to Health and Safety towards their suppliers.
Ethics	To meet social responsibilities and to achieve success in the industry, the highest standards of ethics should be upheld, including but not limited to business integrity, anti-bribery and corruption, antitrust and competition, protecting privacy	0	1	0	

Members and participants are committed to establishing a management system to ensure:

- Compliance with applicable laws, regulations and customer requirements
- Conformance with the code standards
- Identification and mitigation of operational risks
- Facilitation of continuous improvement

1. A total of 128 suppliers were asked to complete the detailed RBA SAQ, which is an increase of 69 suppliers from 2022, when 59 suppliers were asked to complete.

Responsible supply chain (continued)

Managing supplier capabilities (continued)

Our actions in 2023

Reduction of CO₂e emissions and waste

In 2021, we started collecting supplier data to create our baseline and understand suppliers' ability to report scope 1, 2 and 3 GHG emissions data. In 2022, we extended the supplier environmental survey to understand whether suppliers have an ESG roadmap and/or strategy in place, their ambitions, and their scope 1, 2 and 3 data. This process continued in 2023, with data quality improved by tracking historical data next to data reported in 2022. We also introduced an IT solution for suppliers to help capture their GHG emissions data and monitor their progression via a dashboard.

We work closely with the sourcing account teams (SATs) and our senior account leaders (SALs) to connect with key suppliers to understand and align their ESG sustainability ambitions and data. In addition, our SATs and SALs drive supplier commitment on our 2030 net zero ambition and collaborate with our suppliers to create and implement roadmaps.

We are defining and implementing environmental KPIs that support us in monitoring whether our suppliers are reducing their emissions.

[Read more in Environmental - Energy efficiency and climate action - Scope 3 emissions from our supply chain \(including logistics\)](#)

Business continuity program

In 2023, we included 251 business-critical product-related suppliers in the business continuity program and, in addition, extended the scope with HMI suppliers and Cymer suppliers to ensure global risk management coverage.

We strengthened the requirements towards our suppliers. We now require them to have an organization resilient to possible disruptions caused by internal and external threats, physical or natural circumstances by:

- Building organizational resilience with the capability to respond effectively, safeguarding ASML's and its customers' interests, reputation, brand and value-creating activities.
- Ensuring the protection of buildings, equipment and other assets, reputation, critical business functions, processes and resources.
- Ensuring implementation and continuous improvement of a business continuity management system and the related business continuity processes in the organization and ASML's supply chain.

Information security and cyber resilience program

We continued to expand our information security and cyber resilience program in 2023, leading to a current scope of 345 suppliers compared with 314 in 2022. Additionally, we utilize a cyber-risk monitoring tool to monitor the internet presence of suppliers – in 2023, we extended its scope from 256 to 469 suppliers.

Suppliers with access to top-secret information or with privileged access to our IT systems were asked to improve their cyber resilience through the ISO 27001 standard. To support our suppliers and other ecosystem partners in this effort, we established a Security Circle of Trust together with Cyber Weerbaarheid (resilience) Brainport in the Netherlands.

[Read more in ESG Integrated Governance - Information security](#)

Engaging with suppliers

We held a number of engagement sessions with key suppliers during the year, including a Supplier Collaboration Day in June and a Suppliers' Day in October. During the Suppliers' Day, ASML leaders and suppliers spoke openly about how to grow together, how to plan for success and how to overcome challenges by improving partnerships, increasing transparency and trust, shortening feedback loops and embracing sustainability. The panel discussion centered on supplier collaboration efforts, the lessons learned and best practice sharing. ASML leaders and suppliers agreed on the importance of highlighting and learning from areas of collaborative success. They concluded that this can only be achieved by being transparent, listening and developing mutual trust.

We also held brainstorming sessions with suppliers specifically to share knowledge about our ESG sustainability program, including information on CO₂e emissions data, and to identify areas to collaborate. These sessions enable active engagement and mutual learning with our suppliers. We ask suppliers to let us know their challenges when collecting CO₂e emissions data, and we discuss possible solutions. Suppliers have indicated that these brainstorming sessions are highly beneficial and contribute to best practice sharing and the ability to tackle joint problems together.

Our experience during 2023 once again underlined the importance of the S&P ESG sustainability program, which encourages active engagement with suppliers on ESG-related topics, GHG emissions, RBA and conflict minerals.

Looking ahead

One of our key focuses for 2024 is to further build on the supplier GHG emissions baseline and to understand our suppliers' ambitions, capabilities and performance. We will assess suppliers against the S block of our supplier profile and actively follow up on gaps.

Previous years have shown there is a mix of supplier maturity in terms of reporting scope 1, 2 and 3 data, with spend-based emissions sometimes overestimated compared to actual emissions data. Gathering scope 3 supplier data will take more time due to the complexities and challenges around visibility of emissions in suppliers' own supply chains.

We built the S&P ESG roadmap and strategy during 2023, with an initial focus on our internal stakeholders and the roll-out to suppliers taking place in the second half of the year. We are working on targets to drive sustainability improvements in our supply chain, and we expect these to be formalized in 2024.

With respect to the S of the ESG program, we will execute on the expanded due diligence process and use these learnings and findings to further update our procurement policies. We will actively follow up on identified high risks.

Upcoming trends that we expect to support this work include CSRD requirements and other directives that will compel companies to transparently disclose their ESG performance data.

In 2023, we identified our impact on people's well-being, health, safety and human rights through the use of technology in all kinds of applications that affect quality of life as a new material topic, the strategy for which will be further developed in 2024.

“
**The interaction among
supply chain partners
helps us all improve to
support faster growth.”**

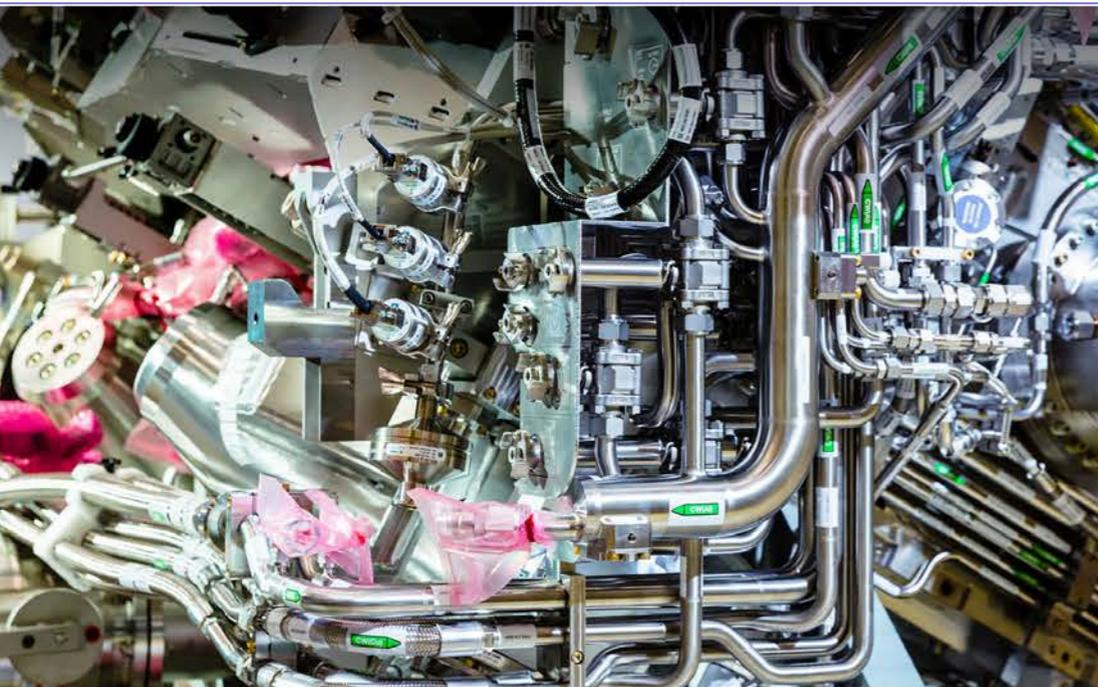
Manon Hendriks

Senior Director, Sourcing & Procurement
16 years at ASML

**Working together,
growing together**

In 2023, after 15 years in finance at ASML, Manon Hendriks stepped into a new commercial role as Senior Director Sourcing & Procurement. The experience in building relationships that she developed in her finance career is now not only underpinning the success of ASML, but also of one of our key suppliers.





Making the move

I started my career as a certified public accountant (CPA) in a 'big four' accountancy firm, focusing on auditing. I loved the job and the interaction with people – I learned a lot about building relationships outside my own organization. But after six years and a move into management, I felt I was losing that day-to-day interaction and wanted a new way to add more value.

So I decided to 'switch sides', and someone suggested ASML. An ex-colleague already worked here and told me it was an energetic company where you get more out of your job, with opportunities to grow and change your role. I decided to go for it and have never regretted that decision.

Steering your own career path

That description of ASML turned out to be true. I've always felt that, if you show the capability and desire, the opportunities are there. And in 16 years at ASML, I have had a variety of roles – in finance and beyond.

Once, I asked about moving into business control. My manager said she had a role for me in business, but it wasn't in business control. Instead, she suggested I manage a program that was setting up a new enterprise structure. This was a long way outside my comfort zone: I knew all about the processes, transactions and accounting flows involved, but had no experience in change management. However, if you have a good team around you and can find the right people with the right skills, you will be successful.

It learned so much in that role. And I took it with me when, after three years, I moved back into finance – this time in business control, first in manufacturing and then in sourcing and procurement. In this latest role, I found my energy came mostly from connecting people – between sectors within ASML, but also with our suppliers. So the question was: how could I bring more of that to my work?

A role in procurement was the answer. This was an even bigger step outside my comfort zone than program management. But I knew I had the trust of my management and the network within ASML to ensure I had the right team supporting me.

A new direction

As of this year, I am responsible for ASML's relationship with one of our largest suppliers: VDL. ASML doesn't really have a traditional supply chain – we have a supply network. About 80% of our cost base comes from our suppliers, as our main role is as system integrator. This means suppliers could be supplying us directly while also supplying each other, and even receiving components from us to integrate into their modules before shipping them back to us.

Technology is at the heart of this network: we need our suppliers to innovate with us so that, together, we can make the impossible possible. My role is less about commercial negotiations and more about building relationships to drive joint improvements. Suppliers such as VDL interact with many people at many levels of ASML – on everything from day-to-day engineering issues to strategic roadmaps. There can be 20 or more ASML people working with VDL on a specific solution. The challenge for us – and particularly me – is to ensure we speak with one voice.

I think my background gives me a different perspective, one that complements the skills of my colleagues. Finance is about connecting facts and figures, but also building bridges between sectors and thinking issues through from all angles. We work with our key suppliers at many levels in true partnerships. How you set up and govern those relationships is vital. But you can't be bureaucratic or dogmatic. We work with suppliers like VDL because they are world leaders in their manufacturing technology, but they are different to us. Now we want to build a partnership that gets the best out of both of us, because we are more successful together.

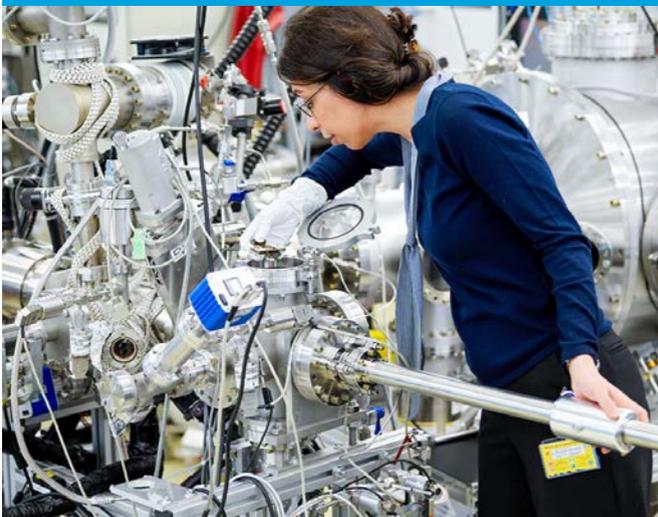


Innovation ecosystem

We never innovate in isolation because developing technology in collaboration with partners across the innovation ecosystem maximizes our collective impact.

IN THIS SECTION:

- 138 Our overall performance in 2023
- 139 Partnerships for research and development
- 142 Supporting startups and scaleups



Why it matters

Our experts at ASML are architects and integrators who work together and in collaboration with external partners across the innovation ecosystem to push the boundaries of what we can achieve. We aim to develop long-term innovation partnerships and collaborations based on trust and knowledge-sharing across this ecosystem. Pooling our expertise and resources enables us to build a stronger knowledge network and create new technological solutions that benefit the whole of society. This approach also allows the sharing of risks and rewards to accelerate innovation.

How we're managing our impact

Our innovation approach drives the development of technology solutions that society can tap into, while educating and inspiring the next generation of engineers. We fuel the innovation pipeline by collaborating closely with academia and leading research institutes. We also foster collaboration with R&D partners through European public-private partnerships.

We also contribute to the development of a sustainable innovation ecosystem by supporting regional deep-tech scaleups and startups selected for their ambition to contribute to a better, more sustainable world. Sharing our knowledge and expertise strengthens our regional high-tech ecosystem, particularly around our headquarters in Veldhoven, the Netherlands. The Brainport Eindhoven region has a competitive edge globally, and we aim to maintain this leadership position. Building a strong regional foundation benefits ASML and its partners along with other companies and organizations. It also helps to attract a broad base of talent to the region.



€4.0bn

R&D investments

(2025 target: >4bn euro)



102%

R&D spend as %
growth from 2019
base year

(2025 target: >100%)



€16.4m

Contribution to EU
research projects



€1.2m

Value startups
and scaleups
in-kind support

Innovation ecosystem (continued)

On track ●
Ongoing focus area ■

Our overall performance in 2023

Topic	Target 2025	Performance indicator	Progress tracking			Status
			2021	2022	2023	
Innovation ecosystem 	>4bn euro	R&D investments	€2.5bn	€3.3bn	€4.0bn	●
	>100%	R&D spend as % growth from 2019 base year	25%	63%	102%	●
	>20%	Startups reached Star level from total startups (in %)	15%	12%	12%	■
	14	Number of scaleup companies supported (cumulative in numbers)	7	10	13	●

Innovation ecosystem (continued)

Partnerships for research and development

How we're managing our impact

To enable the semiconductor industry to move toward next-generation technology, we collaborate with universities, research and technology institutes and other high-tech companies with a total of 70 different partners spanning 12 European countries.

Public-private partnerships

We work closely with private partners to develop and deliver research and innovation projects that are subsidized by the EU and its member states. Collaborative subsidy projects are aimed at advancing integrated circuit (IC) technology for the semiconductor industry while following Moore's Law, with a continuous drive to improve performance and energy efficiency. The Horizon Europe program and recently adopted European Chips Act facilitate collaboration and strengthen the impact of research and innovation in the EU.

ASML and its partners play an important role in giving Europe a degree of sovereignty by driving and accelerating fundamental research and ground-breaking innovation within Europe, the Middle East and Africa (EMEA). This collaboration generates significant business value, fuels job creation and creates a strong knowledge base. Its success is demonstrated by the increasing number of patent requests each year from ASML and our partners.

Partnerships with academia and research institutes

We co-develop technical expertise with a wide network of technology partners including universities and research institutions. Key partners include imec in Belgium, the technical universities in Twente, Delft and Eindhoven in the Netherlands, and research organization TNO and the Advanced Research Center for Nanolithography (ARCNL), also in the Netherlands.

Our targets and performance in 2023

Our R&D partnerships are underpinned by targets to drive investments and outcomes:

- 1 Reach more than €4 billion R&D investments by 2025
- 2 Grow R&D spend over 100% from 2019 base year

Our R&D investments in 2023 amounted to €4.0 billion, equivalent to a 102% increase on the 2019 investment level and up from €3.3 billion in 2022.

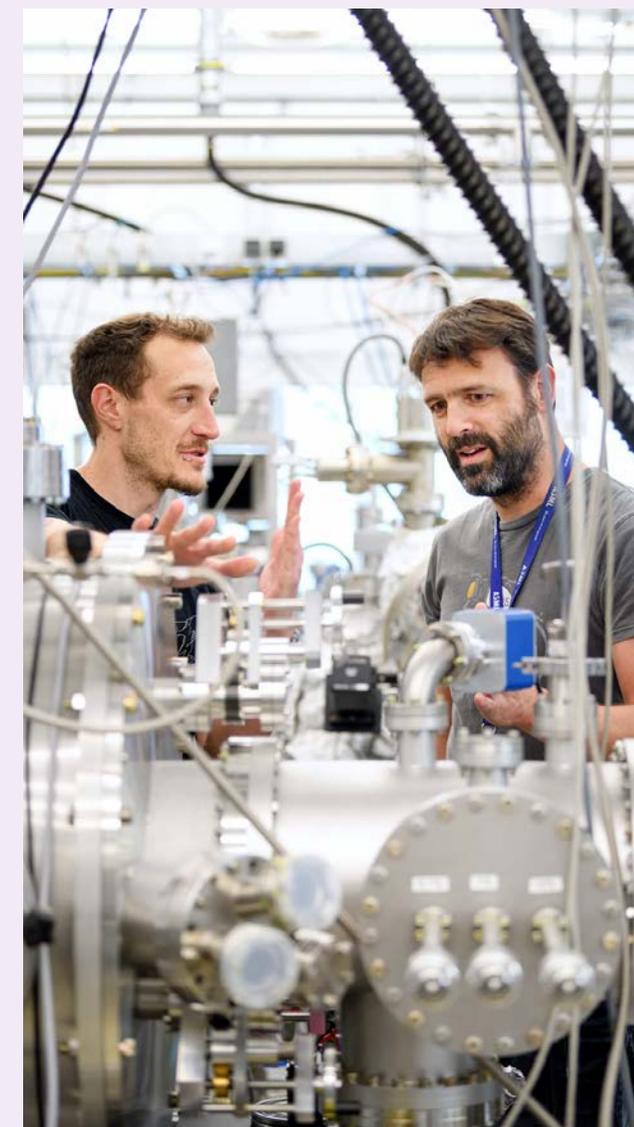
Our contribution in R&D across the four active public-private partnerships in 2023 was €16.4 million. The total value of our investment for the full three-year duration of these projects is €66.5 million, with a total project size of €402.1 million.

Pushing the boundaries of physics and chemistry

We continue to strengthen our collaboration with ARCNL, which conducts fundamental research focused on the physics and chemistry that are important in current and future technologies within nanolithography, and its application within the semiconductor industry. In recent years, we have established a unique collaboration model in which scientists from ARCNL can explore the research questions they would like to focus on and, at the same time, create value for ASML.

Our joint interest in the areas of EUV source, metrology and materials is well established and our work is yielding results. Examples include new insights into optimal drive laser wavelengths for EUV plasma generation, interferometric metrology techniques for improved wafer analysis and detailed understanding of tribology for wear-resistant coatings on wafer tables. Experimental data with higher resolution provided by ARCNL in non-product-like configurations with higher optical NA yields new insights and influences design and model development of the next generation of scanners.

In 2023, the fundamental understanding of the future challenges connected to the relentless enabling of Moore's Law led to new joint projects in the areas of new light sources for lithography and metrology, and growth and patterning of 2D materials for semiconductor applications. In particular, it led to a better understanding of the interaction of plasma with surfaces, and of corrosion effects, giving new insights in coating designs of wafer tables.



Innovation ecosystem (continued)

Partnerships for research and development (continued)

Developing the next generation of lithography technology

Our longstanding and extensive technical collaboration with imec aims to identify and mitigate challenges in introducing High NA EUV for our customers. These include choices of resist and their stochastic (randomly variable) effects, reticle absorber materials and the necessary metrology and inspection tools to examine the quality of the printed features on a chip.

As an indication of the impact of our collaboration, more than 30% of the oral paper presentations we submitted to the 2023 international society for optics and photonics (SPIE) Advanced Lithography and Patterning conference (SPIE ALP 2023) were derived from our collaboration with imec.

Using 0.33 NA EUV systems, imec and ASML have had an intense technical collaboration to prepare for the introduction of High NA lithography (see Phase 1 in the infographic on the right). The collaboration identified the critical device layers on a customer's roadmap most in need of the introduction of High NA. Studies were undertaken to understand and mitigate High NA scanner-related foreseen challenges, for example through studies on depth of focus and field stitching. Parallel studies addressed the ecosystem challenges, such as choices of resist and their stochastic effects, reticle absorber materials, and required massive metrology.

Phase 2 started in 2022 by creating the infrastructure of the joint High NA Lab using the first High NA EUV scanner (TWINSCAN EXE:5000). Metrology equipment and wafer processing equipment were installed and logistical wafer flow was tested. In addition, the IT infrastructure to enable imec, ASML and volume-manufacturing customers to use the lab while protecting their respective IP and data was implemented. The EU has provided approval for the state aid requested by ASML for the continuation of the High NA collaboration with imec.

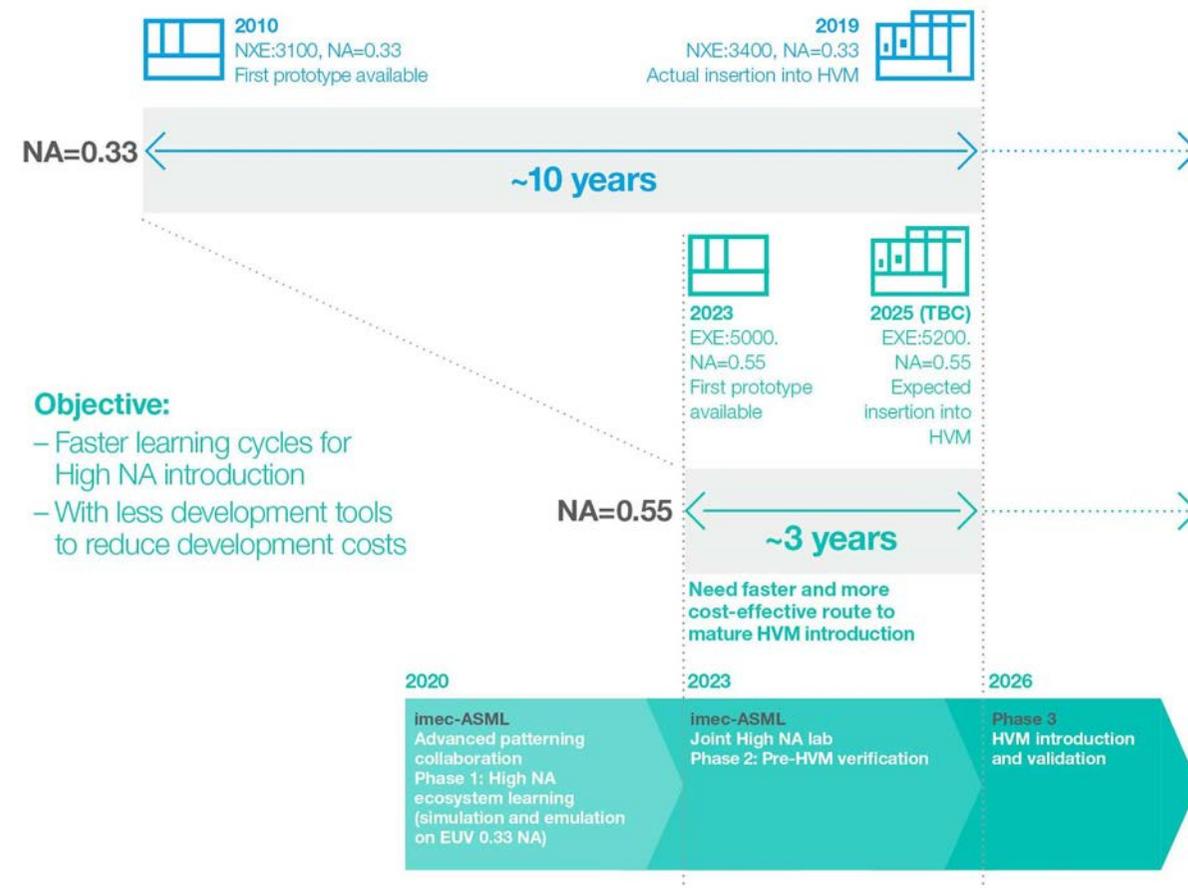
In June 2023, we strengthened the collaboration by agreeing a Memorandum of Understanding with imec. Together, we aim to develop (see Phase 3 in the infographic on the right) a state-of-the-art High NA EUV lithography pilot line at imec in Leuven (TWINSCAN EXE:5200).

In addition to these activities, collaboration with imec is ongoing on edge placement error (EPE) measurements and control, supporting the fundamental developments of new metrology concepts, 3D advanced packaging, and micro-electromechanical systems (MEMS) technology. In general, imec's input on the device roadmap has become an integral part of the ASML roadmap process.

Our intensified collaboration is in line with the ambitions and plans of the European Commission and its member states (e.g., European Chips Act, Important Projects of Common European Interest – IPCEI) in order to strengthen innovation to tackle societal challenges. Part of the collaboration between imec and ASML is therefore captured in an IPCEI proposal which is currently under review by the Dutch government.

High NA lab to accelerate EUV 0.55 NA (High NA) introduction

Fast route to mature high-volume manufacturing (HVM) introduction



Innovation ecosystem (continued)

Partnerships for research and development (continued)

Our actions in 2023

Public-private partnerships

In 2023, we continued coordinating efforts in four EU projects – Pilot Integration of 3nm Semiconductor technology (PIN3S), IC Technology for the 2nm Node (IT2), Integration of processes and modules for the 2nm node meeting Power Performance Area and Cost requirements (ID2PPAC), and 14 Angstrom CMOS IC technology (14ACMOS) – all with a duration of three years. We have enabled timely reporting to the connected public partners and have organized face-to-face and online consortium meetings to exchange ideas and knowledge. The PIN3S project was successfully closed in July 2023, during a face-to-face final project review meeting. This took place at the premises of NOVA Israel, one of the beneficiaries of the project, and involved independent experts from the industry hired by the European Commission, who evaluated the results of the project. There also have been observers representing the German and Belgian national authorities.

During the year we also commenced a new project – 14AMI. This project was submitted at the second call of Key Digital Technologies Joint Undertaking (KDT JU). This three-year project focuses on module integration for the manufacture of 14 angstrom (1.4 nm) CMOS chips. A consortium has been formed that covers four key areas needed in IC technology development for manufacture – lithography, metrology, mask infrastructure and process technology.

The 14AMI project brings together the R&D capabilities of 31 leading expert partners to tackle these challenges. It is valued at more than €108 million in R&D costs and unlocks at least €47 million in public funding for the ecosystem. In terms of geography, the project connects people from Romania, Belgium, France, Germany, Austria, Israel, Switzerland and the Netherlands.

In addition, ASML participates in the KDT JU project SC4EU, led by Infineon Technologies AG in Germany. This project was submitted in response to the special topic call of KDT JU in 2023 on improving the global demand supply forecast of the semiconductor supply chain. The project connects various semiconductor players across Europe and involves partners from Germany, Greece, France, Austria and the Netherlands.

Looking ahead

Investing in future talent

Universities, industries and governments must collaborate more closely in Europe to invest in a collaborative knowledge network to drive innovation, and ASML is investing heavily in broad academic collaboration with major universities in Europe. For example, our collaboration with Eindhoven University of Technology (TU/e) is scaling up our already proven, longstanding relationship by bringing together the best in science and engineering talent in the Brainport Eindhoven region.

In April 2023, TU/e and ASML signed a Memorandum of Understanding to jointly develop a 10-year strategic research roadmap in the fields of plasma physics, AI, mechatronics and semiconductor lithography. TU/e and ASML will invest substantially and equally in the joint program, which will create up to 40 PhD positions every year, for which TU/e will recruit internationally renowned top scientific talents. We will supply our top engineers as hybrid teachers and will increase the number of internships we host.

TU/e and ASML are in discussion to create a new ASML research facility on the TU/e campus, where we intend to co-locate the many competences of our research team. The facility will have shared workspaces, meeting rooms, research labs and a state-of-the-art cleanroom facility. An open-access research laboratory will make analytical and production equipment available to TU/e and other research centers and industrial partners. This collaborative space will enable growth and synergy across academic research fields of mutual interest, such as photonics, quantum computing, nanomaterials and chip manufacturing.

Innovation ecosystem (continued) Supporting startups and scaleups

How we're managing our impact

We support startups and scaleups with the ambition to contribute to a better, more sustainable world by addressing the UN's SDGs, by providing both monetary and non-monetary contributions. We participate in startup and scaleup support platforms – such as HighTechXL and Make Next Platform – to build and accelerate impactful startups by combining high-tech entrepreneurial talent and relevant technologies. Via these platforms, we use our unique knowledge and expertise to address the business and technical questions of existing startups and scaleups.

We also match our experienced employees with startups and scaleups. This increases our impact and benefits the personal development of employees by enabling them to work in a multidisciplinary environment with greater responsibility and exposure to the full value chain.

Finally, we participate in venture capital funds that offer funding to startups in their early phase – such as DeepTechXL. It's typically difficult for deep-tech startups to obtain funding in an early phase because of the complexity of the technology, longer development times and typically larger development costs.

Strategic support platforms for startups and scaleups

We invest in three strategic platforms providing startup and scaleup companies with access to highly qualified resources, technologies, licenses, supply chain partners and co-investors.

Make Next Platform

ASML founded the Make Next Platform (MNP) in 2016 together with Huisman, Vanderlande and the non-profit Stichting Technology Rating (STR) to support young innovative high-tech scaleups. Thales NL joined as a co-founder in 2019. MNP supports emerging high-tech ventures that have moved beyond the startup phase and are ready to expand. Through the exchange of best practices, business experience and coaching from senior corporate experts, MNP partners support scaleup companies to become global players by giving them access to their internal and external networks.

HighTechXL

ASML is one of the main shareholders of HighTechXL, together with other tech-minded partners such as Philips, research institute TNO, Brabantse Ontwikkelings Maatschappij (BOM) and High Tech Campus Eindhoven. Through HighTechXL, we build and accelerate impactful startups by combining high-tech entrepreneurial talent and relevant technologies from reputable tech partners such as ESA, CERN, Fraunhofer, imec and TNO, with the goal of solving major global societal challenges. ASML talents join selected startups for 30% of their time for a period of three months. They define their learning goals and benefit from the development of enriched skills and mindsets through this unique entrepreneurial experience.

DeepTechXL

In 2022, we became a strategic investor and co-initiator in DeepTechXL Fund I, a new Dutch deep-tech fund of €85 million as a follow-up to HighTechXL. Together with other strategic investors and co-initiators – Philips, Brabantse Ontwikkelings Maatschappij (BOM), research institute TNO, PME Pension Fund and Invest-NL – the fund provides deep-tech startups and scaleups with access to knowledge, network, technology, licenses and business development support.

Our targets and performance in 2023

We have two targets to measure the effectiveness of our approach:

- 1 More than 20% of startups to reach Star level by 2025
- 2 Support (at least) 14 scaleup companies by 2025

In 2023, we continued our commitment to support high-tech startups and scaleups, providing 4,640 hours of in-kind support, totaling €1.2 million. In addition to last year's commitment of over €14 million, we committed an additional €6 million in financial support in 2023. Of this €20 million commitment, €2.9 million was paid out during the year. 12% of startups reached Star level. So far, 13 scaleups have been adopted, including three in 2023, with focus areas ranging from packaging waste reduction to 3D display enabling technology, for example for medical applications.

The target of 20% of startups to achieve Star level by 2025 is not on track to be achieved. This target was first set when HighTechXL was still a traditional startup accelerator, but since it was transformed into a venture-building program, we have seen that it generally takes longer for these newly established startups to mature. Additionally, the focus is now on deep tech, which typically requires a longer time to develop. This year we have been in discussions to define new targets which reflect this program change.

Innovation ecosystem (continued)

Supporting startups and scaleups (continued)

Our actions in 2023

To date, over 20 new deep-tech ventures have completed our startup and scaleup support program and some are already receiving global attention. Moreover, several new ventures are currently still in the accelerator program, making good progress, and new cohorts are already planned. An example is VSParticle – [read more in box out on the right](#).

ASML hosted a Suppliers' Day workshop in 2023, where scaleups presented their most concerning issues together with their most relevant supplier. ASML and other MNP founders provided expertise and insights, while other scaleups contributed their relevant experiences, allowing companies to learn not only from the experts, but also from each other. Such workshops are highly appreciated by scaleups supported by MNP.

Looking ahead

Next to continuing our current efforts in 2024, our focus will also be on identifying additional venture capital partners to further strengthen our regional startup innovation ecosystem. We will also develop a strategy for rolling out our efforts to other regions where ASML has a presence that can be used to provide regional in-kind support. These additional efforts, which are the result of our growing ambition to create an impact, will generate a need to adjust our KPIs accordingly. In 2024, we will work to define more appropriate KPIs aligned with our augmented objectives.

VSParticle – Accelerating innovations to market through dry deposition of pure nanomaterials

VSParticle (VSP) was founded in 2014 as a spin-off from Delft University of Technology, with the mission to unlock an unprecedented amount of new high-tech materials. Why? Because today's society is transitioning from a fossil fuel base to a mineral-intensive one. All sustainable technologies such as solar, wind and electrical vehicles, which are needed to keep global warming below 1.5 degrees Celsius, are creating a demand for new materials that society has never seen before. The staggering amount of material innovation required in the next 10 years is equal to what the best material scientist could normally do in one hundred years.

It would be beneficial if these energy applications could make use of solid thin-film materials, because thin-film deposition has been widely developed in the semiconductor industry. But the problem is that most of these energy applications require a unique nano-porous material, for which there is no fully developed manufacturing process.

In the past eight years, VSP has developed a unique material synthesis and deposition process that is fully optimized for making these nano-porous materials. This technology is able to take any solid conducting bulk material and convert it to very small and pure nanoparticles. These nanoparticles are transported by a carrier gas to the deposition stage, where a new nano-porous material is constructed.

To unlock 100 years of material innovation in the next 10 years, VSP is introducing its technology into materials R&D activities at top universities and institutes around the world and industrial manufacturing. By doing this, VSP is able to reduce the overall development time from 15 years to one.

Today, VSP has already sold close to 50 R&D systems globally and is accelerating the development of the production tools. To industrialize the core technology, VSP is able to leverage the unique supply chain of ASML. Following detailed investigation, VSP decided to first introduce its technology for the manufacturing of next-generation MEMS-based gas sensors and catalyst-coated membranes (CCMs) for the production of green hydrogen. In addition to these first two industrial markets, VSP sees plenty of opportunity for further growth. Less than 1% of all possible materials have been investigated so far, and VSP expects to unlock the other 99% within the next two generations.

VSP had already grown to become a talented team of 40 by the end of the year. But establishing a new business of selling production tools will require more aggressive growth in the years to come. This growth, will present VSP with a multitude of challenges on different domains. To get the best support from leading original equipment manufacturer companies such as ASML, VSP joined the Virtual Accelerator of Make Next Platform in November 2022.

On a quarterly basis, the management team of VSP meets with Marco Wieland (Fellow at ASML) and Remko de Lange (VP strategy at Vanderlande) to improve the overarching strategy of the company. These meetings include a deep dive on topics such as how to apply scrum in hardware development and value-based pricing, for which various experts from ASML are invited to contribute.

This support has successfully contributed to the growth of VSP. Benefiting from the right insights from leading companies such as ASML will be essential to the success of VSP in the coming years.





“
**You can see the impact
of our collaboration in
the commercial results of
ASML and our customers.”**

George Tao
Director, Customer Support Applications
16 years at ASML

**Impact through
collaboration**

As a director of customer service applications, George Tao works with one of ASML’s leading customers to bring the latest in chip technology to market fast. His team works with the customer and many other ASML teams to ramp up the output of wafers processed by our latest generations of lithography systems, so that our customers can meet their commitments to their own customers and that consumers can enjoy new products, features and performance.



Planning that drives progress

When customers plan a new chipmaking facility, they must think carefully about capacity. They are making commitments to their own customers about how many chips they can deliver, but they also need to ensure the facility is economically viable. Lithography systems are the central tool in the chipmaking process and customers need to know how many wafers our lithography systems can process per day to ensure they make achievable volume commitments.

Early access gives market edge

For leading-edge customers, being at the forefront of lithography technology, in terms of resolution and/or productivity, is essential to their business. They want early access to new lithography technologies so that they can start developing new processes faster and bring new generations of chips to market earlier.

As a result, they often make capacity decisions based on the projected output of our latest systems – systems that we are currently building. They are willing to take delivery of systems before the new model is properly mature to get access to that technology as soon as possible. However, when you deliver systems before they are fully mature, they can't always achieve the agreed targeted output.

Yet the customer is still under commercial pressure to bring the new technology to full volume fast. So, ASML is also under commercial pressure to bring the new systems up to the agreed targeted output within the customer's setup as fast as possible.

Up to speed fast

That's where my team comes in. Working with other ASML teams, our job is to close the gap between initial capability and the agreed output as quickly as possible – and then to keep pushing outputs higher by improving throughput and/or system availability. To do that, we work extremely closely with the customer, drawing on our front-line customer support staff who are permanently located at the customer's facility, and have weekly meetings with engineers and managers.

Close collaboration is key

We identify the gaps by looking at results from our own test procedures as well as the customer's production data. Once we have identified where productivity gains can be made, we develop an action list to make it happen. Some actions are for the customer, for example to improve their efficiency, while others are handled jointly via our weekly engineering meetings. Finally, there are ASML actions, such as upgrading a component or validating a new system option.

In these cases, my team is the central contact between the customer and the different groups within ASML, including the business, development and engineering and customer support. That close internal collaboration is essential to make the necessary improvements on time.

Having a dedicated productivity team – with support from ASML internal partners – is crucial in helping customers bring the cutting-edge lithography technologies to volume. Despite the commercial pressures, the customer appreciates our contribution. Both sides have a very data-driven culture, which helps the chemistry between us – they understand that everything we do comes from the data. Moreover, they know we share their determination to improve performance, to help them meet their customer commitments and push the technology forward together.



Valued partner in our communities

We play an active role in the communities where we operate, recognizing that when the community thrives, we thrive.

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Why it matters

ASML's success and growth have a significant impact on local communities, especially in the vicinity of our larger sites in the Brainport Eindhoven region, Wilton, Silicon Valley, San Diego and Hsinchu.

Our company and network of suppliers and partners generate a wealth of jobs and social activity in these locations. But while our high-tech cluster is a valuable driver of employment and welfare, local communities can experience pressure on housing and essential services, such as schools, as a result of ASML's growth.

We value the support and contribution of the communities we are part of and are committed to respecting and making a positive contribution and being recognized as a valued member of the community. Our aim is that both ASML and the community can benefit from each other's presence and support each other's future development.

We have a large STEM-related direct employment need in the regions where we operate, as well as indirectly in other regions due to the employment needs of our suppliers. This brings both a responsibility and an opportunity to help inspire young people to consider STEM career choices and to support the technology experts of the future.

How we're managing our impact

To make a positive social contribution, we listen to concerns and take responsibility for addressing our negative impacts. This applies to our smaller sites, where ASML is not so significant in relation to the size of the community, and especially to our larger sites where ASML has a high profile.

Ultimately, we want to ensure that our impact is net positive in every community where we operate as we continue to add positive value while also taking responsibility for the negative impact of ASML's presence on our communities. Our employees expect this – they want to know that their employer is a responsible corporate citizen which contributes to the community they are part of in a way that we can all be proud of.

Employee giving is another critical component of ASML's community outreach. By donating time, skills and resources to charitable organizations and causes, our employees can address local needs and make a difference in their communities. Through our global volunteering program, we encourage employees to become involved in their local communities. Every employee can use one day a year as a paid volunteering day in line with our volunteering policy. Some volunteers spend additional time donating their expertise as a STEM ambassador or part-time teacher in primary schools.

We support innovative ideas, startups and scaleups with the potential to solve urgent ESG challenges and help secure the future of STEM education. We invest in the STEM technical talent pool to enable society to overcome its urgent and long-term challenges.



€413

Amount invested
per employee

(2025 target: €2,500 / employee)



25,650

Time investment in
volunteers – hrs
community
involvement



4,800

Time investment in
volunteers – hrs technology
promotion



€2.2m

Total cost of
volunteering

Valued partner in our communities (continued)

ASML's community outreach

Our community outreach is fundamental to our ESG sustainability strategy. Just as we have set our ambition to reduce our environmental footprint to zero, we also aim to promote and improve access to local culture, support inclusive economic opportunity, create equitable access to education, and build a sustainable future through innovation.

Developed and launched in 2023, our new Community Partnership Program identifies four key areas of investment and impact:

- **Attractive communities:** Mitigate the negative impact of ASML's growth and contribute to improvements and positive experiences in the community
- **Inclusive communities:** Remove obstacles that hold back disadvantaged community members from reaching their potential and unlock the potential of, and create equal opportunities for, students
- **STEM education:** Help increase the STEM/technical talent pool that society needs to solve some of its key challenges
- **ESG sustainability innovation:** Support projects with great societal returns with our knowledge and expertise, and invest in ideation, startups and scaleups in our communities to retain a diverse innovation ecosystem that is attractive to the world's top technical talent

We have a strict selection and prioritization process and projects have to primarily benefit ASML's community or society and be in line with one of our key focus areas. Within these areas, we have identified 17 potential programs, including access to affordable housing, access to basic needs for the underserved, providing opportunities for students from disadvantaged backgrounds and supporting community startups.

In 2023, we started projects in the first three of the four areas – our ESG sustainability innovation area is still under development.

Over the next few years, we will grow to reach our ambition of investing €2,500 annually per employee (amount invested per employee and employee contribution matching combined), totaling more than €100 million per year globally.

ASML's commitment to being a valued partner in our communities, specifically through education, has also been reflected in the mission and work of the ASML Foundation for more than 20 years. In 2023, we initiated the process for dissolving the ASML Foundation – however, the scope of its activities will be adopted by the new Community Partnership Program.



Valued partner in our communities (continued)

On track ●
Ongoing focus area ■

Our overall performance in 2023

Topic	Target 2025	Performance indicator	Progress tracking			Status
			2021	2022	2023	
Valued partner in our communities	2,000 €/employee	Community partnership program: amount invested per employee	n/a	n/a	319	■
	500 €/employee	Employee contribution matching	n/a	n/a	94	■
	2,500 €/employee	Community partnership program: total amount invested per employee including contribution matching	n/a	n/a	413	

Valued partner in our communities



The total amount of cash commitments and in-kind support that ASML spent on charities, community engagement and organizations in 2023 was approximately €15.4 million which equates to €319 per employee against a target of €2,000 per employee for 2025. Through employee contribution matching, we contributed €94 per employee, against our target of contributing €500 per employee by 2025. The Community Partnership Program was established in January 2023 and has been ramping up throughout the year.

Our employees contributed a total of 25,650 volunteering hours (2022: 13,645) to community involvement and 4,800 hours (2022: 4,736) to technology promotion. We saw an increase from prior years as a result of rapid scaling of our STEM support for primary schools, which includes one technology lesson module given by a trained ASML employee. The total cost of volunteering – part of employee contribution matching – increased to €2,173k in 2023 (2022:€1,200k).

Five of our locations (Veldhoven and the Brainport Eindhoven region, Wilton, Silicon Valley, San Diego and Hsinchu) benefit from implemented and dedicated community engagement programs. These locations represent 83% of our operations, by headcount. We also operate smaller community engagement initiatives in other locations, and these will be gradually scaled up to more formally dedicated programs in the coming years.

Valued partner in our communities (continued)

Attractive communities

How we're managing our impact

We are committed to doing our share as a socially conscious business in the communities we are a part of. By partnering with businesses and organizations in the regions around the world where ASML is located, we are building trust and contributing to our communities.

Our 'Attractive communities' initiative consists of five foundational programs which contribute to our ESG sustainability strategy. These are detailed below.

Affordable housing

There is a significant housing shortage in the Brainport Eindhoven region in the Netherlands, which puts serious pressure on affordability. People with low to middle incomes struggle to find affordable homes, and ASML's growth adds to their challenge. In 2023, we therefore launched our Affordable Housing program, which aims to help increase the number of affordable homes for everyone in the Brainport Eindhoven region, primarily by providing support for construction of new homes. We run this program in collaboration with several external parties, such as housing corporations, municipalities, and real estate developers.

Green communities

We contribute to the current and future livability of local communities by improving the quantity and quality of nature. The main program focus is on nature and biodiversity, which concentrates on two outcomes: getting more green spaces in the community, and improving the quality of green spaces via collaboration with external partners.

Sustainable mobility

We contribute to the sustainable mobility transition that is required for quick, safe, and clean transport in the Brainport Eindhoven region. The program focuses on two key elements: the availability of infrastructure and increased adoption of sustainable transportation.

Sports, arts and music

We aim to contribute to a varied and high-quality offering of sports, arts and music to meet society's expectations and boost the attractiveness of the regions where we operate for locals and newcomers. We provide additional funds for 'landmark' events and organizations to increase their scale, variety and quality, and we invest in new initiatives and innovative ideas that boost the quality and variety of the cultural and sports offering in our regions.

Positive interactions between cultures

We aim to foster good relationships with ASML's direct neighbors – both as an ethical imperative and to maintain support for our activities and growth – and also to support the integration of international employees of ASML and other companies in local communities. We support various local community projects and initiatives where Veldhoven residents can meet each other and have fun in their spare time. In this way, together with the initiators, we aim to contribute to creating an attractive region.

Our targets and performance in 2023

We are in the first year of these programs and we are continuing to define the individual targets. Our main targets are the amount invested per employee and employee contribution matching.

[Read more in Our overall performance in 2023](#)

Our actions in 2023

Creating more green spaces (NL)

In 2023, we supported the Arboretum in Eindhoven with investing in equipment and tools required for the organization and maintenance of Park Meerland, and IVN in Heeze-Leende with the creation of a safe route for amphibians to move around the area.

ASML Marathon Eindhoven (NL)

The 39th edition of the ASML Marathon Eindhoven took place on Sunday, October 8, 2023, with 29,700 runners from around the world. A record number of 2,500+ ASML colleagues – up by almost 50% from 1,700 last year – took part in the various races including the full marathon, half marathon, relay and quarter marathon.

As title partner, we offered free training programs and covered the entry costs for all our employee runners, as well as for 250 Brainport Eindhoven community members with limited resources, to make this sporting event accessible to everyone.



Valued partner in our communities (continued)

Attractive communities (continued)

GLOW Light Art Festival (NL)

We are moving semiconductor technology forward to create meaningful innovation for society. As a proud partner and sponsor of the annual GLOW light art festival since 2012, ASML believes culture plays a vital role in connecting a community. GLOW is an annual, free event in Eindhoven, displaying the works of famous national and international light artists throughout the city center over one week in November. In 2023, around 750,000 people visited the festival.

Partnership with PSV (NL)

PSV Eindhoven football club is the region's most recognized professional sports organization. Community members appreciate that ASML supports the club together with other regional businesses while jointly promoting 'Brainport Eindhoven' on the players' shirts.

In addition, we have developed programs and activities that focus on the underserved in the community. We have enabled access to the games for thousands of underserved community members through our ASML Community Lounge. We also leverage PSV's brand recognition to promote important campaigns, such as one aimed at reducing personal debt, which reached almost 50% of regional residents and triggered one in three to take follow-up action.

Partnership with Van Gogh Museum (NL)

ASML has allocated a team of engineers to support the Van Gogh Museum in Amsterdam in its research into the decay of art paintings over time – known as the Impasto Project.

Van Gogh Village Museum and Vincent's Lightlab (NL)

In 2023, we have enabled the renovation and festive re-opening of the new Van Gogh Village Museum in Nuenen, close to our headquarters, and established Vincent's Lightlab. By combining technology, art and creativity, we have created a unique experience that contributes to the innovative image of the region and inspires the next generation of artists and scientists. The renewed museum is expected to welcome around 40,000 visitors a year.

Partnership with Muziekgebouw Eindhoven (NL)

We have a long-term partnership with the Muziekgebouw in Eindhoven, bringing our employees and community members together through a shared passion for the stage.

Looking ahead

We look forward to supporting many projects, activities and events in 2024, with among others:

- ASML's "Drop of Light" exhibit and experience lab at Taiwan 2024 Lantern Festival, held in Tainan from February 24 to March 10, 2024, with around 10 million expected visitors
- The Affordable Housing program, which aims to help increase the number of affordable homes for everyone in the Brainport Eindhoven region in the Netherlands, primarily by providing support for the construction of new homes
- ASML On Stage 2024, inviting the best musical and artistic talents from among our own employees to take to the stage at the Muziekgebouw Eindhoven, the Netherlands
- ASML's School Football tournament 2024 for thousands of children in the Brainport Eindhoven region, many of whom will be able to participate in organized sport for the first time
- Planting of 100,000s of trees in the metropolitan region in and around Eindhoven, the Netherlands



Valued partner in our communities (continued)

Inclusive communities

How we're managing our impact

We want to support our community members who may face challenges with access to basic needs, like food, and students who need equal access to opportunities in order to thrive in school and their eventual careers. Through our inclusive communities program, we aim to remove obstacles that hold disadvantaged community members back from reaching their potential while also unlocking the potential of, and creating equal opportunities for all students.

In previous years, our activities were mainly limited to projects focused on one-on-one tutoring. In 2023, we decided to step up our investment in inclusive communities to meet local needs. We used community surveys and stakeholder engagement sessions as input and hired dedicated staff to support and develop projects in our communities.

Our topic of 'Inclusive communities' consists of six programs, as detailed below.

Access to basic needs

Not all community members benefit from the economic activity in ASML regions due to challenges they face in accessing basic needs – including food, shelter, healthcare-adjacent issues and clothes. One of the ways we respond is to invest in local food and clothing banks.

Access to employment

Good-quality employment is not equally accessible for everyone. Some community members face barriers to participation in the labor market. This manifests in different ways, from people who struggle in the search for a suitable job to those who become discouraged and pause their search, and those who do not even dare to try. We aim to support involuntarily unemployed community members back to work, by collaborating with organizations to train and coach community members, helping them to set out their path and guiding them to reach their goals.

Access to sports, arts and music

This program aims to improve the local accessibility of sports, arts and music for community members with scarce financial means and/or physical/mental conditions or impairments. Together with our sports and cultural partners, we aim to create a more equitable and attractive community. Furthermore, we look to work with larger social organizations in the field that have specific experience in supporting families with lesser means to fully participate in sports and culture. We run specific programs that offer children the chance to come into contact with sports/culture so they can discover what it can mean for them, regardless of their socio-economic circumstances.

Neurodiverse students

Neurodiversity is one of the drivers of increasing diversity in Brainport classrooms. Schools are not always able to recognize the needs of neurodiverse students in order to provide the required support. This leads to greater demands on special education, underperformance, and children at home. We have approved and started up a significant project, which will be up and running in 2024, to support the educational system in providing adequate support for neurodiverse students in regular schools. The aim is to show the increase in demand for special education, support children to reach their potential and reduce the number of children who no longer attend school.

Students with a different native language

Schools in the Brainport Eindhoven region have challenges absorbing the inflow of international children, leading to a sharp increase in the number of children with an international background flowing into special education. Since 50% of the international students are children from knowledge migrants, we take our responsibility by strengthening the Brainport Eindhoven educational sector region to absorb the growing number of international students, and thereby reduce the additional inflow into special education.

Students from disadvantaged backgrounds

Students from disadvantaged backgrounds do not have the same opportunities in education as their peers. This results in underperformance in education, which is also reflected in their subsequent career. This program aims to provide students from disadvantaged backgrounds with equal opportunities to allow them to thrive in their educational environment and subsequent career.

Our targets and performance in 2023

We are in the first year of the programs and we are still continuing to define the individual targets. Our main targets are the amount invested per employee and employee contribution matching.

[Read more in Our overall performance in 2023](#)

Our actions in 2023

Second Harvest Food Bank (US)

The recipient of our largest US-based investment to date is Second Harvest of Silicon Valley. This organization, which was established in 1974, currently provides food to over 500,000 Santa Clara County residents every month – including over 120,000 children and 110,000 senior citizens. These are double the totals from pre-pandemic levels. ASML's contribution goes toward their capital campaign to build a new facility in North San Jose, which will allow them to consolidate warehouses that were quickly opened during the pandemic, greatly improving the efficiency of operations and reducing operating costs. We plan to donate \$1 million per year for five years to be used toward the new facility campaign. In addition, we will provide \$250,000 per year for the operating budget.

Valued partner in our communities (continued)

Inclusive communities (continued)

Partnership with Family Giving Tree (US)

Family Giving Tree is a non-profit-based organization in the Bay Area, California (US), which runs the largest holiday gift and backpack donation program in California. ASML Silicon Valley's 2023 'Backpack Build' event benefits children from low-income households in the Bay Area. We provide financial support and employee volunteering time to support the initiative.

We provided a \$45,000 grant to Family Giving Tree in 2023, which was used to purchase backpacks and school supplies for 1,000 disadvantaged students. Our employees sorted and filled the backpacks with necessary back-to-school supplies to support the students who otherwise could not afford these items.

In 2023, in the form of a \$45k grant/donation combination, we also supported their Holiday Wish Drive and purchased 1,000 holiday wishes (in the form of gifts) for low-income Santa Clara County children.

National Volunteer Week (US)

National Volunteer Week takes place every April and recognizes the impact of volunteers in tackling society's challenges, building stronger communities and being a force that transforms the world. We recognized National Volunteer Week across our US sites by providing opportunities for employees to volunteer and make an impact.

We provided \$45,000 in donations to non-profit organizations across all of our focus areas (many of which are part of our inclusive communities initiative), as well as employee volunteering hours. During National Volunteer Week, 225 ASML volunteers contributed almost 1,000 volunteer hours toward a total of 19 projects for organizations such as Habitat for Humanity, Boys & Girls Clubs of Silicon Valley, San Diego Food Bank, Second Harvest of Silicon Valley, San Diego Children's Discovery

Museum, Wilton Land Conservation Trust and Riverbrook Regional YMCA.

Boys & Girls Clubs (US)

In 2023, we were proud to expand our partnership with the Boys & Girls Clubs of Silicon Valley by supporting their summer enrichment and college readiness programs through 2025. The Boys & Girls Clubs' summer enrichment programs offer lower-income students the opportunity to participate in sports, arts and wellness-focused summer camps, while the college readiness program provides leadership, job-readiness and financial literacy skills, encouraging students to set academic and career-oriented goals.

Our partnerships with the Boys & Girls Clubs in our local US communities will also continue to grow with STEM-focused programming and support in both Silicon Valley and Bridgeport, Connecticut.

ASML school football tournament (NL)

In collaboration with Youth organization Dynamo Jeugdwerk and the FC Eindhoven Foundation, we organized an ASML school football tournament in 2023 for all primary and secondary schools in Eindhoven and the Kempen region. To take away the financial barrier to participating in sports, entry was free for all youngsters. In total, 150 teams with 1,200 participants from across the region competed.

'@home in languages' (NL)

The number of international children aged 0-18 newly enrolling in the Brainport Eindhoven educational system will increase by 8,000-12,000 students in the next nine years, from 15,000 today. Schools in the Brainport region want to adapt to this changing student population.

Children need to feel at home to be able to learn and grow. Language skills – particularly reading – are among the most important skills to master. Making use of the mother tongue is important, and parental involvement with the learning process is key for a child's development.

We co-develop and fund the '@home in languages' initiative which addresses all these factors. It supports pre- and primary schools in the Brainport Eindhoven region by supplying permanent and flexible multilingual book collections, training school workers on multi-lingual and multicultural teaching and creating an expertise center for multilingual teaching in Brainport.

Weekend and after-school programs (NL)

Students from disadvantaged backgrounds often face underperformance in education and career development as a result of inequality of opportunity. They have a higher chance of falling behind on schoolwork due to, among other factors, a lack of self-confidence, role models and perspective. They also receive limited support and guidance on their educational path from their direct environment.

Our partnership with weekend schools focuses on providing children with support and guidance that offers perspective and instills confidence. These projects aim to scale current proven weekend and after-school programs to improve children's perspective, confidence, skills and network. Programs take place on Sunday or after school. Children typically start when they are 10 or 11 years old. We provide financial support to enable these programs to scale in the region.

Matching Gifts program (global)

2023 was the first full year for our newly introduced Matching Gifts program. Matching Gifts gives our employees a voice in the distribution of the company's philanthropic contributions. For eligible ASML employees globally, we matched donations to non-profit organizations up to a cumulative amount of €1,000 per employee, per calendar year. In 2023, ASML supported more than 1,100 non-profit organizations through matching gifts.

Looking ahead

In 2024 and beyond, we will develop, initiate and scale projects in the different programs for Inclusive Communities. The projects that started in 2023, such as Language & Library and Weekend School, will reach more schools and more students.

In 2024, we also hope to expand the Matching Gifts program in more countries where ASML operates. In 2024, ASML's annual match limit per employee will also increase to €10,000.

ASML's 40th anniversary in 2024 will give us an opportunity to celebrate via a new employee giving campaign, focusing on volunteering opportunities for employees near our local sites, as well as a charitable giving campaign where ASML will match employee donations and encourage participation through special program incentives.

Valued partner in our communities (continued)

Investing in STEM education

How we're managing our impact

We invest in the STEM technical talent pool to enable society to overcome its urgent and long-term challenges.

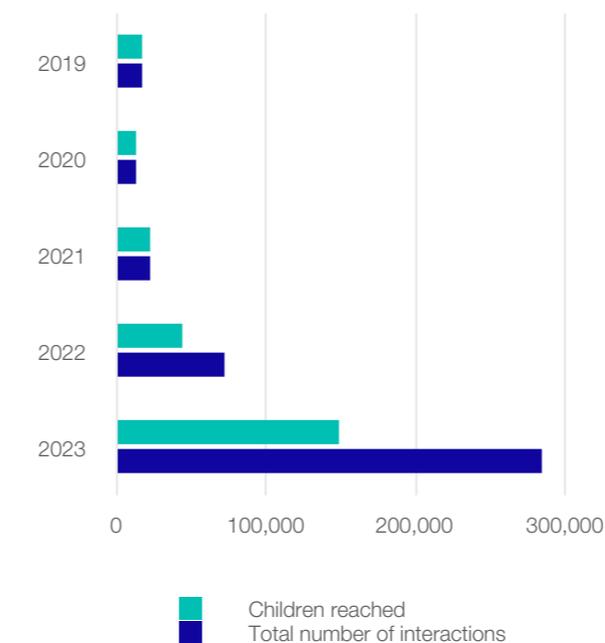
Too often, opportunities to create enthusiasm about STEM topics among children and youngsters (aged between 4 and 24 years) are missed. STEM classes in primary education could be more engaging and events outside of school could be more optimally leveraged. There is also a shortage of STEM role models for younger generations. All of this impacts the interest of students in STEM subjects and limits the supply of future talent.

We believe that creating awareness and interest in STEM at a young age translates into increased consideration of a STEM-related education and career later in life. A well-functioning (primary) education system is primarily within the mandate of government. However, ASML can play a role in supporting STEM-related education and inspiring a new generation of technology experts. This is why we started investing in STEM education through SPARK events, guest lessons at schools and visits to ASML premises in Veldhoven. We continue to invest in STEM education through the ASML Junior Academy, which was established in 2022. The academy provides a dedicated program of activities within the mainstream education system, focused on all children in primary school (4-12 years old), regardless of a pre-existing interest in STEM. The academy provides primary schools with engaging structural STEM lessons for all children, six times per school year for at least three school years, fully funded by ASML.

ASML drives and funds the Academy, through a partnership with Mad Science, to spark children's awareness, interest and joy in STEM-related themes and topics. Our initial focus is on schools within a radius of 35 km around ASML locations. STEM activities are for children and we include parents and teachers to increase STEM awareness. Future teachers (students at Dutch teacher training college PABO) are also engaged in relation to the ASML Junior Academy.

Our targets and performance in 2023

We aim to increase interest in STEM for students in the 4-24 age group. Our target in 2025 is to reach more than 91,000 children in an area of 35 km around Veldhoven, in Delft in the Netherlands and in Wilton in the US, six times a year.



The number of children that we reached through STEM education over the years 2019-2023

We see enormous growth in the number of children that we can reach through STEM education, particularly through the implementation and scaling of the ASML Junior Academy.

Our actions in 2023

Our main STEM-related activities in 2023 centered around partnerships and events in the Netherlands, Taiwan and the US.

The ASML Junior Academy scaled up in 2023 and reached over 76,000 children in the Netherlands alone. The ASML Junior Academy was launched in November 2023 in Wilton, US.

Together with Brainport Development, we also held several events to reach children in the 4-12 and 12-18 age groups in the Brainport Eindhoven region. ASML supported and participated in local STEM activities such as a High Tech Discovery Tour, Mission Tech and the Dutch Technology Festival, Night of the Nerds, and the Crafted Festival for pre-vocational, secondary and vocational education (VMBO, HAVO/VWO and MBO).

Valued partner in our communities (continued)

Investing in STEM education (continued)

In Taiwan, we teamed up with the Junyi Academy and Teach for Taiwan to launch a multi-year project to 'train the STEM trainers'. The project will help to address the STEM talent shortage in Taiwan by training primary school teachers and university students to become STEM promoters. ASML's financial support goes toward teacher training, materials and curriculum development and enabled more than 50 ASML volunteers to undergo the training and act as STEM ambassadors. 2023 saw the project launch, fine-tuning of the curriculum and delivery of the first employee and teacher workshops. We trained 400 STEM promoters and reached 3,500 students in 2023 with a goal to reach 6,200 per year going forwards.

In the US, ASML sponsored the EXPO Day flagship event of the San Diego Festival of Science & Engineering, which aims to inspire tomorrow's innovators in STEM. 28 employees volunteered at the ASML exhibit, teaching kids how to bring robots to life using coding and programming. We also sponsored Silvermine Elementary School's two-day science fair, which was visited by more than 600 students. A large percentage of Silvermine students come from underserved areas in and around Norwalk, Connecticut, and this initiative impacts our STEM education goals and supports disadvantaged students. We brought in our partner, Mad Science, as a pilot for ASML Junior Academy, and provided volunteers in order to help inspire a love of STEM among elementary (age group 5-12) students. Almost 30 ASML volunteers helped lead STEM experiments and activities.

In October 2023, ASML officially expanded the ASML Junior Academy to Connecticut. ASML is investing \$2.2 million over three years to, with our partner Mad Science, provide free interactive technology education lessons to children aged 4 to 12 in Wilton and surrounding communities. Over three years, more than 13,000 children in the US are slated to receive six experiential technology lessons on STEM-related topics.

Looking ahead

We will continue to scale the ASML Junior Academy and we will support the educational partner Mad Science in finding solutions for resourcing challenges that result from the steep scaling from 2023 onwards. We will add more locations where we operate – including Taiwan – as well as cities in the US.

In 2024 an additional STEM program will be launched for students in 1st and 2nd year of secondary school in the Veldhoven region: STEMup. Working with a STEM coach, schools can choose one of four STEM classes developed by ASML. The goal of the program is to engage students in STEM activity from a societal perspective, and increase the interest in and the perceived relevance of STEM.



Governance at a glance

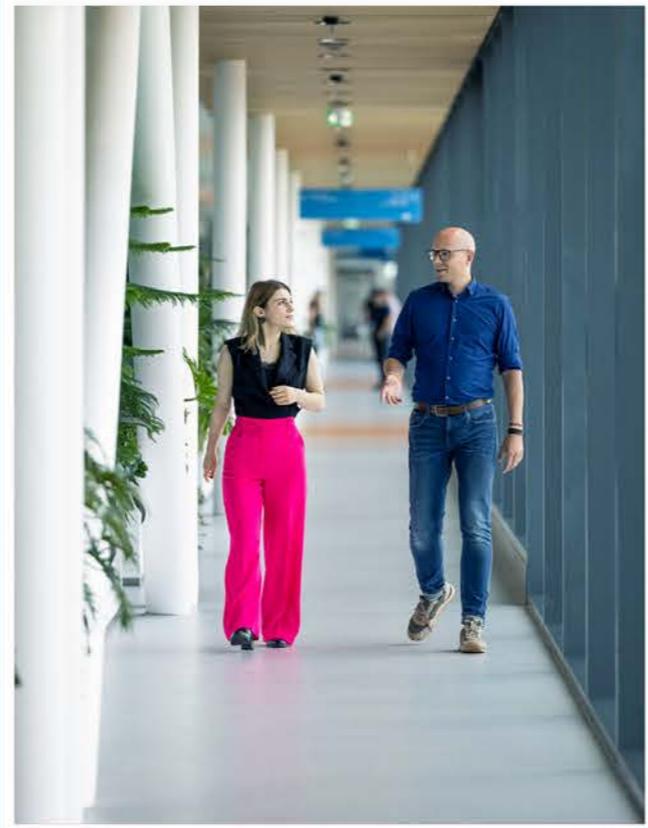
Strong corporate governance enables us to do business responsibly and meet the highest standards of integrity. This is essential to create value for our stakeholders and to secure the long-term success of our company.

GOVERNANCE

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ESG integrated governance

ESG sustainability is important for our business and stakeholders, and we integrate ESG into our everyday decision-making, underpinned by responsible business conduct and risk management.



Engaged stakeholders

We depend on strong, sustainable relationships with stakeholders across the value chain. We aim to create sustainable value for all our stakeholders and benefit from their input.

[Read more in Engaging with our stakeholders](#)

Transparent reporting

We are open and transparent, driving progress while building trust with our stakeholders. Our commitment to integrated reporting reflects our view that our ESG-related information is as important as our financial information.



ESG integrated governance

Integrated governance ensures a responsible ESG sustainability approach that considers the needs of our stakeholders.

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Why it matters

ESG sustainability is important for our business and stakeholders, and we integrate ESG into our everyday decision-making, underpinned by responsible business conduct and risk management.

We want to feel proud about the business decisions we make and to ensure our stakeholders recognize that integrity and honesty sit at the heart of everything we do.

We rely heavily on the skills, commitment and behavior of our employees in line with our values to build trust and respect – underpinning our continued success, our license to operate and our positive contribution to society.

Our customers and partners must be able to rely on the security, safety and quality of our products and services. Due to our market leader position and the growing geopolitical tensions in the semiconductor industry, we are increasingly targeted by threat actors.

It is our duty to provide a safe work environment, and we must ensure that our products and tools comply with the most stringent product safety regulations. As we have grown, so has the complexity of our products and supply chain and the geographical locations in which we operate. This brings additional challenges around safety compliance.

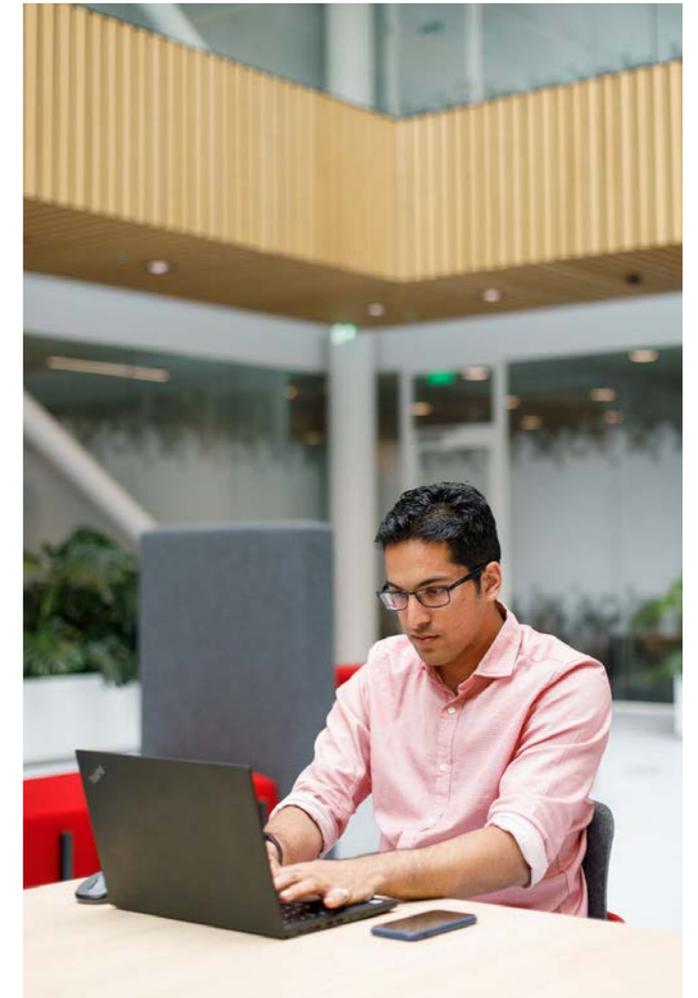
How we're managing our impact

We commit to acting on our responsibilities and anchoring ESG sustainability across our entire business. We focus on identifying and assessing the impact of ESG sustainability risks and managing them appropriately, ensuring that we take a holistic approach to risk management. This enables us to create enterprise value and drive an effective risk response.

We expect all our employees to live up to the company's values and standards by acting with integrity and respect at all times. Our corporate policies and procedures detail the principles and compliance standards that guide us in making decisions and living up to our values. We promote an open culture of trust and honest communication and do not tolerate violations of our standards. Our transparent approach is underpinned by our commitment to ensuring compliance with applicable laws and regulations wherever we operate and by fostering ethical behavior and a culture of speaking up.

We are investing in a best-in-class security function with security competences, governance and capabilities deployed across our most important assets to manage security threats and risks.

We have clear systems and processes in place to support our approach to product safety. Prevention is key, and we focus on safety by design in hardware followed by safety by procedure. To ensure product safety does not end at our own facilities – we also promote product safety in the value chain.



ESG integrated governance (continued)
ESG sustainability governance

ESG sustainability governance

Our integrated ESG sustainability governance drives accountability and execution across the company.

Our ESG sustainability governance model includes the SB, BoM, ESG Sustainability team and experts from the business.

The SB monitors and advises the BoM on ESG sustainability aspects that are relevant to the company. This includes addressing the principal risks and opportunities related to the strategy.

[Read more on the Rules of Procedure as published in the Governance section at asml.com](#)

In 2023, the SB established the ESG Committee, which advises the SB in carrying out its governance and oversight responsibilities with regard to sustainability, environmental, social and governance matters. We organized ESG training for the SB ESG Committee members with follow-up sessions planned in 2024.

[Read more in Corporate Governance - Supervisory Board](#)

The BoM sets and oversees the execution of ESG sustainability aspects in our integrated business strategy, including nine ESG sustainability strategic themes and associated KPIs. It receives quarterly updates on ESG sustainability and provides guidance on relevant issues.

The ESG Sustainability team supports the BoM in relation to ESG sustainability. It makes recommendations regarding focus areas, targets, external commitments and disclosures.

The ESG Sustainability team monitors risks and opportunities including climate-change-related matters, global trends, stakeholder expectations and best

practices that could impact ASML’s short-, medium- and long-term ESG sustainability objectives. Identifying and assessing the impact of ESG sustainability-related risks and opportunities are an integral part of our ERM process. Our strong focus on identifying and managing ESG sustainability risks ensures that we take a holistic approach to risk management.

As with any other risk factor, ESG sustainability risks are assigned to a risk owner. The CBO (a member of the BoM) is the risk owner, for instance, for climate-related risks.

[Read more in Risk - How we manage risk](#)

Key developments are identified and integrated through a thorough materiality assessment

[Read more in ESG - Our material ESG sustainability topics](#)

The ESG sustainability strategic themes are developed through regular cross-functional table meetings to ensure alignment on ESG-related topics across various parts of the company. Responsibility for executing the strategy lies with the business. Progress is monitored quarterly by the BoM.

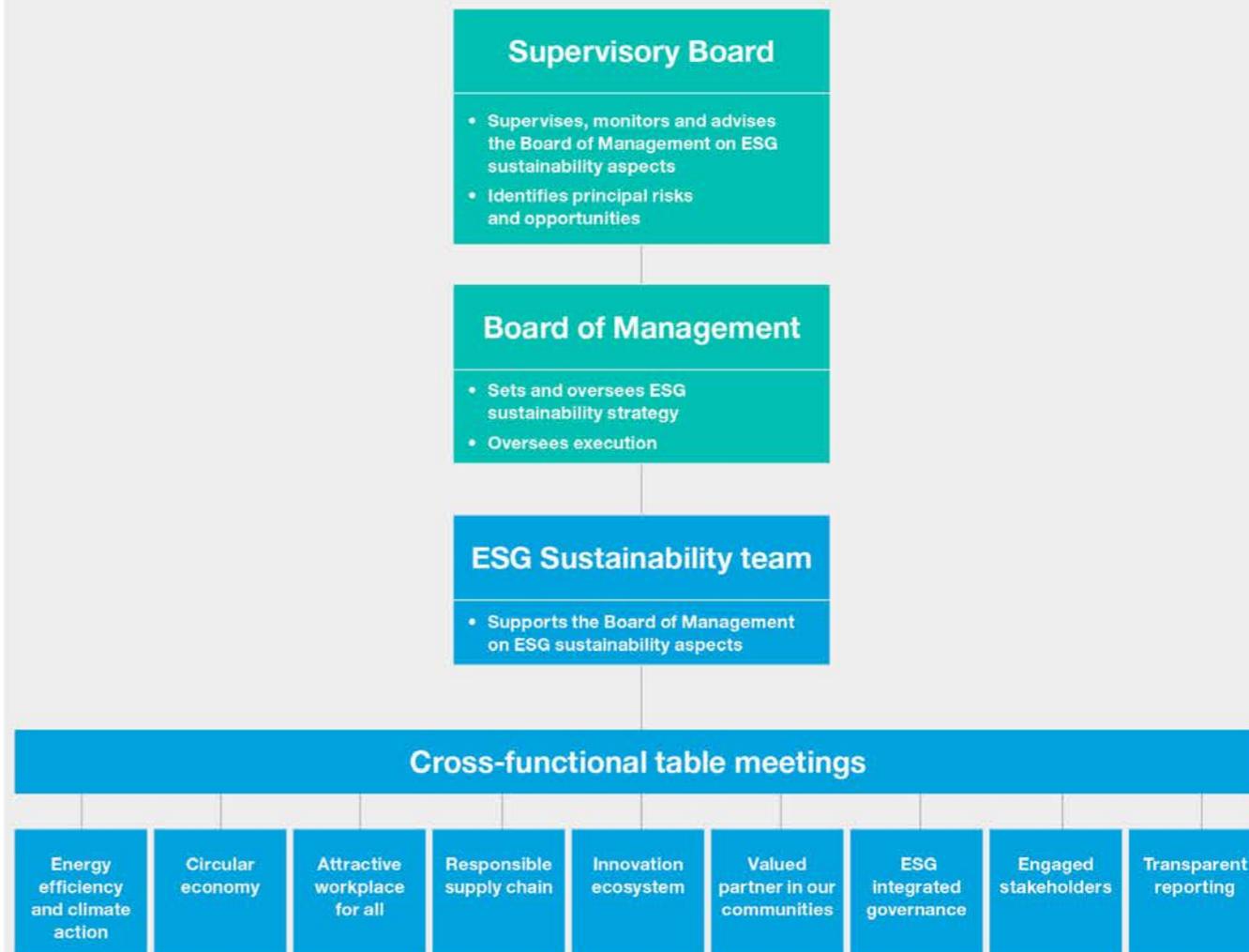
[Read more in Corporate Governance](#)

Executive remuneration

Performance against key sustainability topics forms part of the long-term incentive plans of the Board of Management and senior management.

[Read more in Remuneration Report](#)

Our ESG sustainability governance model



ESG integrated governance (continued)

Business ethics and Code of Conduct

Business ethics and Code of Conduct

We seek to continually improve and professionalize our ethics and compliance organization to maintain the highest standards. This means promoting and upholding ethical behavior and fostering a culture where speaking up is encouraged.

In 2023, we continued to expand the Ethics & Business Integrity team globally, as well as our network of Ethics Liaisons teams. We supported our Ethics Liaisons with tailored training sessions including dedicated sessions in which the teams gained exposure to multiple scenarios. We also continued to deliver training programs and focused on raising understanding of the importance of upholding our Code of Conduct, speaking up and our commitment to acting with integrity across our entire organization. This included mandatory online ethics training for all people managers and our first publicly available Code of Conduct refresher video, launched in August 2023, hosted on ASML's YouTube channel.

Our Code of Conduct

Our values guide our dealings with customers, employees, suppliers, shareholders and the society we serve. These values are reflected in our Code of Conduct (Code) which sets out the baseline of ethical behavior we expect, enabling our employees to make the right decisions and live up to our values.

Our Code sets clear expectations and guiding principles for the way we conduct business. It serves to foster a culture of integrity, ethics and respect. We ask all our employees, suppliers, contractors, consultants and business partners to abide by the standards set out in the Code. Our employees must complete mandatory online training which requires a digital confirmation that they understand what is expected from them and that they agree to adhere to the Code.

To reinforce our commitment across the supply chain, we expect suppliers and their suppliers to acknowledge and comply with the RBA Code of Conduct and to develop their own strategies, policies and processes to uphold it. This requirement is included in our long-term product-related suppliers' contracts. Some major suppliers might need to undergo an RBA audit to assess their compliance, while other suppliers may take part in an annual self-assessment. We also encourage our suppliers to develop their own sustainability strategies, policies and processes in line with our Code.

RBA Code of Conduct

As a member of the RBA, the world's largest industry coalition dedicated to corporate social responsibility, we have adopted the RBA Code of Conduct. This international standard is intended to ensure that working conditions in the electronics industry and its supply chains are safe, that workers are treated with respect and dignity, and that business operations are environmentally responsible and conducted ethically.

[Read more in Social - Responsible supply chain](#)

Our Code of Conduct principles

Our principles	Our commitment
We respect people	ASML is committed to maintaining a safe and healthy working environment, respecting human rights in line with international laws and regulations and industry standards such as the RBA Code of Conduct. Diversity of cultures, education and talent makes us a stronger, more creative and innovative company. By working together and using these values to guide us, we create an environment based on mutual respect – one that leads to better results than any of us can achieve alone.
We operate with integrity	A strong culture of integrity and compliance underpins ASML's business success. We define 'integrity' as acting with honesty, sincerity, care and reliability. Compliance not only means complying with laws and regulations, but also with our high ethical standards. Our reputation for integrity is a valuable asset. It is essential for us to demonstrate personal and business integrity at all times.
We commit to safety and social responsibility	Technology reaches all parts of society. By helping to make chips more affordable, powerful and energy-efficient, ASML has an important role to play – not only by reputation and results, but also in relation to the environment. This is why ASML is committed to conducting business responsibly, enabling sustainable growth while fulfilling legal and moral obligations. We aim to achieve our business objectives in a caring and responsible manner, as outlined in the key principles.
We protect our assets	ASML's most valuable assets are its people and knowledge, both of which are highly valued and protected. Our assets include intellectual property, trade secrets or other proprietary information, which refers to intangible assets such as technical know-how, products data, business data and personal data, as well as physical assets such as products, tooling, funds and computers for conducting ASML business. Our company expects anyone entrusted with ASML assets to keep them safe from loss, damage, misuse or theft.
We encourage you to communicate and speak up	To fulfill our commitment to upholding the high standards of integrity described in this Code, communication is key. We strive for a working environment that encourages open dialogue among employees, as well as between employees and third parties, where employees feel comfortable and respected, and that they can trust each other to do the right thing. If you observe or suspect a violation, we encourage you to speak up.

[Read more on our Code, which is available for all our stakeholders, at \[asml.com\]\(https://www.asml.com\), our intranet and in our Employee app](#)

ESG integrated governance (continued)

Business ethics and Code of Conduct (continued)

Code of Conduct training for employees

Online training about the Code was made mandatory for all employees in 2020. By the end of 2023, 87% of employees had completed the training.

A follow-up series of training sessions is promoted at three-monthly intervals, covering a broad range of related topics such as Speak Up, Anti-Bribery and Anti-Corruption, Insider Trading and 'We respect people', all of which connect to our Code of Conduct.

In 2023, we also launched online ethics and compliance training for all of ASML's people managers and a refresher training series for all employees.

87%

of employees have completed Code of Conduct training

In 2023, we increased the size of the Ethics Office team to support the growth of the company. These additional resources will ensure ethics officers can focus on the Speak Up reports and caseload. We also increased our pool of trained investigators and hired local Ethics and Compliance Officers in South Korea and Taiwan to handle cases locally, where appropriate.

Promoting ethical behavior

Our Ethics program provides support, advice, training and communication to enable employees and others to understand and follow our Code of Conduct. In combination with the compliance program, it uses various communication channels to promote a culture of high integrity, openness and honesty that fosters compliance with the law and our policies across ASML.

The training curriculum supports management and employees in their everyday decision-making by promoting the Code and other compliance-related topics and raising awareness of the importance of ethical behavior and our Speak Up & Non-Retaliation Policy. It also provides guidance on dealing with topics such as conflicts of interest, including personal relationships at work, and cultural differences and ethical aspects around any paid or unpaid activities outside their job at ASML.

All new employees are invited to complete the first module of the curriculum within the first three months of starting at ASML. In addition to generic modules for all employees, the curriculum includes modules which target a specific audience depending on potential exposure, such as anti-bribery and anti-corruption, gifts and entertainment, and respect for people (one of the principles of the Code).

In 2023, we continued to extend the ethics training curriculum. To create ethics awareness moments during the year, we introduced monthly themes such as managing paid consultancy requests, Speak Up, and anti-fraud and anti-bribery and anti-corruption.

We sent a pulse survey to a random selection of employees covering around 25% of the total employee population to measure a number of parameters relating to business ethics.

From the around 3,600 employees that responded, over 80% strongly agreed or agreed with the following statements:

- ASML shows a commitment to ethical business decisions and conduct
- In my immediate working environment, a mutual relationship of trust prevails
- My direct manager sets the tone at the top – i.e., a good example in terms of ethical behavior

We are very pleased to see the positive effects of the Code of Conduct in our ethics survey results this year – 92% of respondents agreed or strongly agreed with the statement that ASML makes it sufficiently clear what the principles of the Code of Conduct are and how to comply with them.

Business ethics governance

Our ethics governance model comprises the following roles and responsibilities:

1. The Ethics Board is chaired by our CEO and reports to the Audit Committee and Board of Management. It is responsible for policymaking and supervision of ASML's compliance with legal and ethical requirements. The Ethics Board meets at least quarterly to give guidance on relevant issues and approve the relevant policies.
2. The Ethics Committee investigates significant notifications of potential breaches of ASML's Code of Conduct worldwide.
3. The Ethics Office oversees and implements our Ethics program. All reports of a possible breach of ASML's Code of Conduct are screened by one of the Ethics Officers and significant reports are discussed with the Ethics Committee.
4. The Ethics organization includes employees who act as Ethics Liaisons in the countries in which we operate. They serve as trusted representatives and are the first local point of contact for employees who have questions or concerns related to ethics.

ESG integrated governance (continued)

Business ethics and Code of Conduct (continued)

Encouraging people to speak up

Through our Speak Up program, we encourage everyone – including our own employees and external business partners, suppliers, contractors and others – to express concerns regarding possible violations of our Code, company policies, values or the law.

We have several channels available within the Speak Up program to report concerns. The dedicated Speak Up service is an online reporting tool hosted by an independent, external service company. Toll-free phone numbers are available for each country in which we operate along with a dedicated email address and our Ethics Liaisons. The Speak Up service is available to report breaches anonymously where preferred.

We assess each Speak Up report and act to ensure any necessary remedial actions are taken by the appropriate body. We may engage with the reporting party and/or counterparty to understand the nature of the Speak Up message and conduct more detailed analysis and/or investigation. When required, we implement remedial actions to prevent recurrence.

We strongly believe that employees should feel safe to express their concerns with the company without apprehension due to the fear of retaliation. We will not tolerate any form of retaliation or any other form of adverse consequences against employees or third parties who raise a concern in good faith or participate in an investigation about suspected violations of the Code, even if ASML could lose business as a result.

Following an update in 2022 to our Speak Up & Non-Retaliation Policy, which addressed the requirements of the EU Whistleblowing Directive, we continue to focus on the concept of non-retaliation in 2023, to reassure employees that they can report a breach without fear of repercussions.

As well as the investigations procedure as documented in the Speak Up & Non-Retaliation Policy, we also finalized internal investigation guidelines outlining the investigation phases of an ethics complaint, from first report to remedial action and final closure. In addition to training, we published guidance notes for investigators, coordinators, reporting parties and others that might be involved in ethics complaint investigations.

During 2023, we received 631 reports compared to 414 in 2022. Given the growth in our workforce and our efforts to encourage people to report any concerns, this increase is a positive result which signals a healthy speak-up culture within ASML. The number of reports per 100 employees increased to 1.5 (from 1.1 in 2022). We look into and assess every report we receive. Of the 631 reports, we conducted 32 formal ethics complaint investigations.

[Read more in our Speak Up and Non-Retaliation Policy, which is publicly available at \[asml.com\]\(https://www.asml.com\)](#)

ESG integrated governance (continued)

Legal & Compliance

Legal & Compliance

We are committed to the principles of fair competition and fairness in all of our dealings with stakeholders. This means conducting our business in compliance with relevant laws and regulations, professional standards, business practices and our own internal standards.

The Legal & Compliance function oversees adherence to regulatory compliance-related areas and advises management on the regulatory framework, including changes in legislation and regulations. Examples of regulatory compliance areas include securities and insider trading, competition law (antitrust), export control and sanctions, anti-bribery and anti-corruption. When needed, the Legal & Compliance department may take charge of regulatory investigations.

[Read more on export control and sanctions in Governance - ESG integrated governance - Information security](#)

Anti-bribery and anti-corruption

We are committed to the highest standards of personal and business integrity and to doing business in a professional, ethical and transparent manner, as described in our Code of Conduct.

ASML does not tolerate bribery or corruption or any form of improper influence on colleagues or others. We updated both our Anti-Fraud and Anti-Bribery & Anti-Corruption Policy in September 2022. The policies detail our commitment to strong ethics and integrity and the measures we take to prevent bribery and corruption. The Anti-Bribery & Anti-Corruption Policy also requires compliance with applicable anti-bribery and anti-corruption laws as well as the ASML Code of Conduct. We do not allow employees to accept or provide facilitation payments or to make political contributions on behalf of the company.

[Read more in Anti-bribery and Anti-corruption Policy, which is publicly available at \[asml.com\]\(https://www.asml.com\)](#)

Giving and accepting gifts and entertainment should never influence, or appear to influence, the integrity of our business decisions and transactions, or the loyalty of the parties involved. Our Gifts & Entertainment Policy details the behavior expected of ASML employees in relation to giving and accepting gifts or entertainment to and from third parties (including business meals). The policy is also a key element in our compliance and Anti-bribery & Anti-corruption program. An important element of the policy is the request for prior approval for certain categories of third-party gifts and entertainment. This enables us to capture registration of given and accepted gifts and entertainment in these categories, which supports compliance with the policy and with applicable laws and regulations.

The guidance on when a conflict of interest may exist or arise requires employees to disclose any actual, potential or perceived conflict of interest and to avoid taking action in relation to the potential conflict while the situation is assessed. We plan to finalize the implementation of a Conflicts of Interest Policy and associated tooling as part of our compliance and Anti-bribery & Anti-corruption program in 2024.

In 2022, we refreshed our training curriculum covering fraud, anti-bribery and anti-corruption topics by launching an all-employee mandatory e-learning course. The course is part of the ethics training curriculum and is supported by additional classroom training for specific stakeholder groups such as people managers. In 2023, we continued to strengthen our global third-party due diligence program by updating the assessment of the partner landscape, evolving the risk scoping and risk mapping methodologies. We have built knowledge and capacity within relevant functions and departments, rolled out new due diligence training to target audiences, developed comprehensive reporting and standardized aspects of the process, all of which enables improvements in automation. Overall, this is enabling a more robust and efficient monitoring process. We are continuously improving the quality of due diligence research and effectiveness of risk treatment.

Employees who seek further guidance or want to express concerns regarding anti-bribery and anti-corruption, including gifts and entertainment or conflicts of interests, can do so via their manager, HR representative, an Ethics Liaison, ASML's Ethics Office or through the Speak Up service.

There were no regulatory fines or actions taken against ASML in the area of bribery and corruption in the reporting year 2023.

ESG integrated governance (continued)

Legal & Compliance (continued)

Competition Law Compliance Policy

Compliance with competition law (also known as ‘antitrust law’) is essential to protect effective competition and ensure the optimal functioning of the market. Competition law impacts many areas of ASML’s day-to-day business and our dealings and interactions with customers, suppliers, co-developers and other business partners.

We are committed to the principles of fair competition and fairness in dealing with our business partners and other stakeholders. ASML does not condone any form of conduct that is considered illegal under applicable competition laws or is contrary to our Code of Conduct. We will not engage in business or cooperate with business partners who resort to anticompetitive behavior or suggest entering into illegal conduct.

Competition Law: Control measures in place

We have general and specific control measures in place to prevent, detect and disclose potential competition law issues, including:

- Competition law compliance risk assessment:** We regularly perform risk assessments of relevant competition law focus areas. This assessment identifies and considers risks that may be present from a competition law perspective, the controls that have been put in place, the remaining risks and measures to be taken to mitigate them. Assessments cover new legal developments such as the recent European Foreign Subsidies Regulation.
- Policy review:** Our Competition Law Compliance Policy demonstrates our commitment to ensuring compliance with applicable competition laws and our Code of Conduct. Any act of an employee or business partner contrary to this policy will be considered a significant breach of ASML’s Code of Conduct and may lead to disciplinary measures, including dismissal. We published a public version of the policy in 2020. ASML reviews this policy periodically and released an updated version of the internal policy in 2021.
- Training and awareness:** Competition law training consists of a combination of methods, including computer-based and in-person training sessions. The in-person sessions are provided on a regular basis by the Center of Excellence (CoE) Competition and Regulatory team and are tailored to each relevant stakeholder group.

Awareness of topics and issues relating to competition law is also promoted through different communication channels, such as presentations and articles on the intranet or email communications. The selection of topics is based on their relevance to the semiconductor industry and current legal developments and trends.

- Contacts with business partners:** We expect our business partners (such as customers, suppliers, consultants, contractors and intermediaries) to demonstrate high standards of ethical behavior consistent with our own. We will not engage in business or cooperate with business partners that resort to anti-competitive behavior or suggest entering into illegal conduct. We firmly condemn any anti-competitive behavior by our business partners.
- Reporting and resolving an issue, violation or complaint:** We support employees and business partners who refuse to enter into anti-competitive conduct or who report potential violations of our policy, as clearly stated in our Speak Up & Non-Retaliation Policy. We do not tolerate any form of retaliation or other forms of adverse consequences against employees who practice strict adherence to competition law rules or against those who speak up, even if we lose business as a result.

We did not incur any fines for breaches of competition law in 2023.

[Read more in ASML’s public Competition Law Compliance Policy](#)

ESG integrated governance (continued)

Respecting human rights

Respecting human rights

In line with our core values, responsibility for respecting human rights rests with ASML as an organization and also with every individual who works for or with us. We are committed to respecting universal human rights and honoring the value of ethics as expressed in our Code of Conduct. We support the principles laid down in the UN Guiding Principles on Business and Human Rights (UNGPs).

Our commitments to address salient human rights impacts are expressed in our Code of Conduct, Human Rights Policy and the RBA Code of Conduct for suppliers. In 2023, we initiated a global saliency assessment across our value chain as well as in our own operations, to identify potential and actual negative human rights impacts. This assessment enables us to understand the human rights risk landscape, identify vulnerable groups, prioritize action, and develop tailored and effective human rights due diligence processes. The steps we are taking to deliver our ESG sustainability framework, respect for D&I and well-being programs, as well as our efforts to embed integrity in our culture, all contribute to advocating for human rights within ASML.

In 2023, we launched a new Human Rights Policy which complements our Code of Conduct and the RBA Code of Conduct, to which we adhere. It expresses our commitment to human rights and responsible labor practices in our operations and our supply chain. The Human Rights Policy applies to ASML and its subsidiaries around the world. It reflects the precautionary principle.

The provisions of the Human Rights Policy are derived from key international human rights standards, including the ILO Declaration on Fundamental Principles and Rights at Work and the UN Declaration of Human Rights, the UN Global Compact and the principles specified in the OECD Guidelines for Multinational Enterprises, as well as other relevant standards such as the UN Women's Empowerment Principles, UNICEF's Children's Rights and Business Principles, and the UN International Convention on the Protection of the Rights of all Migrant Workers and Members of Their Families.

We received no grievances about breaches of human rights in 2023.

[Read more in our Human Rights Policy at asml.com](#)

Defining salient human rights issues

Salient human rights are those at risk of the most severe negative impact through a company's activities and business relationships. While all human rights risks should be addressed, identifying salient human rights issues helps to prioritize actions.

In 2023, we initiated a saliency assessment to identify the actual and potential negative impacts on the rights of individuals and affected communities in our own operations, supply chain and downstream. We are examining the extent to which negative impacts identified have been, or are being, caused by ASML and whether ASML has contributed to these, or whether its activities are linked to identified impacts.

The saliency assessment will support the prioritization of impacts based on the saliency (i.e. the scope, scale and irremediability) of the harm, the nature of ASML's causal contribution and, where ASML has not caused or contributed to the harm but is directly linked to it, the extent to which ASML has created, or can create, leverage to effect change in the wrongful practices of another party that is causing or contributing to the negative impact. Where feasible, we will engage with relevant external stakeholders – such as suppliers, NGOs and other legitimate representatives – to help us understand the nature and extent of the impact and the ways in which we can address it.

This provides guidance to the organization on the steps we take to address negative impacts, depending on the kind of impact or risk identified. Our assessment aims to construct a system of consequences – setting out the steps to be taken, following a risk-based approach, to address and mitigate human rights impacts and risks – that will help us determine how we manage salient impacts over time.

[Read more in Social – Responsible supply chain](#)

Human rights risks within our operations

The results of our previous analysis identified the risk of human rights vulnerabilities inherent in our own operations as working hours and overtime, health and safety, and workplace harassment. The 2023 saliency assessment preliminary results identified additional potential impacts to specific rights-holder groups, such as unequal treatment and discrimination. In addition, it confirms that on-site contractors and migrant workers remain vulnerable rights-holder groups. It also identifies women in particular as a vulnerable group. As part of finalizing the results, our roadmap will include enhancing our human rights due diligence processes to monitor and prevent or mitigate these risks.

[Read more in Social – Attractive workplace for all – Providing the best employee experience](#)

Working hours and overtime

The standard working week in the locations where we operate is on average 40 hours. Our company standards are based on the International Labor Standards of the ILO (the Forty-Hour Week Convention) and the RBA norms. A working week must not exceed the maximum set by local law and should not be more than 60 hours including overtime, except in an emergency or unusual situation. We pay close attention to protecting employees from working overtime during peak periods. As overtime remains an important attention point for management, we continue to monitor the use of overtime and to take appropriate measures.

ESG integrated governance (continued)

Respecting human rights (continued)

Health and safety

We work hard to make ASML a safe place to work across all our products and processes. Our obligation is to provide safe and healthy working conditions for all employees and others working on our premises, and we put significant effort into creating awareness and maintaining a proactive safety culture.

[Read more in Social – Attractive workplace for all – Ensuring employee safety](#)

Workplace harassment

We have operations in more than 60 locations spanning 16 countries and regions. Our culturally diverse workforce includes 144 nationalities. This leads to a risk around the issue of workplace harassment. We continuously work to address this risk by ensuring that the topic is included in our awareness program and ASML's position is clearly addressed in our Code of Conduct and associated training. We have a whole episode of 'DeCode' dedicated to 'we respect people', where we also highlight the role of our Ethics Liaisons who are on hand to help employees tackle this topic.

[Read more in Governance - ESG integrated governance - Business ethics and Code of Conduct](#)

Human rights risks within our supply chain

We are conducting a human rights saliency assessment to identify salient human rights risks for people within ASML's own operations, supply chain and downstream, which once completed will be followed by a periodic impact assessment. We use the RBA Risk Assessment Platform to identify inherent risks in labor (including human rights), ethics, health and safety and environmental standards across our full supply base. If a medium- or high-risk issue relating to labor is identified, we engage with the supplier and conduct a more detailed analysis.

We expect key suppliers, covering around 80% of our product-related spend, to complete the annual RBA SAQ. This covers more than 300 questions related to labor (including human rights), ethics, environmental and safety factors, control elements and management systems. It helps us to determine a supplier's risk profile and, when we identify compliance gaps, we engage with the supplier to determine corrective action plan(s).

During 2023, our drive to enhance our ESG performance saw us step up our sustainability-related actions, including the launch of a program to measure the maturity of a supplier's ESG policy, vision and ambition as well as their environmental and social performance. This program provides us with added confidence around a supplier's human rights risks and is in addition to the RBA SAQ.

The salient human rights issues we have identified as inherent in our supply chain relate to working conditions (forced and bonded labor), health and safety, and trade union rights. The majority of our suppliers operate in countries with a strong rule of law and are law abiding, and we view this inherent risk as low.

[Read more in Social - Responsible supply chain](#)

Challenges in addressing human rights

ASML works in many different countries where we have extremely complex supply chains and where laws relating to the protection of human rights can vary. Our biggest challenge is to ensure that the beneficiaries of the changes we make are those people most at risk of potential violations.

Like many companies, we are faced with the challenge of understanding how to implement the plethora of regulations and international instruments – including ESG legislation – covering the topic of human rights, in a way that makes efficient use of resources, engages the right stakeholders and achieves outcomes for workers and others who could be impacted by our activities.

Against a landscape of interconnected global and geopolitical challenges and increasing uncertainty due to the war in Ukraine and, most recently, the conflict in the Middle East, challenges we face in relation to human rights will only become more critical and more central to business decisions. We are facing evolving societal expectations and want to find ways we can make a real impact, but ASML cannot do this alone and therefore we are connecting with peers to understand how best to tackle any future human rights- related issues that may present themselves.

ESG integrated governance (continued)

Information security

Information security

Security – like safety and quality – is fundamental to stakeholders' trust in ASML. We operate in a dynamic and complex threat landscape, and security must be embedded in our people and operation processes and technologies.

ASML's competitive edge is based on knowledge and intellectual property that has been developed over decades. This knowledge sits in the minds of the employees and many people we work with within our ecosystem of suppliers, partners, customers and knowledge institutions.

On the one hand, the fact that our ecosystem is, to a large extent, based on exchange of ideas and insights among many individuals, makes the protection of knowledge a challenge. On the other, it makes it very difficult for others to replicate what we do. It is extremely hard to effectively build machines as complex as ours without operating software, knowledge about electronics and the behavior of different components. This also requires specific knowledge of individuals within ASML and our partners about the integration of different elements of our technology, as well as very diverse and extensive partnerships within our ecosystem.

As we innovate together, our partners need access to some of our systems. Because the chain is only as strong as the weakest link, we must ensure this access is enabled in a secure way.

Given the complexity and growth of the dynamic threat landscape, we require a best-in-class security function with security competences, governance and capabilities deployed across our infrastructure and focused on our most important assets to manage security threats and risks.

We see an increase in the sophistication of threat actors and corresponding complexity of the security incident response leading to an increase in related incident events. We are taking additional measures going forward to deal with this effectively.

In the event of a security incident involving the loss of (information) assets, the materiality of the incident is jointly assessed by technology leaders and subject matter experts within the business. Assessors obtain support from Corporate Intellectual Property and Legal & Compliance.

In 2023, as far as we are aware, ASML had zero incidents with a material impact.

Read more in Risk – Risk Factors – Cybersecurity and other security incidents, or disruptions in our processes or information technology systems, could materially adversely affect our business operations



ESG integrated governance (continued)
Information security (continued)

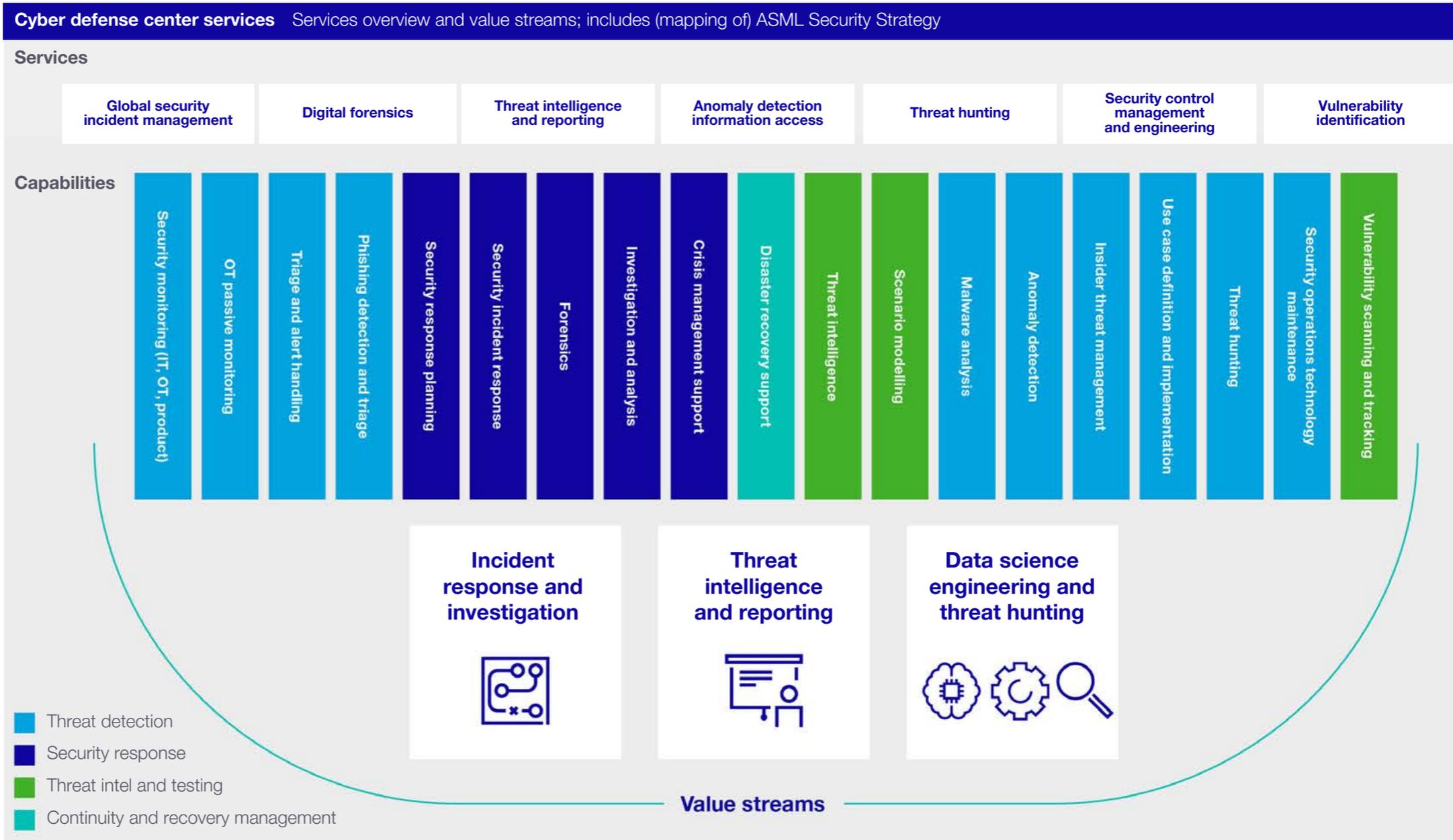
Information security resilience framework

Our vision is that security, including cybersecurity, needs to be embedded in the DNA of our people, processes and technologies. We have accordingly created a dedicated security function to ensure that we manage security risks.

The security risk assessment process, which includes cybersecurity, is part of ASML's ERM process and follows the governance structure, with Corporate Risk Committee (CRC) as oversight committee mandated by the Board of Management.

The CRC monitors risk prevention, detection, mitigation and remediation related to cybersecurity on a regular basis. We believe each member of the CRC is qualified to advise on the oversight of cybersecurity risks through their employment experience and /or educational background in risk management. The CRC regularly reports to the Audit Committee of the Supervisory Board on prevention, detection, mitigation and remediation of cybersecurity threats and responses thereto as well as the internal processes.

[Read more in How we manage risk](#)



ESG integrated governance (continued)

Information security (continued)

ASML has implemented processes to identify and respond to cybersecurity threats in accordance with standards set by the International Organization for Standardization (ISO 27002), International Society of Automation (ISA/IEC 62443) and the US National Institute of Standards and Technology (NIST Cybersecurity Framework). We have a dedicated team that deploy these procedures to increase our resistance strength and to minimize exploitable vulnerabilities, e.g. by monitoring threats, assessing our vulnerability through testwork, and defining incident responses. For an overview of the processes and capabilities see overview on page before.

In the event of a threat which materializes an identified risk, such as a material cybersecurity incident, the Corporate Crisis Management Team (CCMT) verifies the materiality assessment, the proposed threat response and the disclosure requirements. The CCMT is chaired by the COO, who reports to the BoM on the proposed response of ASML to such individual crisis situations. The BoM ultimately takes the decision on the risk response and reports out to the Supervisory Board.

The Chief Information Security Officer (CISO) coordinates the response on information security risks, which include cybersecurity threats, as the second line of responsibility, with the security teams in the business being the first line of responsibility.

All three layers of our security governance framework (the Security Committee, the Security Function Management team and the Security Expert team) comprise representatives from the business.

1. Security Committee is responsible for ensuring and promoting the integration of security risk management methodologies and related controls in ASML's business processes

2. Security Function Management team ensures the implementation and execution of security risk management methodologies and related controls in ASML's business processes

3. Security Expert team is responsible for determining the risk and control strategies and for generating input for tactical plans, by providing content expertise and by setting requirements

This governance framework enables cross-disciplinary alignment internally (horizontal and vertical) through structured, periodic meetings and ensures integration throughout our broader risk management profile.

Besides evaluation by our Internal Audit department, ASML has engaged several third parties to evaluate security capability and maturity, and to provide expertise as well as temporary resources to assess the processes describing the identification and the management of material cybersecurity risks. Some examples of these engagements are: external validation of security management system, capability assessments, red teaming, penetration testing and tabletop exercises.

In order to oversee and identify risks from material cybersecurity threats associated with ASML's use of third parties, any such third-party service providers need to comply with ASML Security Controls, which is part of the Supplier Security Policy. ASML assesses and monitors these providers following a risk-based approach.

ASML security governance



ESG integrated governance (continued)
Information security (continued)

Development of key security threats

Given the growth of the company, and the complex and dynamic threat landscape, ASML requires a best-in-class security function with security competences, governance and capabilities in order to manage the security threats and risks.



ESG integrated governance (continued)

Information security (continued)

Privacy protection

We are committed to respecting and protecting the privacy rights of employees, customers, suppliers, job applicants and everyone we do business with. We embed privacy controls in the relevant components of our company's infrastructure (including systems, applications and databases) and processes (such as project management). Personal data is managed in a professional, legal and ethical way in compliance with our Code of Conduct and applicable laws and regulations.

Our Privacy Policy sets minimum requirements from the perspective of ASML as a global organization. The policy is binding for all ASML employees and applies to the processing of personal data of our staff, job applicants and business partners such as customers, suppliers, visitors and other individuals. Employees are educated about the Privacy Policy through the Privacy Awareness program, which includes mandatory computer-based training and additional ad hoc training and workshops conducted by the Privacy Office.

A dedicated privacy and personal data protection program ensures that we adhere to high standards of personal data protection. Among other elements, the program covers:

- **Governance:** At senior management level, the CRC is responsible for oversight of the topic of privacy, while the Privacy Office manages the privacy framework and provides assistance and guidance. Each employee is responsible for reading and understanding the content and implications of the Privacy Policy.

- **Systems and procedures:** The privacy controls framework consists of privacy activities including data protection impact assessments and recording of processing activities. The privacy controls framework is included in our ERM process.

- **Investigative actions:** We investigate all incidents, concerns and reports of potential personal data breaches that have a potential privacy impact, as outlined in our personal data breach procedure. We take appropriate actions to contain data breaches and assess potential risks to individuals, based on how substantial they are and how likely they are to happen.

- **Audit:** Privacy is included in our internal audit program. The Internal Audit team periodically audits systems and procedures owned by the Privacy Office.

In 2023, we updated our Global Privacy Notices for workers, job applicants, business partners and visitors. The new privacy notices reflect the latest processing of personal data within ASML and meet the requirements of the applicable privacy laws and regulations, for example GDPR (EU) and CCPA (US).

In 2023, we experienced data breaches which have been assessed, rated in terms of impact, solved and – when necessary – reported to the relevant data protection authorities.

Export control and sanctions

We are committed to complying with all applicable export control and sanctions laws globally. Employees are required to follow our policies and procedures, which are designed to promote compliance and prevent unauthorized transactions. In addition, we have implemented IT controls and other measures intended to protect against inadvertent breaches of export control and sanctions requirements.

We continually focus on strengthening and enhancing the key pillars of our export control & sanctions compliance framework:

Governance: At senior management level, the CRC, supported by the Export Control Council, oversees the efficiency and effectiveness of the company's export control and sanctions compliance framework. The global Export Control & Sanctions team manages the export control & sanctions compliance framework and provides assistance and guidance to the business. Each employee is responsible for reading and understanding the content and implications of the Export Control & Sanctions Policy.

Compliance organization: We ensure that our Export Control & Sanctions compliance organization is sufficiently staffed and trained to ensure that the company's growing business, and the increasingly complex regulatory landscape it is being challenged with, is supported with adequate export control and sanctions expertise and experience. During 2023, the team expanded and hired experienced new staff in the US, the Netherlands and Asia.

Policies and procedures: We embed export control and sanctions controls in all relevant business processes. We regularly assess the effectiveness of our policies, procedures, systems and controls, updating them as necessary. In 2023, we updated our policies, procedures and systems in view of the additional export controls that have been imposed on semiconductor manufacturing items by the Japanese, Dutch and US governments.

Training: We focus on increasing awareness of the importance of export control and sanctions compliance through continuous briefings and (general awareness and dedicated) training of all ASML employees. During 2023 we updated the mandatory online training.

Audit: Export control and sanctions compliance is included in the company's internal audit program. The Internal Audit team periodically audits key export control and sanctions risk areas.

Following a security incident experienced by the company in late 2022, we submitted a voluntary self-disclosure to the relevant government agencies, as certain export control regulations may have been violated.

Read more in Risk – Risk Factors – We are subject to regulatory and compliance obligations in the various countries where we operate and as our business grows ensuring compliance becomes more challenging

ESG integrated governance (continued)

Information security (continued)

Intellectual property protection

Our company is based on people and knowledge. Our specific knowledge gives us a leading edge and a head start over competitors. To stay in business, it is key that we protect our own knowledge as well as the information entrusted to ASML by our customers and business partners.

Patents are a way to protect ASML's R&D investments from unauthorized use by third parties, including exploitation by our competitors, customers, suppliers and co-developers. We innovate and develop our technology with our ecosystem partners, which comprise many different companies and institutions, each of which requires a dedicated way of dealing with intellectual property matters.

ASML's general intellectual property (IP) strategy has three objectives:

- Build and maintain a solid intellectual property portfolio by protecting ASML's inventions
- Prevent situations where ASML infringes the IPR of third parties
- Prevent the unauthorized disclosure of confidential information, including know-how and trade secrets, to the outside world

Processes are in place to address these objectives. The objective of preventing unauthorized disclosure is addressed by, among others, a dedicated knowledge protection program, restricted access to engineering top secrets, an information security program, mandatory information classification, and a training and awareness program.

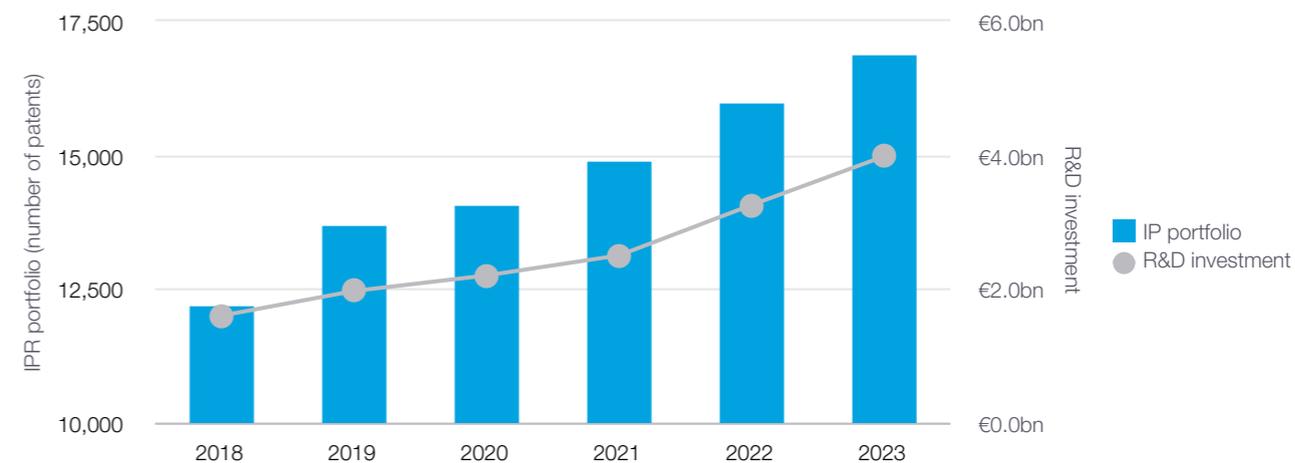
Our Corporate Intellectual Property department is tasked with strengthening our global IP position. The department's mission is to maximize ASML's intellectual property value, to execute and support ASML's overall objectives and to preserve ASML's freedom of operation.

To protect our technology leadership and our R&D in leading-edge technology, the department is involved in the product generation process and assesses new products to determine whether they would potentially infringe any relevant third-party IPR.

We have adopted controls, policies and procedures to safeguard the protection of our trade secrets, proprietary customer data, and other information, and in order for us to comply with export controls, economic sanctions and similar regulations.

[Read more in Governance - ESG integrated governance - Information security and Risk factors](#)

Patent portfolio trend



ESG integrated governance (continued)

Product safety

Product safety

It is our duty to provide a safe work environment, and we innovate with safety at the front of our minds.

Challenges in managing product safety

As we have grown, so too has the complexity of our products and the geographical locations in which we operate. It has become increasingly complex to assess which safety legislation and regulations apply to our products and tools, and which rules and procedures we need to follow to demonstrate compliance. Some of our technology is so innovative and new that it is not immediately clear which regulatory regime applies. Our designs are often at the cutting edge of technology, which can mean existing safety standards do not always provide guidance on how to make a safe design (for example, high-power drive laser and high-pressure equipment). This means we must define our own safety protection method or discuss innovative design with regulatory authorities.

A further challenge is the need to maintain consistency in making the design safe when many people are working on the design of a product, or when the design is outsourced to a supplier. Our fast shipment process also means that we may skip some of the testing in the factory and conduct final testing and formal acceptance at the customer site. We have had to adapt our way of

working regarding testing product safety as a result. Finally, with fast-changing legislation on chemicals such as PFAS (per- and polyfluoroalkyl substances) and RoHS (restriction of hazardous substances), in combination with the complexity and number of parts of our products and a worldwide supply chain, it is a challenge to keep track of information on chemicals used.

How we manage product safety

We have clear systems and processes in place to support our approach to product safety. To ensure our products and tools comply with the most stringent product safety regulations, we focus on safety at every stage of a product life cycle: research, design, development, production, transport, installation, maintenance, upgrades and decommissioning.

Our Global Product Safety and Regulatory organization is part of Quality and Excellence, which coordinates the overall product safety approach within ASML. To support ASML products, each product line has safety engineers who are responsible for the product and make a first-level system risk assessment.

To support safe design, we have defined and implemented 12 key risk areas and associated product safety competences in line with the ISO 12100 standard for achieving safety in the design of machinery, with risk experts supporting individual projects – please see box-out to the right. We are also extending our global expertise by hiring country safety regulatory experts.

Our product safety competences

The role of each of our D&E safety competence leads is to provide thorough knowledge about background legislation and standards applicable in their area, define design rules, provide training and act as consultants to mitigate specific safety hazards in our products.

Electrical: Making an electrical design safe and protecting people from electrical shock. This involves making conductors carrying hazardous voltage inaccessible, ensuring that accessible conductors do not carry hazardous voltages and that inaccessible conductors are sufficiently insulated from accessible ones through compliance with corresponding regulations and standards.

Pressure: Interpreting and explaining local legislation and standards, advising on testing and documentation and maintaining the manufacturing record book which is needed for a high-pressure permit in certain countries.

Human factor engineering (including ergonomics): Incorporating a human-centered design approach to maintain access for maintenance and servicing by laying down rules for issues such as accessibility, posture, forces and the lifting of parts.

Mechanical: Keeping track of safety factors and seismic requirements for our machines.

Lifting: Advising on special requirements (such as the certification and training of crane operators) in countries where we use lifting tools, and when certification is needed. For example, in South Korea certification is required for weights of 500 kg or more.

Working at height: A new area of expertise required during the design of our EXE:5000 – our first EUV 0.55 NA (High NA) system – to guarantee good access to the various system areas and components.

Radiation: Focusing mainly on lasers with intensities that go beyond standard, as well as considering the impacts of standard and special lamps and LEDs.

Dangerous goods: Preventing shipments being stopped due to requirements for transport and the importation of hazardous substances such as chemicals, magnets and batteries.

Safety in procedures: Supporting the creation of written safety procedures for complex operations.

Thermal: The use of tin at high temperatures requires special precautions to protect people.

Dangerous gases: The use of gases requires safety systems and procedures to protect machines and people. For example, nitrogen is an asphyxiation hazard and the use of hydrogen in EUV has additional applicable legislations and standards.

Materials and substances: Monitoring worldwide legislation to check the legal status of all materials used on our products and ensuring that we do not use or introduce hazardous materials.

ESG integrated governance (continued)

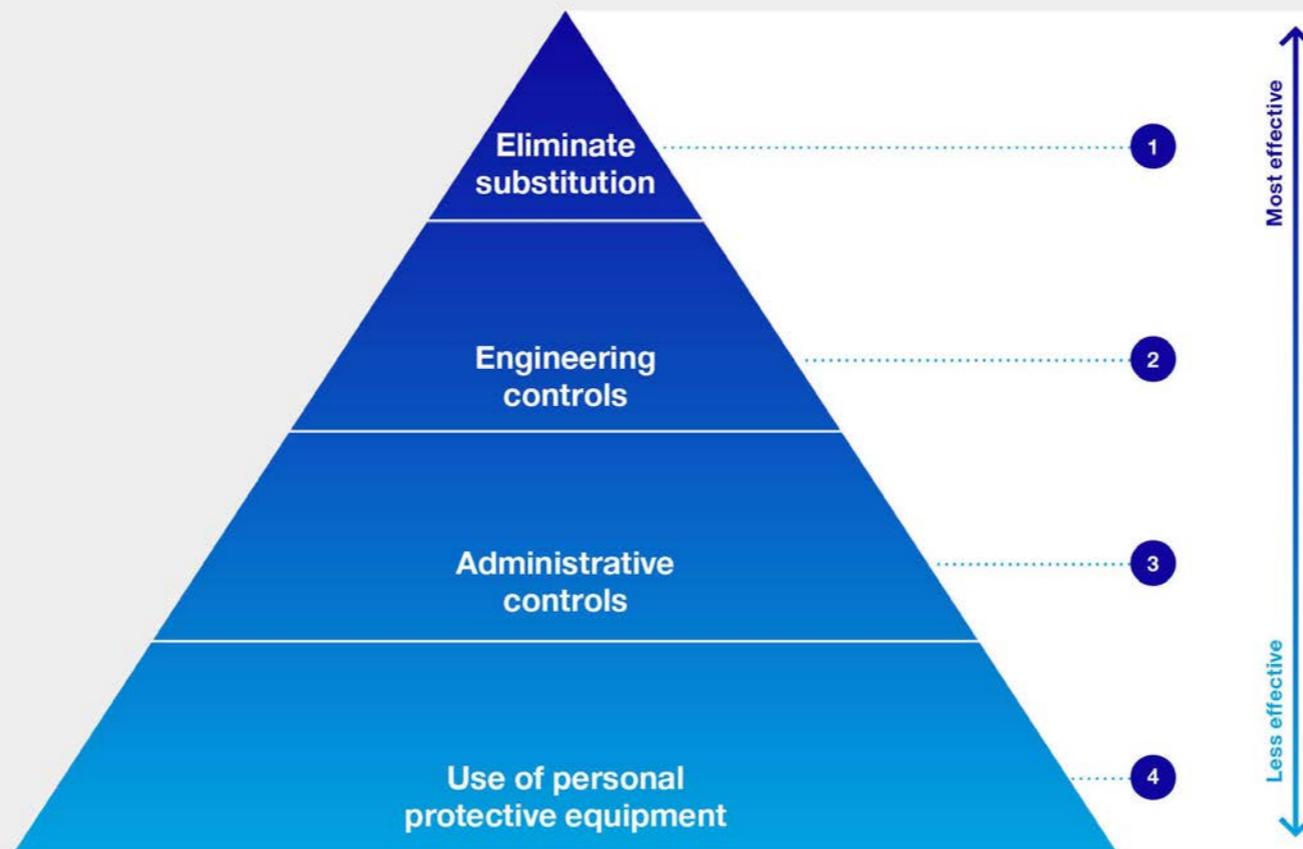
Product safety (continued)

Ensuring safety compliance

The products and tools we develop comply with SEMI S2 – the Environmental, Health, and Safety Guideline for Semiconductor Manufacturing Equipment. To ensure product safety is taken into account at all times, these guidelines are incorporated into the Safety System Performance Specification (Safety SPS).

We are SEMI S2-compliant for every product type shipped. In 2023, a report confirming compliance was available for every product, and we have a CE ('conformité européenne') declaration of conformity for all ASML products and tools.

Product safety in design



Product safety in design

Prevention is key, and we focus on safety by design in hardware followed by safety by procedure.

Safe products start with well-thought-out design and product safety requirements, which are implemented at the start of initial design. The first step to a human-safe design is to eliminate risk and protect people by product design. Since human factors play an important role in the safe operation of a product, we try to guard against these becoming a risk factor. This helps prevent workplace activities from turning into potential accidents. If there are no safety precautions available to address potential hazards, we develop our own.

When we start designing our systems, our engineers conduct an initial safety risk assessment (SRA). Our product designers are trained to identify safety issues early on in the design process. The SRA is evaluated throughout the entire product development process. We evaluate product safety at each stage of the product life cycle and track reported product-related incidents through our incident-reporting system.

ESG integrated governance (continued)

Product safety (continued)

Making progress with EUV 0.55 NA (High NA) safety

Our latest product, EUV 0.55 NA (High NA), is the next generation of EUV machines. The development of the system presented new challenges for product safety due to its larger overall size, height and weight of modules and more complex accessibility.

To support the design, we placed extra focus on ergonomics and working at height. Our ergonomic experts use 3D simulations to enable people to practice in various situations, such as working in an awkward position for a longer period of time. The new system features built-in service platforms, which led to the new 'working at height' safety competence.

Due to the complexity of the system, we split the EU Safety Directives and SEMI S2 review into an initial design review followed by a second inspection of the hardware. Having started the third-party safety design review in 2022, we continued with hardware reviews in 2023, leading up to a full review report by 2024.

Embedding product safety in the organization

Our Safety and Regulatory Office is tasked with tracking new product safety legislation and standards and ensuring that our products are compliant. The Regulatory Board is responsible for decision-making on ASML product safety compliance, the strategy to eliminate non-compliance, monitoring compliance status and risk mitigation. The Regulatory Board discusses possible non-compliance cases and takes decisions based on the mitigation plan presented.

Increasing product safety in the supply chain

We ensure that product safety does not end at our own facilities by promoting product safety in the supply chain. Safety is a key priority for ASML, and we want to be sure that all the products that we ship comply with the most stringent legislation, including the designs that are made and supplied by our suppliers in the value chain. A significant proportion of our innovation and development takes place at our suppliers' sites. Our goal is to ensure suppliers have the capability to deliver a safe and compliant product, so that we can avoid safety accidents or incidents, safety-related non-compliance issues and delayed shipments. We have defined an end-to-end process in close cooperation with our suppliers, ensuring that deliveries meet our safety requirements.

Dangerous goods management

Following the successful completion of our Dangerous Goods program, dangerous goods management is now structurally embedded across our organization. Policies, processes, guidelines and IT infrastructure are in place to enable dedicated specialists to manage dangerous goods as part of our competence groups. Hazardous properties are identified at an early stage in the design process to ensure measures are taken for the safe handling, transport and storage of our products on time and with greater efficiency. Activities are overseen by the safety and compliance organization to safeguard the active control of regulations and legislation impacting ASML products.

Materials and substance compliance

We follow the most stringent or leading regulations in the markets where we operate, currently but not limited to RoHS, REACH (Registration, Evaluation, Authorization and Restriction of Chemicals) and Batteries Directive in the EU, K-REACH (Act on the Registration and Evaluation of Chemicals) in South Korea or TSCA (Toxic Substances Control Act) in the US.

We have implemented multiple initiatives to overcome compliance challenges. These help to address the increasing number of changes in the regulatory landscape, the number of unique parts used in our products (>50,000), the number of regulated substances we use (>100) and the extensive reach of our global supply chain.

Activities in 2023 included:

- A multidisciplinary program embedding processes throughout our organization – improving our IT solutions, enabling automated supply chain communication and delivering flexible reporting capabilities
- A global safety focus to strengthen our communications with new local safety expert teams and establish a regulatory intelligence team
- A proactive approach toward upcoming regulations such as PFAS, TSCA and the REACH directive by taking part in the semiconductor industry working groups, through our membership of the PFAS Consortium, by working with our business partners and the supply chain, and by establishing a working relationship with a well-respected firm of consultants

Transparent reporting

To build vital relationships of trust with our stakeholders, we show our commitment to act on our responsibilities and progress toward achieving our goals in sustainable development via transparent reporting.

IN THIS SECTION

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175 Our approach to tax



Why it matters

With the upcoming regulations – in particular the EU CSRD, which comes into force for us over the financial year 2024 – companies are now required to be more transparent with stakeholders and to provide more standardized and comparable information.

Being transparent about our progress and performance allows stakeholders to make a fair assessment of how we are performing on our strategy execution and how we compare with other companies.

Reporting in a balanced way

Reporting in a balanced way improves the credibility of our disclosures and also helps to drive our progress by identifying areas of best practice and areas for improvement. It also helps us to improve our internal reporting and make informed decisions.

While we already report extensively on our progress, there are many gaps we must fill to meet CSRD requirements. We aim to be ready for CSRD for the 2024 reporting year. This will involve many parties inside and outside ASML in order to expand the scope of our reporting and improve the quality of the data.

ASML is committed to building a fairer, more sustainable society through social and economic cohesion, sustainable growth and long-term prosperity. Taxation is a means to that end, as it supports the development of the countries in which we operate. For this reason, openness and transparency about our approach to tax is an important aspect of our reporting.

Our approach to tax

Openness and transparency about our approach to tax is important and is supported by our overall business and ESG sustainability strategy.

Why it matters

Collecting taxes and fees is a fundamental way for countries to finance investments in human capital, infrastructure and the provision of services for citizens and businesses. The taxes we pay make a valuable contribution to the communities in which we operate and are an integral part of our responsibility for social value creation.

We are committed to compliance with tax laws and regulations, including the timely payment of all the taxes that we are due as a company.



Read more in our Approach to tax report at [asml.com](https://www.asml.com)

How we're managing our impact

Our dedicated report on ASML's 'Approach to tax' provides information on our operating model, tax principles and tax strategy, including how we interact with our stakeholders. It also includes financial information from a country-by-country reporting (CBCR) perspective and our tax contribution to society.

Last year, we signed up to the Tax Governance Code of the Confederation of Netherlands Industry and Employers (known as VNO-NCW) in support of the call for companies to respond to shifting expectations from policymakers, NGOs and the general public. The Tax Governance Code should contribute to transparency on the tax position of Dutch listed companies.

Our leading principle is that our tax position reflects our business operations, being the sale of lithography systems and related products and services, supported by our manufacturing and R&D activities.

ASML has a straightforward operating model with our campus in Veldhoven, the Netherlands, at the heart of our global operations.

The Board of Management is accountable for ASML's tax strategy, tax principles and the overall tax risk management, which are subsequently reviewed by the Audit Committee.

The ASML Tax & Customs department is responsible for the execution of the ASML tax strategy set by the Board of Management.

Income tax paid in our five most significant countries of operation



1. Netherlands	€1,826m
2. United States	€513m
3. Taiwan	€88m
4. South Korea	€44m
5. China	€46m



€2.6bn

Income tax paid 2023

(€1.7bn in 2022)



15.8%

Effective tax rate 2023

(15.0% in 2022)

Our approach to tax (continued)

Our tax principles

The following principles guide us in how we report and pay tax in the countries where we operate.

Compliance

- We respect the tax laws applicable in each country. We are committed to act in accordance with the letter, intent and spirit of tax laws and regulations
- We make tax disclosures in accordance with reporting requirements, US GAAP and IFRS
- ASML's profit allocation methods are based on internationally accepted standards as published by the OECD. We apply these consistently across our business, contingent on the relevant rules and regulations in the local jurisdictions we operate in

Support tax systems

- We report taxable income in a jurisdiction commensurate with the added value of the business activities in that jurisdiction
- We do not use so-called tax havens (as defined by the European Commission's 'blacklist') for tax avoidance

Relationships with authorities

- We pursue an open and constructive dialogue with the tax authorities, and other relevant authorities, in the jurisdictions we operate in, based on mutual respect, transparency and trust, disclosing all relevant facts and circumstances. We do not use tax structures intended for tax avoidance, nor will we engage in the artificial transfer of profits to low-tax jurisdictions

Our tax strategy

ASML's tax strategy is based on our tax principles and is closely aligned to our business strategy and our sustainability goals. The tax strategy is approved by the Board of Management. The tax strategy, tax principles and overall tax risk management apply to all group entities.

1 Stakeholder management

Externally, we communicate on a regular basis with tax authorities, regulators and investors, among others. Internally, we support our business in managing risks, staying in control and at the same time remaining efficient in its administrative procedures and way of working. We work in an integrated way with other experts within ASML.

2 The future of taxation

We closely monitor the developments in ESG (including tax transparency) and tax technology in the world and continuously translate these into potential requirements or implications for ASML.

3 Compliance and control

We develop, implement and continuously monitor processes and controls for appropriate tax risk management and reporting purposes. Furthermore, we ensure timely and accurate fulfillment of tax compliance obligations in line with applicable tax laws and regulations, including the timely payment of taxes due.

4 Tax and customs organization

In a fast-changing world, it is important to have a diverse team which can handle change and consists of more than just competent tax and customs experts. Communication, digital and project management skills have become increasingly important. We strive to work together and develop each other in line with ASML's values – challenge, collaborate and care.

5 Projects

Our business and the regulatory environment in which we operate change constantly. We work on projects that deal with these changes to ensure the solutions implemented are compliant and efficient. Likewise, we continuously strive for simplification and review of existing business models to ensure we remain tax and customs compliant.

Corporate Governance at a glance

We champion integrated corporate governance to build a relationship of trust, respect and mutual benefit with our stakeholders.

Overview

These pages provide an overview of and a brief introduction to the Corporate Governance section of our Annual Report.

Corporate Governance

[Read more on page 179 >](#)

In our Corporate Governance section we report on ASML's corporate governance structure and the way ASML applies the principles and best practices of the Dutch Corporate Governance Code.

- Governance structure
- Board of Management
- Supervisory Board
- Board-related matters
- AGM and share capital
- Financial reporting and audit
- Compliance with governance requirements

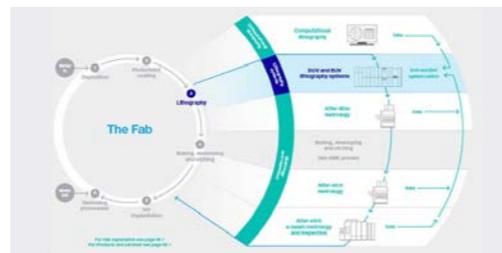
Our strategy

[Read more on page 30 >](#)



Our business model

[Read more on page 33 >](#)



Stakeholder engagement

[Read more on page 37 >](#)



Supervisory Board Report

[Read more on page 196 >](#)

This report outlines the activities of the Supervisory Board and its committees, as well as the key focus areas for 2023.

- Message from the Chair
- Supervisory Board
- Board focus in 2023
- Meetings and attendance
- Composition, training and evaluation
- Supervisory Board Committees
- Audit committee
- Technology committee
- Selection and Nomination Committee

Message from the Chair of our Supervisory Board

[Read more on page 196 >](#)



Remuneration Report

[Read more on page 217 >](#)

Here we explain the progress made during the year regarding our commitment to fair and balanced remuneration, including our work to increase the level of transparency around how we reward management in order to attract the right talent.

- Message from the Chair
- Remuneration committee
- Board of Management remuneration
- Supervisory Board remuneration

Message from the Chair of Remuneration

[Read more on page 217 >](#)



Applying the 2022 Dutch Corporate Governance Code

We have outlined the main changes of the new code in the table below and provided references to where in the annual report we are addressing the principles and best practices provisions.

Sustainable long-term value creation

Principles and best practice provisions	Reference
<ul style="list-style-type: none"> In creating sustainable long-term value, the Board of Management takes into account the effects of the company's operations on people and the environment, and has concrete sustainability targets. 	Page 30 and 71
<ul style="list-style-type: none"> Pays a fair share of tax to the countries in which it operates. 	Page 175
<ul style="list-style-type: none"> The annual report explains the effects of its products, services and activities on people and the environment. How stakeholder interests have been taken into account, and whether targets set have been achieved. 	Page 75 and 107
<ul style="list-style-type: none"> The Supervisory Board oversees the above. 	Page 196

Diversity & Inclusion

Principles and best practice provisions	Reference
<ul style="list-style-type: none"> ASML has adopted a D&I policy for the Board of Management, a D&I policy for the Supervisory Board, and a separate group D&I policy, applying to its workforce including senior management. As part thereof, ASML has set concrete, appropriate and ambitious goals on gender diversity and other relevant D&I aspects for the company with regard to the composition of Board of Management, Supervisory Board and senior management. 	Page 185
<ul style="list-style-type: none"> The annual report explains the company's D&I policy and application including results achieved in the reporting year, and includes insights about inflow, promotion and retention of employees to the extent relevant and possible. 	Page 185

Dialogue with stakeholders and ASML's stewardship

Principles and best practice provisions	Reference
<ul style="list-style-type: none"> The company adopts a policy for effective dialogue with relevant stakeholders to ensure the sustainability aspects of the strategy are taking their interests into consideration. 	Page 37, 71 and 198
<ul style="list-style-type: none"> The company adopts an outline policy for bilateral contacts with stakeholders. 	Page 39 and 213
<ul style="list-style-type: none"> Both policies are put on the website. 	Page 37 and 39
<ul style="list-style-type: none"> The company is to facilitate the dialogue, but only where appropriate. 	Page 37

Other

Principles and best practice provisions	Reference
<ul style="list-style-type: none"> Supervisory Board report to set out the findings of the Board of Management and Supervisory Board evaluations. 	Page 196
<ul style="list-style-type: none"> These evaluations are periodically required to take place under the guidance of an external expert. 	Page 204
<ul style="list-style-type: none"> While the Code does not require a designated digital or sustainability director, every Board of Management and Supervisory Board member has close involvement with these topics, and it be a consideration in terms of composition and training. 	Page 157 and 203
<ul style="list-style-type: none"> New additions to the code emphasizing the role of the internal audit. 	Page 194
<ul style="list-style-type: none"> The remuneration report should explain how the policy contributes to sustainability and sets out how the scenario analysis have been taken into consideration. 	Page 219

Corporate Governance

We endorse the importance of good corporate governance, of which independence, accountability and transparency are the most significant elements. These are also the elements on which a relationship of trust between us and our stakeholders can be built.

ASML Holding NV is a public limited liability company operating under Dutch law. ASML's shares are listed on Euronext Amsterdam and Nasdaq.

We have a two-tier board structure, consisting of a Board of Management responsible for managing the company, and an independent Supervisory Board which supervises and advises the Board of Management. For the fulfillment of their duties, the two Boards are accountable to the General Meeting, the corporate body representing our shareholders.

Our governance structure is based on ASML's Articles of Association, Dutch corporate and securities laws and the Dutch Corporate Governance Code. Because we are listed on Nasdaq, we are also required to comply with applicable provisions of the Sarbanes-Oxley Act, the Nasdaq Listing Rules and the rules and regulations promulgated by the US Securities and Exchange Commission.

We are subject to the relevant provisions of Dutch law applicable to large corporations (*structuurregime*). These provisions have the effect of concentrating control over certain corporate decisions and transactions in the hands of the Supervisory Board. Procedures for the appointment and dismissal of Board of Management and Supervisory Board members are based on the *structuurregime*.

This section of the Annual Report addresses our corporate governance structure and the way ASML applies the principles and best practices of the Dutch Corporate Governance Code. It also provides information required by the Decree adopting further rules related to the content of the management report and the Decree implementing Article 10 of the Takeover Directive.

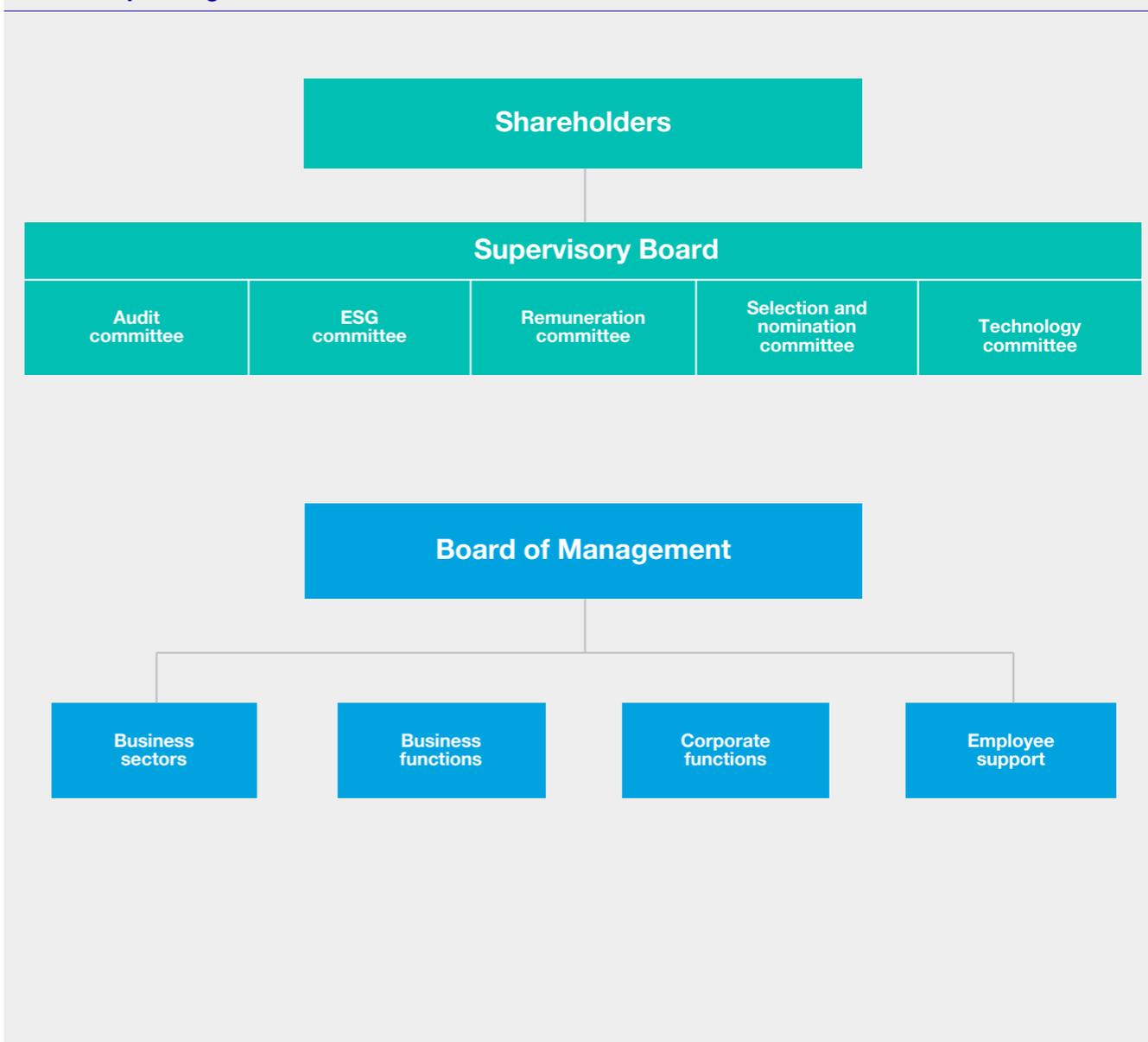
We signed up to the VNO-NCW Tax Governance Code and report on the application of its principles in the section Our Approach to Tax and in our more comprehensive Approach to Tax Report on our website.

In accordance with the Dutch Corporate Governance Code (<https://www.mccg.nl/english>), other parts of this Annual Report address our strategy and culture aimed at sustainable long-term value creation, our values and Code of Conduct, as well as the main features of our internal control and risk management systems.

On December 20, 2022, the new Dutch Corporate Governance Code was published, which applies to the financial years starting on and after January 1, 2023. As part of the continued effort of our Supervisory Board and Board of Management to ensure that our practices and procedures comply with the relevant principles and best practice provisions of the Dutch Corporate Governance Code, we have assessed the implications and, where necessary, amended our practices and procedures in order to ensure that we comply with the new Code.

Read more in
At a glance,
Our business and ESG strategy,
Our business model and
Risk - How we manage risk

ASML corporate governance structure



Board of Management

Our Board of Management is responsible for managing ASML. Its responsibilities include establishing a position on the relevance of sustainable long-term value creation for ASML and its business, defining and deploying ASML's strategy, establishing and maintaining effective risk management and control systems, managing the realization of ASML's operational and financial objectives and the ESG aspects relevant to ASML. In fulfilling its management tasks and responsibilities, the Board of Management is guided by the interests of ASML and its business and takes into consideration the interests of its stakeholders.

Our core strategy is to

- 1** Grow our holistic lithography business
- 2** Secure unique supply chain capabilities to ensure business continuity
- 3** Move toward adjacent business opportunities
- 4** Deliver on our ESG sustainability commitments

The current Board of Management comprises six members. On November 30, 2023, ASML announced that per the 2024 AGM the President & CEO and the President & CTO will retire, that the current Chief Business Officer will be appointed President & CEO, and that the Supervisory Board intends to add the role of Chief Customer Officer to the Board of Management, underscoring our ambition to continuously increase our responsiveness to customer needs and to consistently deliver high-performance products and services. As a result of these changes, the Board of Management will continue to consist of six members effective per the 2024 AGM..

The Board of Management currently has a dual leadership structure, under the chairmanship of the President and Chief Executive Officer, and the vice chairmanship of the President and Chief Technology Officer. The Board of Management divides tasks among its members, charging individual members with specific managerial tasks. However, the Board of Management remains collectively responsible for the management of ASML.

The Board of Management is supervised and advised by the Supervisory Board. The Board of Management provides the Supervisory Board with all the information, in writing or otherwise, necessary for the Supervisory Board to properly carry out its duties. In addition to the information provided in their regular meetings, the Board of Management provides the Supervisory Board with regular updates on developments relating to our business, financials, operations and industry developments in general. Certain important decisions of the Board of Management require the approval of the Supervisory Board. For details, see the Supervisory Board section of this Corporate Governance Statement.

Further information regarding the general responsibilities of the Board of Management, its relationships with the Supervisory Board and various stakeholders, the decision-making process within the Board of Management and the logistics surrounding the meetings can be found in the Board of Management's Rules of Procedure. These are published in the Governance section of our website.

Appointments

Members of the Board of Management are appointed by the Supervisory Board on the recommendation of the Selection and Nomination Committee and upon notification to the General Meeting. Members of the Board of Management are appointed for a term of four years. Reappointment for consecutive four-year terms is possible. For persons aged 65 years or above, a maximum appointment term of two years applies, with the possibility of reappointment for consecutive two-year terms. In line with Dutch law, all members of the Board of Management are engaged by means of a management services agreement for the duration of their appointment.

The management services agreements between ASML and the Board of Management members contain specific provisions regarding severance payments. If ASML terminates the agreement for reasons which are not exclusively or mainly found in acts or omissions of the



Board of Management member, a severance payment not exceeding one year's base salary will be paid. Furthermore, current agreements stipulate that a member of the Board of Management, when giving notice of termination pursuant to a change of control, will be entitled to a severance amount. Given that such a resignation is specifically linked to a change of control, ASML does not consider this provision a deviation from the Dutch Corporate Governance Code.

The Supervisory Board may suspend and dismiss members of the Board of Management, but this can only take place after consulting the General Meeting.

More information about changes related to the Board of Management during 2023 can be found in the Supervisory Board Report included in this Annual Report.

Board of Management (continued)



**Peter T.F.M. Wennink
(1957, Dutch)**

President, Chief Executive Officer
and Chair of Board of Management
Term expires 2024

Peter Wennink became President and CEO in 2013, having served as Executive VP, CFO and member of the Board of Management since 1999. Peter was previously a partner at Deloitte Accountants, focusing on the semiconductor industry. He has an extensive background in finance and is a member of the Dutch Institute of Registered Accountants. Peter was a member of the Advisory Board of the Investment Committee of Stichting Pensioenfondsen ABP until December 31, 2021. He serves as Vice Chair on the Board of the FME-CWM. Peter is also a member of the Board of Captains of Industry Eindhoven Region and is Chair of the Eindhovensche Fabrikantenkring and of the Supervisory Board of the Eindhoven University of Technology. Furthermore, Peter is council member of Topconsortium voor 'Kennis en Innovatie' TKI HTS&M, member of the Advisory Committee of the Dutch National Growth Fund and a member of the Circle of Influence of Startup Delta.

**Martin A. van den Brink
(1957, Dutch)**

President, Chief Technology
Officer and Vice Chair of Board
of Management
Term expires 2024

Martin van den Brink has been President and CTO of ASML since 2013. He joined ASML at its founding in 1984, and for the next 11 years held various positions in engineering. In 1995, he became Vice President Technology, and in 1999 was appointed Executive Vice President Product & Technology and member of the Board of Management. Martin holds a degree in Electrical Engineering from HTS Arnhem (HAN University), as well as a degree in Physics (1984) from the University of Twente. In 2012, the University of Amsterdam awarded him an honorary doctorate in Physics.



**Roger J.M. Dassen
(1965, Dutch)**

Executive Vice President
and Chief Financial Officer
Term expires 2026

Roger Dassen joined ASML in June 2018 and was appointed Executive Vice President and CFO and member of the Board of Management at the AGM the same year. He previously served as Global Vice Chair and member of the Executive Board of Deloitte Touche Tohmatsu Limited, having been CEO of Deloitte Holding BV. Roger holds a master's in Economics and Business Administration, a post-master's in Auditing and a PhD in Business Administration, all from the University of Maastricht. He is Professor of Auditing at Vrije Universiteit Amsterdam, and sits on the Supervisory Board of the Dutch National Bank. He is also the Chair of the Supervisory Board of Maastricht University Medical Center+ and serves on the Board of the Stichting Brainport.

**Christophe D. Fouquet
(1973, French)**

Executive Vice President
and Chief Business Officer
Term expires 2026

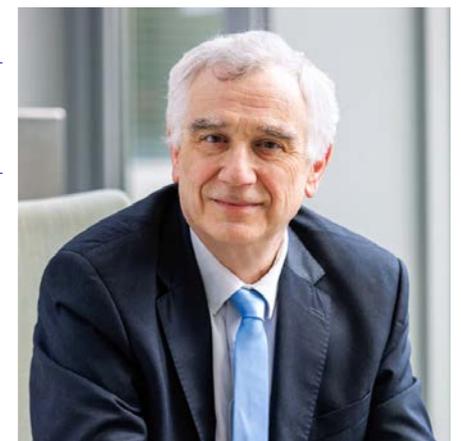
Christophe Fouquet was appointed Executive Vice President EUV and member of the Board of Management in 2018. In 2022, Christophe was appointed Executive Vice President and Chief Business Officer. Since joining ASML in 2008, he has held several positions, including Senior Director Marketing, Vice President Product Management, and Executive Vice President Applications, a position he held from 2013 until 2018. Prior to joining ASML, he worked for semiconductor equipment peers KLA-Tencor and Applied Materials. Christophe holds a master's degree in Physics from the Institut Polytechnique de Grenoble.



**Frédéric J.M. Schneider-
Maunoury (1961, French)**

Executive Vice President
and Chief Operations Officer
Term expires 2026

Frédéric Schneider-Maunoury has been Executive Vice President and Chief Operations Officer since he joined ASML in 2009. He was appointed to the Board of Management in 2010. Prior to joining ASML, Frédéric was Vice President Thermal Products Manufacturing at power generation and rail transport equipment group Alstom, having previously served as General Manager of the worldwide Hydro Business of Alstom. Before joining Alstom, Frédéric held various positions at the French Ministry of Trade and Industry. He is a graduate of École polytechnique (1985) and École Nationale Supérieure des Mines (1988) in Paris.



**Wayne R. Allan
(1967, American)**

Executive Vice President and
Chief Strategic Sourcing &
Procurement Officer
Term expires 2027

Wayne Allan was appointed Executive Vice President, Chief Strategic Sourcing & Procurement Officer and member of the Board of Management in 2023. Wayne joined ASML in 2018 as Executive Vice President of Customer Support. Before he joined ASML, Wayne served as Senior Vice President of Global Manufacturing Operations and as Vice President of Wafer Fabs at Micron Technology, Inc, the company where he began his career in 1987 as a production operator. He continued to move into operations roles of increasing leadership in engineering, planning and production.



Supervisory Board

Our Supervisory Board supervises the Board of Management and the general course of affairs of ASML and its subsidiaries. The Supervisory Board also supports the Board of Management with advice. In fulfilling its role and responsibilities, the Supervisory Board takes into consideration the interests of ASML and its business, as well as the relevant interests of its stakeholders.

In our two-tier structure, the Supervisory Board is a separate and independent body from the Board of Management and from ASML. No member of the Supervisory Board personally maintains a business relationship with ASML, other than as a member of the Supervisory Board.

The Supervisory Board currently consists of nine members, with the minimum being three.

In performing its tasks, the Supervisory Board focuses on matters including, ASML's corporate strategy aimed at sustainable long-term value creation and its execution; the staffing of and succession planning for the Board of Management; the management of risks inherent to ASML's business activities; the financial reporting process; compliance with applicable legislation and regulations; ASML's culture and the activities of the Board of Management in that regard; the relationship with shareholders and other stakeholders, and ESG aspects important for ASML.

Important management decisions, such as setting the operational and financial objectives, the strategy designed to achieve these objectives, major investments, budget and the issue, repurchase and cancellation of shares, require the Supervisory Board's approval.

The Supervisory Board is governed by its Rules of Procedure. Items covered in these rules include the responsibilities of the Supervisory Board and its committees, the composition of the Supervisory Board and its committees, logistics surrounding the meetings, the meeting attendance of members of the Supervisory Board, the rotation schedule for these members and the committee charters. The Supervisory Board's Rules of Procedure and the committee charters are regularly reviewed and, if needed, amended. The Audit Committee charter is reviewed annually to confirm that the charter still complies with applicable rules and regulations, especially those relating to the Sarbanes-Oxley Act.

[Read more information on the meetings and activities of the Supervisory Board in 2023 in: Supervisory Board Report - Meetings and attendance](#)

Appointments

The members of the Supervisory Board are appointed by the General Meeting based on binding nominations proposed by the Supervisory Board. When nominating persons for (re)appointment, the Supervisory Board checks whether the candidates fit the Supervisory Board's profile. The profile is available in the Governance section of our website. The General Meeting may reject

binding nominations of the Supervisory Board by way of a resolution adopted with an absolute majority of the votes cast, representing at least one-third of ASML's outstanding share capital. If the votes cast in favor of such a resolution do not represent at least one-third of the total outstanding capital, a new shareholders' meeting can be convened, at which the nomination can be overruled by an absolute majority.

The Supervisory Board generally informs the General Meeting and the Works Council about upcoming retirements by rotation at the AGM in the year preceding the actual retirement(s) by rotation. This ensures they have sufficient opportunity to recommend candidates for the upcoming vacancies. The Supervisory Board has the right to reject the proposed recommendations. Furthermore, the Works Council has an enhanced right to make recommendations for one-third of the members of the Supervisory Board. This enhanced recommendation right implies that the Supervisory Board may only reject the Works Council's recommendations in limited circumstances: (i) if the relevant person is unsuitable or (ii) if the Supervisory Board would not be duly composed if the recommended person were appointed as Supervisory Board member.

Members of the Supervisory Board serve for a maximum term of four years or a shorter period as per the Supervisory Board's rotation schedule. Supervisory

Board members are eligible for reappointment for another maximum term of four years. After that, members may be reappointed again for a maximum period of two years. This appointment may be extended for a final term of no more than two years. The rotation schedule is available in the Governance section of our website.

If the General Meeting loses confidence in the Supervisory Board, it may, by an absolute majority of the votes representing at least one-third of the total outstanding capital, withdraw its confidence in the Supervisory Board. This resolution shall result in the immediate dismissal of the entire Supervisory Board. In such case, the Enterprise Chamber of the Amsterdam Court of Appeal shall appoint one or more members to the Supervisory Board at the request of the Board of Management.

[Further information about changes to the Supervisory Board's composition in 2022 and 2023 can be found in the Supervisory Board Report](#)

Supervisory Board committees

The Supervisory Board, while retaining overall responsibility, has assigned some of its tasks and responsibilities to five committees: the Audit Committee, the ESG Committee, the Remuneration Committee, the Selection and Nomination Committee and the Technology Committee.

[Further information on the Supervisory Board committees can be found in the Supervisory Board Report and in the charters of the committees as posted on our website](#)



Supervisory Board (continued)



Nils S. Andersen
(1958, Danish)

Member of the Supervisory Board since 2023
(First term expires in 2027)

Chair of the Supervisory Board,
Chair of the Selection and Nomination Committee

Nils Andersen joined the Supervisory Board in 2023, and has been its Chair since his appointment. Nils also serves as non-Executive Director of Unilever Plc., a position he has held since 2015, having served as Unilever's Chair from November 2019 until December 1, 2023. Nils is also Chair of the Board of Scan Global Logistics A/S. From 2018 until April 2023, he was the Chair of the Supervisory Board of Akzo Nobel NV and, between 2007 and 2016, Group Chief Executive of A.P. Møller – Mærsk. From 2001 until 2007, Nils served as President and Chief Executive Officer of Carlsberg and Carlsberg Breweries.

Antoinette (Annet) P. Aris
(1958, Dutch)

Member of the Supervisory Board since 2015
(Third term expires in 2024)
Vice Chair of the Supervisory Board, Member of the Remuneration Committee, the Selection and Nomination Committee and the Technology Committee

Annet Aris has been a member of the Supervisory Board since 2015. She is Senior Affiliate Professor of Strategy at INSEAD business school, France, a position she has held since 2003. From 1994 to 2003, she was a partner at McKinsey & Company in Germany. Annet also sits on the supervisory boards of Jungheinrich AG and Randstad Holding NV.



Alexander F.M. Everke
(1963, German)

Member of the Supervisory Board since 2022
(First term expires in 2026)

Member of the ESG Committee and the Remuneration Committee

Alexander Everke joined the Supervisory Board in 2022. He is the former CEO of ams-OSRAM AG, a position he held from 2016 until April 2023, after having joined ams AG in October 2015. Prior to that, Alexander held a range of positions in the semiconductor industry including management roles at Siemens and Infineon and various leadership positions at NXP Semiconductors.



D. Mark Durcan
(1961, American)

Member of the Supervisory Board since 2020
(First term expires in 2024)

Chair of the Technology Committee,
member of the Selection and Nomination Committee

Mark Durcan was appointed as a member of the Supervisory Board in 2020. From 2012 to 2017, he was CEO of Micron Technology, Inc., having joined the company in 1984 and having held various management positions before being appointed as CEO. Furthermore, Mark was director at Freescale Semiconductor, MVI Veterinary Supply and Veoneer, Inc. Mark is a Non-Executive Director at Advanced Micro Devices, Inc., and Member of the Board and Lead Independent Director at Cencora. He is also a member of the Board of Trustees for Rice University (Texas), Director at St Luke's Health System (Idaho) and Director at Natural Intelligence Systems CA private AI, Startup Company.

Supervisory Board (continued)

**Terri L. Kelly
(1961, American)**

Member of the Supervisory Board since 2018
(Second term expires in 2026)

Chair of the Remuneration Committee, member of the Selection and Nomination Committee

Terri Kelly has been a member of the Supervisory Board since 2018. Previously, she was President and CEO at W.L. Gore & Associates from 2005 until 2018, having worked at Gore since 1983 in various management roles. She also served on Gore's Board of Directors through July 2018. Terri is a Trustee of the Alfred I. Dupont Charitable Trust, which provides oversight of the Nemours Foundation. She is the Chair of the Board of the University of Delaware and she is a member of the Board of Directors of United Rentals, Inc.

**Birgit M. Conix
(1965, Belgian)**

Member of the Supervisory Board since 2021
(First term expires in 2025)

Chair of the ESG Committee and member of the Audit Committee

Birgit Conix became a member of the Supervisory Board in 2021. She has been CFO and a member of the Management Board of Sonova Holding AG since June 2021. From 2018 until January 1, 2021, Birgit was a member of the Executive Board and CFO of TUI AG. She was previously the CFO of the Belgian media, cable and telecommunications company Telenet Group NV. Prior to that, Birgit held various management positions in finance at Johnson & Johnson, Heineken, Tenneco and Reed Elsevier.

**D. Warren A. East
(1961, British)**

Member of the Supervisory Board since 2020
(First term expires in 2024)

Member of the Audit Committee and the Technology Committee

Warren East became a member of the Supervisory Board in 2020 and is currently also a Non-Executive Board member at Tokamak Energy plc. Warren was CEO of Rolls-Royce Group Plc from 2015 until December 2022. He spent his early career at Texas Instruments Ltd from 1985 to 1994 before joining ARM Holdings, Plc, where he held various management positions and was appointed CEO from 2001 to 2013.

**Jack P. de Kreijl
(1959, Dutch)**

Member of the Supervisory Board since 2023
(First term expires in 2027)

Chair of the Audit Committee and member of the Remuneration Committee

Jack de Kreijl joined the Supervisory Board in 2023. Among other roles, he is currently the Vice Chair of the Supervisory Board and Chair of the Audit Committee at TomTom NV and Wolters Kluwer NV. Jack is also a member of the Supervisory Board, Chair of the Audit Committee and member of the ESG Committee at Royal Boskalis Westminster NV. In addition, he is the Chair of the Board of the Dutch

Association of Listed Companies (VEUO). From 2003 to 2018, Jack was CFO and a member of the Executive Board of Royal Vopak NV, being the Vice Chair of the Executive Board of Royal Vopak NV since 2010. Prior to that, between 1986 and 2003 he worked at PricewaterhouseCoopers, where he held various management positions as (Senior) Partner and was amongst others Managing Partner & Territory Leader of the M&A focused Transaction Services practice in The Netherlands. Jack started his career in 1980 with the Dutch Ministry of Finance, where he worked until 1986.

**An L. Steegen
(1971, Belgian)**

Member of the Supervisory Board since 2022
(First term expires in 2026)

Member of the ESG Committee and the Technology Committee

An Steegen joined the Supervisory Board in 2022. She is co-CEO and member of the Board of Directors of Barco NV, a position she has held since October 2021. Prior to that, An was R&D director at IBM Semiconductor and Executive Vice President at the research institute imec in Belgium. Furthermore, An was CTO and Executive Vice President Electronic and Electro-Optical Materials at Umicore.

Other Board-related matters

The section below addresses a number of topics that apply to both the Board of Management and the Supervisory Board.

Remuneration and share ownership

The remuneration of the Board of Management is determined by the Supervisory Board, on recommendation of the Remuneration Committee, in accordance with the Remuneration Policy for the Board of Management as adopted by the General Meeting. The current Remuneration Policy for the Board of Management was adopted by the General Meeting in 2022.

The remuneration of the Supervisory Board is based on the Remuneration Policy for the Supervisory Board. The current Remuneration Policy for the Supervisory Board was adopted by the General Meeting in 2023. The remuneration of the Supervisory Board is not dependent on our (financial) results. The members of the Supervisory Board do not receive ASML shares, or rights to acquire ASML shares, as part of their remuneration.

Board of Management and Supervisory Board members who acquire or have acquired ASML shares or rights to acquire ASML shares must intend to keep these for long-term investment only. In concluding transactions in ASML shares, members of the Board of Management and the Supervisory Board must comply with our Insider Trading Rules. Any transactions in ASML shares performed by members of the Board of Management and the Supervisory Board are reported to the Dutch AFM. Nils Andersen holds 1,060 ASML shares. No other member of the Supervisory Board currently has any ASML shares or rights to acquire ASML shares.

We will not and have not granted any personal loans, guarantees or the like to members of the Board of Management and the Supervisory Board.

Our Articles of Association provide for the indemnification of the members of the Board of Management and the Supervisory Board against claims that are a direct result of their tasks, provided that such claims are not attributable to willful misconduct or intentional recklessness of the respective member. We have also implemented the indemnification of the members of the Board of Management and the Supervisory Board by means of separate indemnification agreements for each member.

[Detailed information on the Board of Management's and the Supervisory Board's remuneration can be found in the Remuneration Report](#)

Diversity

Pursuant to the Nasdaq Stock Market's listing standards with respect to board diversity (disclosures), ASML, as a foreign private issuer, is required to have at least two diverse Supervisory Board members or explain the reasons for not meeting this objective. Furthermore, a Board diversity matrix is required to be included in the Annual Report on Form 20-F, containing certain demographic and other information regarding members of the Supervisory Board. ASML currently complies with the diversity requirement, as we currently have four female and five male members on our Supervisory Board. The Board diversity matrix is set out on this page.

	Board Diversity Matrix (status per December 31, 2023)			
	Female	Male	Non-Binary	Did not Disclose
Part I: Gender Identity				
Directors	4 (2022: 4)	5 (2022: 5)	0 (2022: 0)	0 (2022: 0)
Part II: Demographic Background				
Underrepresented Individual in Home Country Jurisdiction	0 (2022: 0)	0 (2022: 0)	0 (2022: 0)	0 (2022: 0)
LGBTQI+	0 (2022: 0)	0 (2022: 0)	0 (2022: 0)	0 (2022: 0)
Did Not Disclose Demographic Background	0 (2022: 0)	0 (2022: 0)	0 (2022: 0)	0 (2022: 0)
Country of Principal Executive Offices	The Netherlands			
Foreign Private Issuer	Yes			
Disclosure Prohibited under Home Country Law	No			
Total Number of Supervisory Board members	9 (2022: 9)			

Supervisory Board gender diversity		Supervisory Board nationality		
	55.6%			
	Leadership level men	Dutch x2	German x1	American x2
	44.4%			
	Leadership level women	British x1	Belgian x2	Danish x1

Other Board-related matters (continued)

On January 1, 2022, the Dutch gender diversity bill came into force, introducing a quota for the supervisory boards of Dutch listed companies following which the composition of the supervisory board should comprise at least one-third men and one-third women. New appointments will be declared null and void in the event of non-compliance with this requirement. The bill also introduced a requirement to set ambitious gender balance targets for boards of management and senior management of large listed and non-listed Dutch NVs and BVs and a plan which outlines the actions needed in order to meet the gender diversity targets. Based on the gender diversity bill, companies are required to report on the gender balance targets, the plan and their progress made in achieving the gender balance targets to the Dutch Social and Economic Council within 10 months after the end of the financial year and in the management report.

The 2022 Dutch Corporate Governance Code contains a requirement to adopt D&I policies for the Board of Management, the Supervisory Board as well as a company-wide D&I policy for the entire workforce including senior management. As part thereof, ASML has set targets on gender diversity and other D&I aspects relevant for ASML.

Currently, the Supervisory Board meets the gender quota of the Dutch gender diversity bill, as both men and women are represented on the Supervisory Board by at least three out of nine members. During 2023, the Supervisory Board adopted the Supervisory Board D&I Policy, which has been incorporated as an annex to the Supervisory Board's Rules of Procedure, which can be found on our website.

Currently, no seats are taken by women on the Board of Management. During 2022, the Supervisory Board updated the Board of Management Diversity Policy and set a gender balance target for the Board of Management to in 2026 have at least one female and a at least one male Board of Management member. Taking into account the composition of the Board of Management per the 2024 AGM, this would lead to a female representation of at least 17% based on the size of the Board of Management per the 2024 AGM, being six members. When setting the gender balance target for the Board of Management, the Supervisory Board has considered the technology environment ASML operates in, with a thinly populated global STEM (science, technology, engineering and math) talent pool, making it challenging to recruit female talent. Our R&D workforce is 17% female. The Supervisory Board has also considered the female representation of the ASML group overall, which was 44% (December 31, 2023) and the female representation in senior leadership (JG 13+), which was 11% (December 31, 2023). Furthermore, during 2022 a target was set to reach a representation of women at senior management level of 12% by 2024. To make this gender target for senior management tangible, we also set a goal for the total inflow of women and inflow of female leaders (JG 9+) of 24% in 2025. The Supervisory Board also included performance metrics aimed at improving the representation of women in senior leadership in the Board of Management's long-term incentive. The Board of Management Diversity Policy is part of the Board of Management's Rules of Procedure, which can be found on our website.

The Supervisory Board fully supports ASML's Diversity & Inclusion strategy as set out in this Annual Report. We recognize that human capital is ASML's most valuable asset and that our success is driven by our unique and diverse teams. Diversity promotes the inclusion of different perspectives and ideas, mitigates against groupthink and ensures ASML can benefit from all available talent. This also applies to the Board of Management and our senior management, where a diverse composition contributes to robust decision-making and proper functioning. Diversity complements ASML's company values – challenge, collaborate and care.

We are building and implementing company-wide programs to further promote diversity and inclusion at all levels of our workforce. This includes specific programs aimed at attracting, retaining and developing diverse leaders with the purpose of increasing our talent pool of diverse talent for senior leadership and Board of Management positions.

Our Global Diversity & Inclusion Council, founded in 2021, consists of senior leaders who act on behalf of ASML to provide thought leadership. The Council, chaired by a member of the Board of Management, proposes the Diversity & Inclusion strategy to the Board of Management, sets, promotes and monitors diversity and inclusion initiatives, and leads company-wide accountability for our goals. We also have a global diversity and inclusion team, including a Chief Diversity Officer, who is responsible for driving initiatives that are related to diversity and inclusion across ASML.

Our company-wide diversity and inclusion approach is integrated into our people strategy and focuses on three key areas within ASML: leadership, culture and talent. The Attractive workplace for all section contains more information about our D&I approach, our targets and performance in 2023 as well as a look ahead at our D&I agenda and priority areas for the period up to and including 2025.



Other Board-related matters (continued)



12%

Target 2024 representation of women at leadership level

The key areas of our D&I approach are as follows:

- **Leadership: we are developing inclusive leadership programs and starting to build accountability into our performance and development processes. We engage leaders to foster their commitment to creating an inclusive culture and building a diverse workforce**
- **Talent: we aim to increase the representation of underrepresented groups by addressing our systems and end-to-end people processes, including talent acquisition, and by providing career advancement programs, that positively impact under-represented groups.**
- **Culture: We strive to create an inclusive culture for all in line with ASML's values by increasing the capabilities of employees and leaders to act inclusively and by empowering our employee networks to expand their impact and reach.**



25%

Inflow of female leaders in 2023 (9+)

Read more information on our diversity and inclusion strategy, initiatives, women in leadership and performance data in: Social - Attractive workplace for all - Inspiring a unified culture and Non-financial statements - Non-financial indicators - Attractive workplace for all

For the Board of Management specifically, the Supervisory Board will select candidates for appointment to the Board of Management with due observance of ASML's objective to foster a diverse and inclusive working environment. Accordingly, ASML aims to fill vacancies by considering candidates that bring the required expertise and contribute to ASML's diversity. The Supervisory Board, when assessing the composition of the Board of Management and identifying suitable candidates for succession, will consider candidates on merit against objective criteria and the specific profile for the job, while having due regard for the relevant aspects of diversity. This applies in particular to continuously striving for a more balanced gender representation.

In ASML's internal development efforts for potential Board of Management members, we strive for participation of a diverse group of employees, specifically senior leadership.

Any search firm engaged by the Supervisory Board or its Selection and Nomination Committee will be specifically directed to include diverse candidates in general and multiple female candidates in particular.

Conflicts of interest and related party transactions

Conflict of interest procedures are incorporated in both the Board of Management's and the Supervisory Board's Rules of Procedure. These procedures reflect Dutch law and the principles and best practice provisions of the Code with respect to conflicts of interest.

There have been no transactions in 2023, nor are there currently any transactions, between ASML or any of ASML's subsidiaries, or any significant shareholder and any member of the Board of Management, officer, Supervisory Board member or any relative or spouse thereof, other than ordinary course compensation arrangements. Furthermore, ASML has not granted any personal loans, guarantees or the like to members of the Board of Management or Supervisory Board.

Outside positions

Pursuant to Dutch legislation, a member of the Board of Management may not be a Supervisory Board member in more than two other large companies or large foundations, as defined in Dutch law. A member of the Board of Management may never be the Chair of a Supervisory Board of a large company. Board of Management members require prior approval from the Supervisory Board before accepting a position of another large company or foundation. Members of the Board of Management are also required to notify the Supervisory Board of all important functions held or to be held by them. The remuneration received by members of the Board of Management from outside positions, if any, shall be reimbursed to ASML, unless otherwise agreed with the Supervisory Board in accordance with the Rules of Procedure of the Board of Management.

Dutch law stipulates that a Supervisory Board member may not hold more than five Supervisory Board positions in large companies or large foundations as defined in Dutch law, with chairmanships counting twice.

During the financial year 2023, all members of the Board of Management and the Supervisory Board complied with the requirements described above.



ESG sustainability powers our innovation mindset because it underpins inclusivity and diversity.”

Christophe Fouquet

Executive Vice President, Chief Business Officer and member of the Board of Management

AGM and share capital



In 2023, we engaged with investors to obtain their perspectives and understand their expectations.”

Nils Andersen
Chair of the Supervisory Board

A General Meeting (AGM) is held at least once a year and generally takes place in Veldhoven, the Netherlands. In 2023, shareholders had the option to attend the 2023 AGM in person in Veldhoven or virtually. The agenda for the AGM typically includes the following topics:

- ✓ **Item 1**
Discussion of the management report and the adoption of the Financial Statements over the past financial year;
- ✓ **Item 2**
Discussion of the dividend policy and approval of any proposed dividends;
- ✓ **Item 3**
Advisory vote on the Remuneration Report over the past financial year;
- ✓ **Item 4**
The discharge from liability of the members of the Board of Management and the Supervisory Board for the performance of their responsibilities in the previous financial year;
- ✓ **Item 5**
The limited authorization for the Board of Management to issue (rights to) shares in ASML's capital, and to exclude preemptive rights for such issuances, as well as to repurchase shares and to cancel shares; and
- ✓ **Item 6**
Any other topics proposed by the Board of Management, the Supervisory Board or shareholders in accordance with Dutch law and the Articles of Association.



Proposals placed on the agenda by the Supervisory Board, the Board of Management or shareholders, provided that they have submitted the proposals in accordance with the applicable legal provisions, are discussed and resolved upon. Shareholders representing at least 1.0% of ASML's outstanding share capital or representing a share value of at least €50 million are entitled to place items on the agenda of a General Meeting at least 60 days before the date of the meeting.

Extraordinary general meetings may be held when considered necessary by the Supervisory Board or Board of Management. In addition, an extraordinary general meeting must be held if one or more ordinary or cumulative preference shareholders, who jointly represent at least 10% of the issued share capital, make a written request to that effect to the Supervisory Board and the Board of Management. The request must specify in detail the business to be dealt with.

Shareholders' meetings are convened by public announcement via the website of ASML no later than 42 days prior to the meeting, as stipulated by Dutch law.

The record date is set at the 28th day prior to the day of the AGM. Persons who are registered as shareholders on the record date are entitled to attend the meeting and to exercise other shareholder rights.

The Board of Management and Supervisory Board provide shareholders with information relevant to the topics on the agenda by means of an explanation of the agenda as well as by documents necessary or helpful for this purpose. The agenda indicates which agenda items are voting items, and which items are for discussion only. All documents related to the General Meeting, including the agenda with explanations, are posted on our website.

AGM and share capital (continued)

ASML shareholders may appoint a proxy who can vote on their behalf at the AGM. In addition, we use an internet proxy voting system, facilitating shareholder participation without having to attend in person. We also provide the option for shareholders to issue voting proxies or voting instructions to an independent civil law notary prior to the AGM. We do not solicit from or nominate proxies for our shareholders.

Hybrid AGM

Similar to the 2022 AGM, we organized a hybrid AGM in 2023, accommodating attendance in person as well as virtually by enabling shareholders to follow the proceedings of the meeting via video webcast and to vote electronically during the meeting. Shareholders also had the opportunity to vote in advance via written or electronic proxy. As we highly value interaction with our shareholders, we invited shareholders who attended the AGM in person to ask questions about the agenda items during the AGM and we provided holders of shares traded on Euronext Amsterdam who attended the AGM virtually the opportunity to ask live questions in writing through the virtual meeting platform. All questions were answered during the AGM.

Resolutions are adopted by the General Meeting by an absolute majority of the votes cast (except where a different proportion of votes are required by the Articles of Association or Dutch law), and there are generally no quorum requirements applicable to such meetings.

Voting results from the AGM are made available on our website within 15 days of the meeting. The draft report of the AGM is made available on our website or on request no later than three months after the meeting.

Shareholders have the opportunity to provide comments in the subsequent three months, after which the report is adopted by the Chair and the Secretary of the meeting. The adopted report is also available on our website and on request.

Powers

In addition to the items submitted annually at the AGM, the General Meeting also has other powers, with due observance of the statutory provisions. These include resolving:

- To amend the articles of association;
- To issue shares if and insofar as the Board of Management has not been designated by the General Meeting for this purpose; and
- To adopt the Remuneration Policies for the members of the Board of Management and the Supervisory Board.

(Proposed) amendments of the Articles of Association require the approval of the Supervisory Board. A quorum requirement applies for the General Meeting at which an amendment of the Articles of Association is proposed: more than half of the issued share capital is required to be represented and, the proposal requires a voting majority of at least three-fourths of the votes cast. If the quorum requirement is not met, a subsequent General Meeting shall be convened, to be held within four weeks

of the first meeting. At this second meeting, the resolution can be adopted with at least three-fourths of the votes cast, irrespective of the share capital represented. If a resolution to amend the Articles of Association is proposed by the Board of Management, the resolution will be adopted with an absolute majority of votes cast irrespective of the represented share capital at the General Meeting.

Our Articles of Association are included as Exhibit 1.1 hereto, and are incorporated by reference herein.

AGM and share capital (continued)

ASML's authorized share capital amounts to €126.0 million and is divided into:

Type of shares	Number of shares	Nominal value	Votes per share
Cumulative preference shares	700,000,000	€0.09 per share	1
Ordinary shares	700,000,000	€0.09 per share	1

The issued and fully paid-up ordinary shares with a nominal value of €0.09 each were as follows:

Year ended December 31	2021	2022	2023
Issued ordinary shares with nominal value of €0.09	402,601,613	394,589,411	393,421,721
Issued ordinary treasury shares with nominal value of €0.09	3,873,663	8,548,631	6,162,857
Total issued ordinary shares with nominal value of €0.09	406,475,276	403,138,042	399,584,578

As of December 31, 2023, 86,366,821 ordinary shares were held by 268 registered holders with a registered address in the US. Since certain of our ordinary shares were held by brokers and nominees, the number of record holders in the US may not be representative of the number of beneficial holders, or of where the beneficial holders are resident.

Each ordinary share consists of 900 fractional shares. Fractional shares entitle the holder thereof to a fractional dividend, but do not give entitlement to voting rights. Only those persons who hold shares directly in the share register in the Netherlands, held by us at our address at 5504 DR Veldhoven, de Run 6501, the Netherlands, or in the New York share register, held by JP Morgan Chase Bank, N.A., P.O. Box 64506, St. Paul, MN 55164-0506, United States, can hold fractional shares. Shareholders who hold ordinary shares through the deposit system under the Dutch Securities Bank Giro Transfer Act maintained by the Dutch central securities depository Euroclear Nederland or through the Depository Trust Company cannot hold fractional shares.

No cumulative preference shares have been issued. Each share carries one vote.

Special voting rights, limitation voting rights and transfers of shares

There are no special voting rights on the issued shares in our share capital.

In 2012, we issued shares to three key customers – Intel, TSMC and Samsung – as part of the customer co-investment program (CCIP) to accelerate ASML's development of EUV. Under this program, the participating customers funded certain development programs and invested in ASML's ordinary shares. The shares issued in the CCIP were held by foundations which issued depository receipts to participants in the CCIP. In 2023, the remaining participating customer cancelled its depository receipts in accordance with the terms and conditions of the agreement between ASML and the relevant customer.

There are currently no limitations, either under Dutch law or in ASML's Articles of Association, on the transfer of

ordinary shares in the share capital of ASML. Pursuant to ASML's Articles of Association, the Supervisory Board's approval shall be required for every transfer of cumulative preference shares.

Issue and repurchase of (rights to) shares

Our Board of Management has the power to issue ordinary shares and cumulative preference shares insofar as it has been authorized to do so by the General Meeting. The Board of Management requires approval of the Supervisory Board for such an issue. The authorization by the General Meeting can only be granted for a certain period not exceeding five years and may be extended for no longer than five years on each occasion. If the General Meeting has not authorized the Board of Management to issue shares, the General Meeting will be authorized to issue shares on the Board of Management's proposal, provided that the Supervisory Board has approved such a proposal.

Holders of ASML's ordinary shares have a preemptive right, in proportion to the aggregate nominal amount of the ordinary shares held by them. This preemptive right may be restricted or excluded. Holders of ordinary shares do not have preemptive right with respect to any ordinary shares issued for consideration other than cash or ordinary shares issued to employees. If authorized for this purpose by the General Meeting, the Board of Management has the power, subject to approval of the Supervisory Board, to restrict or exclude the preemptive rights of holders of ordinary shares.

2023 authorization to issue shares

At our 2023 AGM, the Board of Management was authorized from April 26, 2023 through October 26, 2024, subject to the approval of the Supervisory Board, to issue shares and/or rights thereto representing up to a maximum of 5% of our issued share capital at April 26, 2023, plus an additional 5% of our issued share capital at April 26, 2023, that may be issued in connection with mergers, acquisitions and/or (strategic) alliances. Our shareholders also authorized the Board of Management through October 26, 2024, subject to approval of the Supervisory Board, to restrict or exclude preemptive rights with respect to holders of ordinary shares up to a maximum of 5% of our issued share capital in connection with the general authorization to issue shares and/or rights to shares, plus an additional 5% in connection with the authorization to issue shares and/or rights to shares in connection with mergers, acquisitions and/or (strategic) alliances.

We may repurchase our issued ordinary shares at any time, subject to compliance with the requirements of Dutch law and our Articles of Association. Any such repurchases are subject to the approval of the Supervisory Board and the authorization by the General Meeting, which authorization may not be for more than 18 months.

AGM and share capital (continued)

2023 authorization to repurchase shares

At the 2023 AGM, the Board of Management was authorized, subject to Supervisory Board approval, to repurchase through October 26, 2024, up to a maximum of 10% of our issued share capital at April 26, 2023, at a price between the nominal value of the ordinary shares purchased and 110% of the market price of these securities on Euronext Amsterdam or Nasdaq.

[Read more details on our share buyback program in: Consolidated Financial Statements - Notes to the Consolidated Financial Statements - Note 22 Shareholders' equity.](#)

ASML Preference Shares Foundation

The ASML Preference Shares Foundation (Stichting Preferente Aandelen ASML), a foundation organized under Dutch law, has been granted an option right to acquire preference shares in the share capital of ASML. The Foundation may exercise the Preference Share Option in situations where, in the opinion of the Foundation's Board of Directors, ASML's interests, ASML's business or the interests of ASML's stakeholders are at stake. This may be the case if:

- A public bid for ASML's shares is announced or made, or there is a justified expectation that such a bid will be made without any agreement having been reached with ASML in relation to such a bid; or
- In the opinion of the Foundation's Board of Directors, the (attempted) exercise of the voting rights by one shareholder or more shareholders, acting in concert, is materially in conflict with ASML's interests, ASML's business or ASML's stakeholders.

Objectives of the Foundation

The Foundation's objectives are to look after the interests of ASML and the enterprises maintained by and/or affiliated in a group with ASML, in such a way that the interests of ASML, of those enterprises and of all parties concerned are safeguarded in the best possible way, and that influences in conflict with these interests, which might affect the independence or the identity of ASML and those companies, are deterred to the best of the Foundation's ability, and everything related to the above or possibly conducive thereto. The Foundation aims to realize its objects by acquiring and holding cumulative preference shares in the capital of ASML and by exercising the rights attached to these shares, particularly the voting rights.

The Preference Share Option

The Preference Share Option gives the Foundation the right to acquire such number of cumulative preference shares as the Foundation will require, provided that the aggregate nominal value of such number of cumulative preference shares shall not exceed the aggregate nominal value of the ordinary shares issued at the time of exercise of the Preference Share Option. The subscription price will be equal to their nominal value. Only one-fourth of the subscription price would be payable at the time of initial issuance of the cumulative preference shares, with the other three-fourths of the nominal value only being payable when ASML calls up this amount. Exercise of the preference Share Option could effectively dilute the voting-power of the outstanding ordinary shares by one-half.

Cancellation of cumulative preference shares

Cancellation and repayment of the issued cumulative preference shares by ASML requires authorization by the General Meeting, on a proposal to this effect made by the Board of Management and approved by the Supervisory Board. If the Preference Share Option is exercised and as a result cumulative preference shares are issued, ASML will initiate the repurchase or cancellation of all cumulative preference shares held by the Foundation on the Foundation's request. In that case, ASML is obliged to effect the repurchase and respective cancellation as soon as possible. A cancellation will result in a repayment of the amount paid and exemption from the obligation to pay up on the cumulative preference shares. A repurchase of the cumulative preference shares can only take place when such shares are fully paid up.

If the Foundation does not request ASML to repurchase or cancel all cumulative preference shares held by the Foundation within 20 months of issuance of these shares, we will be required to convene a General Meeting for the purpose of deciding on a repurchase or cancellation of these shares.

Board of Directors

The Foundation is independent of ASML. The Board of Directors of the Foundation is composed of four independent members from the Netherlands' business and academic communities. The Foundation's Board of Directors is composed per December 31, 2023, of the following members: Mr. A.P.M. van der Poel, Mr. S. Perrick, Mr. S.S. Vollebregt and Mr. J. Streppel.

Other than the arrangements made with the Foundation as described above, ASML has not established any other anti-takeover devices.

AGM and share capital (continued)

Major shareholders

The Dutch Act on the supervision of financial markets and US securities laws contain requirements regarding the disclosure of capital interests and voting rights in listed companies. The following table sets forth the total number of ordinary shares owned by each shareholder that reported to the Dutch AFM or the US SEC a beneficial ownership of ordinary shares that is at least 3.0% (5.0%, in the case of the SEC) of our ordinary shares issued and outstanding. Also included in the table below is the total number of ordinary shares owned by our members of the Board of Management as of December 31, 2023. The information set out below with respect to shareholders is based on public filings with the SEC and AFM as of February 7, 2024.

	Shares	% of Class ⁴
Capital Research and Management Company ¹	40,615,837	10.32 %
BlackRock Inc. ²	31,259,169	7.95 %
Members of ASML's current Board of Management and Supervisory Board (7 persons) ³	101,220	0.03 %

- As reported to the AFM on February 7, 2022, Capital Research & Management Company (CRMC) reports 365,542,532 voting rights corresponding to 40,615,837 ordinary shares (based on 9 votes per share), but do not report ownership rights related to those shares.
- Based solely on the Schedule 13-G/A filed by BlackRock Inc. with the SEC on February 5, 2024; BlackRock reports voting power with respect to 28,843,069 of these shares. A public filing with the AFM on December 6, 2022 shows an aggregate indirect capital interest of 5.80% and voting rights of 7.23%, based on the total number of issued shares and voting rights at that time.
- Does not include unvested shares granted to members of the Board of Management. For further information, see Remuneration Report - Board of Management Remuneration.
- As a percentage of the total number of ordinary shares issued and outstanding, 393,421,721 as of December 31, 2023, which excludes 6,162,857 ordinary shares which have been issued but are held in treasury by ASML and 16,542 fractional shares of which 15,792 are owned by (former) ASML employees and 750 are owned by ASML. The share ownership percentages reported to the AFM are expressed as a percentage of the total number of ordinary shares issued (including treasury stock), and accordingly, percentages reflected in this table may differ from percentages reported to the AFM or the SEC.



Financial reporting and audit (continued)

The Audit Committee reviews and approves the external auditor's audit plan for the audits planned during the financial year. The audit plan also includes, among others, the activities of the external auditor with respect to their limited procedures on the quarterly results other than the annual accounts. Proposed services may be pre-approved at the beginning of the year by the Audit Committee (annual pre-approval) or may be pre-approved during the year by the Audit Committee in case of a particular engagement (specific pre-approval). The annual pre-approval is based on a detailed, itemized list of allowed services to be provided, which is designed to ensure there is no management discretion in determining whether a service has been approved, and to ensure the Audit Committee is informed of each service it is pre-approving.

Dutch rules require strict separation of audit and advisory services for Dutch public-interest entities and US regulations restrict services that can be provided by an auditor of a US listed company. Dutch law prohibits the acceptance by the external auditor of other services when an audit is performed. The Audit Committee monitors compliance with Dutch and US rules on services provided by the external auditor.

The remuneration of the external auditor is approved by the Audit Committee on behalf of the Supervisory Board, and after consulting the Board of Management. As the Audit Committee has the most relevant insight and experience in this area, the Supervisory Board has delegated these responsibilities to the Audit Committee.

[Read more information on principal accountant fees and services in Other appendices - Appendix - Principal accountant fees and services](#)

In principle, the external auditor attends all the Audit Committee meetings. The external auditor's findings are discussed at these meetings. The Audit Committee reports to the Supervisory Board on the topics discussed with the external auditor, including the external auditor's reports with regard to the audit of the annual reports as well as the content of the annual reports. Furthermore, the external auditor may attend the Supervisory Board meeting in which the annual external audit report is discussed. The external auditor may also attend Supervisory Board meetings at which the quarterly financial results are discussed.

The Audit Committee is informed by the external auditor without delay if the external auditor discovers irregularities in the content of the audit of the financial reports.

The external auditor is present at our AGM to respond to questions, if any, from the shareholders about the auditor's report on the Consolidated Financial Statements.

Internal Audit

The role of our Internal Audit function is to assess our systems of internal controls by performing independent procedures such as risk-based operational audits, IT audits and compliance audits. The Internal Audit department reports directly to the Audit Committee and to a member of the Board of Management, the CFO. The yearly Internal Audit plan is discussed with and approved by the Audit Committee, the Board of Management and the Supervisory Board. The follow-up on the Internal Audit findings and progress made compared with the plan are discussed on a quarterly basis with the Audit Committee. The external auditor and Internal Audit department have meetings on a regular basis. During 2023 an external assessment of the Internal Audit function was performed. The results of the assessment were discussed with the Board of Management at the end of 2023 and with the Audit Committee in early 2024.

Compliance with Corporate Governance requirements

Corporate information

ASML Holding NV is a holding company that operates through its subsidiaries. We have operating subsidiaries in the Netherlands, the United States, Italy, France, Germany, the United Kingdom, Ireland, Belgium, South Korea, Taiwan, Singapore, China, Hong Kong, Japan, Malaysia and Israel.

[Read more in Exhibit Index - Exhibit 8.1 - List of main subsidiaries](#)

US listing requirements

As ASML's New York Shares are listed on Nasdaq Stock Market LLC, Nasdaq corporate governance standards in principle apply to us. However, Nasdaq rules provide that foreign private issuers may follow home country practice in lieu of the Nasdaq corporate governance standards subject to certain exceptions. Our corporate governance practices are primarily based on Dutch requirements. The table on this page sets forth the practices followed by ASML in lieu of Nasdaq rules the exception as described above.

Compliance with the Corporate Governance Code

We closely follow the developments in the area of corporate governance and the applicability of the relevant corporate governance rules for ASML. Any substantial changes to ASML's corporate governance structure or application of the Corporate Governance Code will be submitted to the General Meeting for discussion.

We are of the opinion that ASML fully complies with the applicable principles and best-practice provisions of the Dutch Corporate Governance Code as in effect for the financial year 2023.

The Board of Management and the Supervisory Board, Veldhoven, February 14, 2024

Practices followed by ASML in lieu of Nasdaq rules

Quorum	ASML does not follow Nasdaq's quorum requirements applicable to meetings of ordinary shareholders. In accordance with Dutch law and generally accepted Dutch business practice, ASML's Articles of Association provide that there are no quorum requirements generally applicable to general meetings of shareholders.
Solicitation of proxies	ASML does not follow Nasdaq's requirements regarding the solicitation of proxies and the provision of proxy statements for general meetings of shareholders. ASML does furnish proxy statements and solicit proxies for the General Meeting. Dutch corporate law sets a mandatory (participation and voting) record date for Dutch listed companies at the 28th day prior to the date of the General Meeting. Shareholders registered at such a record date are entitled to attend and exercise their rights as shareholders at the General Meeting, regardless of sale of shares after the record date.
Distribution of Annual Report	ASML does not follow Nasdaq's requirement regarding distribution to shareholders of copies of an annual report containing audited Financial Statements prior to our AGM. The distribution of our annual reports to shareholders is not required under Dutch corporate law or Dutch securities laws, or by Euronext Amsterdam. Furthermore, it is generally accepted business practice for Dutch companies not to distribute annual reports. In part, this is because the Dutch system of bearer shares has made it impractical to keep a current list of holders of the bearer shares in order to distribute the annual reports. Instead, we make our Annual Report available at our corporate head office in the Netherlands (and at the offices of our Dutch listing agent as stated in the convening notice for the meeting) no later than 42 days prior to convocation of the AGM. In addition, we post a copy of our Annual Reports on our website prior to the AGM.
Equity compensation arrangements	ASML does not follow Nasdaq's requirement to obtain shareholder approval of stock option or purchase plans or other equity compensation arrangements available to officers, directors or employees. It is not required under Dutch law or generally accepted practice for Dutch companies to obtain shareholder approval of equity compensation arrangements available to officers, directors or employees. The General Meeting adopts the Remuneration Policy for the Board of Management, approves equity compensation arrangements for the Board of Management and approves the remuneration for the Supervisory Board. The Remuneration Committee evaluates the achievements of individual members of the Board of Management with respect to the short- and long-term quantitative performance and the full Supervisory Board evaluates the quantitative performance criteria. Equity compensation arrangements for employees are adopted by the Board of Management within limits approved by the General Meeting.

Message from the Chair of the Supervisory Board

Another record performance, in challenging circumstances



I am confident that we benefit from a management team, workforce and technological leadership that will enable all our stakeholders as well as wider society to reap long-term rewards.”

Nils Smedegard Andersen
Chair of the Supervisory Board

The Supervisory Board supervises and advises the Board of Management in performing its management tasks and setting the direction for ASML, focusing on long-term and sustainable value creation. The members of the Supervisory Board are fully independent.

Dear Stakeholder,

As I approach the end of my first 12 months as Chair of the Supervisory Board, I reflect on a year when ASML continued to grow and posted record figures against a backdrop of significant challenges that currently characterize our markets.

Geopolitical uncertainty, inflation and the desire for regional technological sovereignty all continued to exacerbate the volatility of our sector while supply chain constraints have again hampered production capacity. Yet despite the pressures and uncertainties which have seen the semiconductor industry move into a cyclical trough, ASML has delivered a sales increase of 30% over the previous year, with a gross margin of 51.3% – and the prospects for the years ahead appear to be positive and sustained.

On a personal level, it has been both inspirational and a privilege to lead the Supervisory Board of one of the world's most important tech companies. ASML is strategically significant, not only to the Netherlands, but also to Europe in a wider context. The company is a real locomotive in developing and strengthening the European technology scene, through precision manufacturing as well as semiconductor research.

Before my career in business, I was drawn to engineering and have long been fascinated by the potential of technology to transform lives for the better. In addition, through my experience at other multinational companies I've developed a keen interest in both macroeconomics and global politics. My role on the Supervisory Board at ASML brings together those interests at a time when technology has assumed even greater importance in people's lives and has become a hot topic on the agendas of political leaders worldwide.

Working with the Board of Management

The Supervisory Board is a diverse group of individuals with enormous experience – not only in technology and manufacturing, which are of course extremely relevant to ASML, but also in broader fields. Besides our formal meetings, our nine members take part in many additional ad hoc meetings.

Together, we have the appropriate knowledge and skill sets to guide management on a wide range of issues including geopolitical matters. Our role is not to run the company, but to provide oversight, evaluate performance and give advice where required or requested. One of the Chair's key responsibilities is to create a 'safe space' where discussion can take place freely and openly.

Mutual trust and respect are absolutely central here – management has to be confident that we are a valuable sounding board, and in turn we have to trust management to take heed of our advice, focus on the right things and work towards viable solutions. In the short period of time that I have been in position, I have seen that the relationship is working well and that we share a vision of the challenges and opportunities facing ASML.

The following pages of this report provide detail on the areas of focus that we concentrated on during the year, one of which being ESG, which is an increasingly key matter for all companies. In recognition of the importance of ESG, we established ASML's ESG Committee in 2023, headed by Birgit Conix. This committee has been working closely with the company's ESG Sustainability team and overseeing the ESG sustainability strategy, as well as its execution and performance.

Message from the Chair of the Supervisory Board (continued)

Many stakeholders and NGOs have wish lists and expectations around ESG, and the challenge for us is to be courageous in defining where we can only have limited impact and prioritize our work where we can actually make a real difference to the world. You can read more about this in the committee report on 206 as well as the Q&A with the Chief Business Officer on 68.

Engaging with our stakeholders

The advice we provide to management is based on our own external experiences together with insight gained through regular meetings with the company's diverse group of stakeholders.

As part of my onboarding, I have met several suppliers, which provided a deeper appreciation of the challenges that they face in following ASML in its long-term growth requirements. I also engaged with some of our most important customers, getting their input on how they see the future development of ASML, where we should focus our innovation activities and how we could better meet their needs. The Supervisory Board also engaged with investors on many occasions to understand their concerns and expectations.

Equally important, we met employee representatives to make them aware of the topics discussed and share how the Supervisory Board and the Works Council see the organization moving forward.

A great team

I have known about ASML for many years and admired the company's track record of growth from a distance. However, during my onboarding process and subsequently through meetings and other interactions, I've been enormously impressed by something that only an insider can truly appreciate: the passion and talent of ASML people. This is a dynamic and impressive

company, shaped by its special culture and the burning desire to 'do the right thing' for society at large.

We have skills and technology that everybody recognizes as world-class. This is thanks to a very engaged team with fantastic ethics and high morale working in a very open, sharing environment. They take their responsibilities enormously seriously – and they fully embrace the fact that the activities that ASML carries out in the Netherlands and across the world have a considerable and increasing impact on how we all live, work and play.

Changes to our Board of Management

On November 30, 2023, we announced that ASML's Co-Presidents Peter Wennink and Martin van den Brink will retire from ASML upon completion of their current appointment terms per the 2024 AGM, and that we intend to appoint Christophe Fouquet, currently ASML's Chief Business Officer and member of the Board of Management, as the company's next President and Chief Executive Officer. This appointment is subject to notification of the AGM on April 24, 2024. The Supervisory Board, together with the management team, has gone through a comprehensive succession planning process. With Christophe, we have identified a very experienced leader with deep understanding of ASML's technology and the semiconductor industry ecosystem – acquired through different roles at ASML and other companies – and the right leadership qualities and culture fit. We are grateful and full of admiration for the immense contributions that Peter and Martin have made over decades, helping to shape ASML into the successful company that it is today. Peter and Martin have been preparing ASML for the future, and we know they will be fully engaged in securing a smooth transition for the company and all of ASML's stakeholders.

In addition, we intend to appoint Jim Koonmen as Chief Customer Officer, a new position in ASML's Board of Management, subject to notification of the General Meeting on April 24, 2024.

Jim's appointment underscores ASML's ambition to continuously increase our responsiveness to customer needs, and to consistently deliver high-performance products and services.

Outlook and focus for 2024

Geopolitical uncertainties are already with us, and these will continue to challenge ASML and the broader semiconductor industry in the months and years ahead. As for the global economy, although the experts are in general predicting a soft landing my experience tells me that this is precisely the time to be extra alert. We need to be ready to embrace a range of different scenarios and work with customers and suppliers to meet their priorities.

The cyclical trough in the semiconductor industry is likely to begin its upturn during 2024 before accelerating rapidly towards the end of the year and through 2025. We need to use this time very constructively, investing in the future and preparing production-wise for the tools that our customers will need in the future. At the same time, we can use a period of steadier growth to organize ASML in ways that can improve our long-term competitiveness and make sure we can satisfy a broad range of stakeholder demands.

ASML is a resilient business operating in a long-term growth industry. I am confident that we benefit from a management team, workforce and technological leadership that will enable all our stakeholders as well as wider society to reap long-term rewards.

On behalf of the entire Supervisory Board I would like to thank the whole ASML team for their commitment and hard work throughout 2023.

Finally, I would also like to thank Gerard Kleisterlee and Rolf-Dieter Schwalb, who have served on the Supervisory Board since 2015 and stepped down in April 2023, for their valuable contributions as Chair of the Supervisory Board and Selection & Nomination Committee and as Chair of the Audit Committee, respectively. They have been great source of guidance and advice for ASML and we wish them all the best for the future.

Nils Andersen
Chair of the Supervisory Board

Supervisory Board focus in 2023



6

Supervisory Board meetings

(2022: 7)



44%

Female members

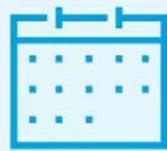
(2022: 44%)



98%

Attendance rate

(2022: 95%)



3.2

Years average tenure

(2022: 4)

The Supervisory Board supervises and advises the Board of Management in performing its management tasks and setting the direction for ASML. The Supervisory Board focuses on long-term and sustainable value creation, with the goal of ensuring that the Board of Management pursues a strategy that secures ASML's leading position as a supplier of holistic lithography solutions to the semiconductor industry. The Supervisory Board maintains an appropriate system of checks and balances, provides oversight, evaluates performance and gives advice where required or requested. Through good governance, we help to ensure that ASML acts in the best interests of the company and its stakeholders. In this Supervisory Board Report, we report on our activities in 2023.

We are pleased to see that 2023 was another year of stellar performance for ASML, despite significant macroeconomic and geopolitical challenges. Sales and gross margin grew compared to 2022 and we made progress in technological development as well as in the area of ESG Sustainability. Another area where we made progress is in our organizational development. During 2023, the strategic sourcing and supply chain organization was transformed with the aim of optimizing our partnerships with our suppliers in order to ensure the required flexibility and capability to be able to meet our customer demand for the short and long-term. In the area of customer trust, a transformation was prepared, aimed at ASML's customer facing roles and responsibilities, to prepare for future growth and enable further improvements in customer trust.

Supervisory Board focus in 2023

Throughout 2023, the Supervisory Board agenda was centered around the strategy and its execution, financial and operational performance, business developments, risk management, and people and organization. Based on the strategic priorities for ASML as agreed in the annual strategy

review, several topics were extensively discussed by means of deep dives, allowing a focused and in-depth review.

Strategy and sustainable long-term value creation

The Supervisory Board devoted a considerable amount of time in 2023 to discussing strategic topics. We carried out our recurring annual review of ASML's corporate strategy, the long-term financial plan and the long-term plans of ASML's business and operational sectors. During the annual strategy review, the Supervisory Board confirmed its support for the general strategic direction and discussed what the key strategic challenges, focus areas for further strategy development, are. The Supervisory Board provided their perspectives on topics such as dependency on suppliers, cost and flexibility, future technology and innovation roadmap, installed base services, global footprint. The Supervisory Board concluded that it fully supports ASML's strategy, which is centered around the four pillars: 1. Grow our holistic lithography business; 2. Secure unique supply chain capabilities to ensure business continuity; 3. Move toward adjacent business opportunities; and 4. Deliver on ESG sustainability commitments.

Deep dive: Market and geopolitics

The Supervisory Board discussed with the Board of Management the short-, medium- and long-term market developments in the semiconductor industry and the related growth opportunities for ASML. Aspects discussed were the key end market drivers, the future of lithography shrink and future affordability of lithography solutions, potential opportunities in adjacent technologies and ASML's competitive position. In terms of geopolitics, global forces limiting ASML's options to do business in China were extensively discussed and the Supervisory Board made recommendations as to how to best navigate this situation.

As part of the annual strategy review, we held dedicated workshops focused on our technology & holistic lithography roadmap, market and geopolitics, global footprint and cost reduction & flexibility. These sessions enable an engaged and focused discussion between the Supervisory Board and Board of Management on key strategic matters, and we highly value this way of contributing to the strategic decision-making process.

Other strategic topics discussed throughout the year included the transformation programs in the area of Customer Trust, Robust Supply Chain, and Integrated Operating Model, ASML's value strategy and service business model and the mature lithography market.

With global trends expected to continue fuelling semiconductor growth long-term driving an increasing demand for wafers and ASML continuing to focus on the execution of its strategic priorities, the Supervisory Board has confidence in ASML's long-term growth opportunities and the continued delivery of value to its stakeholders.



Supervisory Board focus in 2023 (continued)



Alongside the annual strategy review, the Supervisory Board addressed strategic topics throughout the year via deep dives, which enabled focused, in-depth review.”

Nils Andersen

Chair of the Supervisory Board

Financial and operational performance

We reviewed the annual and interim Financial Statements, including non-financial information, the quarterly results and accompanying press releases, as well as the outcomes of the year-end US GAAP and EU-IFRS audits.

As part of the financial updates, the Supervisory Board, assisted by the Audit Committee, reviewed ASML's financing and capital return policies. The Supervisory Board approved the Board of Management's proposals for the final and interim dividends paid in 2023. Furthermore, the Supervisory Board monitored the execution of the 2022-2024 share buyback program.

Attention was paid to free cash flow, which was relatively low compared to prior years given the challenging economic climate as well as because ASML decided to support customers and suppliers in navigating liquidity issues.

Another area of Supervisory Board focus during 2023 was cost and flexibility. While our outlook for future growth remains strong, short-term volatility will occur and in 2023 we saw a downturn in the semiconductor industry. The Supervisory Board focused on the challenges related to addressing the downcycle while at the same time preparing for the upcycle when it will occur and stressed the importance of flexibility and cost efficiency in order to ultimately support our customers with cost effective solutions.

As a Supervisory Board, we are pleased with ASML's financial performance during 2023 and we are confident that ASML is well positioned to continue to deliver long-term growth and stakeholder value in a sustainable manner.

Market and business developments

The Supervisory Board closely monitored the market and business developments and saw management address the challenges related to macroeconomics, semiconductor and geopolitics with the highest priority.

As a technology leader in the semiconductor industry, technological progress is one of ASML's top priorities. The Supervisory Board closely followed the execution of the product and technology roadmap and is pleased to see ASML making good progress on further enhancements to our EUV, DUV and metrology and inspection systems.

Another area of focus during 2023 was export control. The Supervisory Board closely followed and discussed with the Board of Management developments in this area and the implications for ASML.

Deep dive: Transformation

After a decade of strong growth, ASML anticipates continued future growth with its usual cycles. In consequence, we have to be able to respond to market demand with increased flexibility and agility to maintain our customer trust and technology leadership. In order to respond to these challenges, the Board of Management embarked on a journey to drive 3 strategic transformation projects related to Customer Trust, Robust Supply Chain, and Integrated Operating Model. Ample time was spent by the Supervisory Board discussing these programs in open dialogues with the Board of Management, during which the Supervisory Board challenged and advised the Board of Management on how to organize for the future expected growth towards 2030. The Supervisory Board is pleased with the strengthening of our supply chain resilience as well as with the reorganization of ASML's customer-facing organization, which will be implemented in 2024.



People and organization

Given the significant growth of ASML in recent years, the topics of people and organization continued to be key areas of focus for the Supervisory Board in 2023, as we believe that these are of critical importance for the future success of ASML. On several occasions, we were provided with

updates on Human Resources and Organization. Topics covered included the People Strategy, the progress made on the ASML leadership program, the results of the annual employee engagement survey and Diversity & Inclusion. Specific attention was also paid to ASML's culture and values the focus of the Supervisory Board was how to maintain the culture that has made ASML successful while growing so fast in number of employees. We also extensively discussed the organizational setup of ASML in the context of current and future growth and we reviewed the progress of the transformation programs related to Customer Trust, Robust Supply Chain and Future Operating Model. As a result of this discussion, the Supervisory Board decided to position the role of the Executive Vice President and Chief Customer Officer in the Board of Management, as announced by press release on November 30, 2023. Furthermore, the Supervisory Board, assisted by the Selection and Nomination Committee, extensively discussed and provided advice in respect of ASML's talent management and people development programs as well as succession planning for the Board of Management and senior management. The Supervisory Board is pleased to see the effort being put into the onboarding of new employees, enabling them to develop and contribute as quickly as possible.

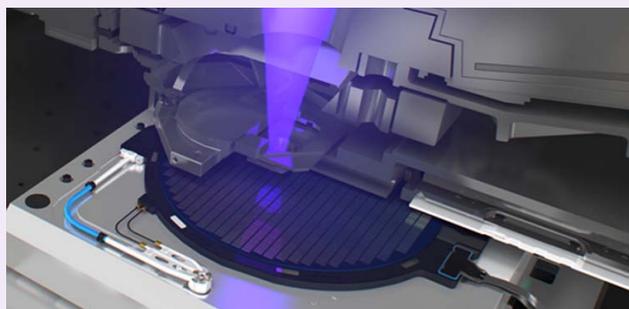
Furthermore, as a Supervisory Board, we find it important that business processes are fit for growth. We therefore oversaw the Business Performance Improvement (BPI) initiative, focused on improving our cross-sectoral, non-product-related business processes. As part of the BPI initiative, we also monitored the progress on the ONE Program, which is part of the BPI initiative and which is ASML's program dedicated to securing configuration integrity over the life cycle of our customer offerings while enhancing the business processes and maintaining flexibility,

Supervisory Board focus in 2023 (continued)

with the support of its upgraded backbone information system. We paid special attention to the sub-roadmaps of the program where there had been less progress than planned, looking at the challenges and mitigating actions. We will continue to closely follow the developments.

Deep dive: ESG Sustainability strategy

As a Supervisory Board we consider ESG Sustainability an increasingly important topic. While the Supervisory Board keeps the overall oversight of ESG Sustainability, various ESG Sustainability aspects are discussed at committee level, e.g. reporting in the Audit Committee, diversity in the Selection and Nomination Committee, ESG Sustainability as part of the Board of Management's incentive scheme in the Remuneration Committee and product and technology aspects in the Technology Committee. In 2023, we discussed ASML's updated ESG Sustainability strategy and execution with the Board of Management. In deep dive sessions specific attention was paid to EUV energy efficiency, which is a key area of focus also given ASML's CO₂ reduction ambitions, and the Diversity & Inclusion strategy and the implementation thereof. To underline the importance of ESG Sustainability, the Supervisory Board decided to establish an ESG Committee in 2023.



Risk management

As risk management is a key element of the Supervisory Board's responsibilities, we received periodic risk management updates during the year. We focused on the risk landscape and the developments in that area, the risk appetite and the measures put in place by the Board of Management to mitigate the critical risks. During 2023, we paid particular attention to the challenges created by the (geo)political risks, given the global trade situation, and developments in the area of export controls and the potential impact on ASML's business. We also performed a deep-dive review on Security risks, given the increasing risk profile. .

[Read more in Risk - How we manage risk](#)

Relationship with stakeholders

The Supervisory Board reviewed the stakeholder engagement policy as adopted by the Board of Management at the end of 2023.

The Supervisory Board regularly discussed ASML's relationship with its shareholders, and Supervisory Board members engaged with shareholders throughout the year on topics such as ASML's strategy and performance, governance and ESG. The Remuneration Committee engaged with a variety of ASML shareholders and other stakeholders regarding remuneration. More information can be found in the Remuneration Report.

A Supervisory Board delegation held two formal meetings with the Works Council in 2023. We exchanged views on ASML's strategy and priorities, ASML's performance and challenges, in particular related to the growth and increased complexity of ASML's business. In this context, the effectiveness of new processes supporting growth and institutionalizing of ASML was addressed. Other topics of discussion were ESG, the develop and perform program at ASML, leadership development and the status and future plans related to working from home / return to work onsite. The composition of the Supervisory Board and the Board of Management was discussed, in particular the changes per the 2023 and 2024 AGM's. The Works Council and Supervisory Board also extensively discussed the 2023 Remuneration Policy for the Supervisory Board; more information on the interactions with the Works Council on the topic of executive remuneration can be found in the Remuneration Report.

In November 2023, the Supervisory Board paid a visit to one of our key suppliers, Zeiss in Oberkochen, Germany. During the visit, the Supervisory Board met with Zeiss AG and Zeiss SMT management and was provided with a business update as well as an overview of the current and future technology roadmap. A visit was also paid to the Zeiss SMT factory, where the Supervisory Board was impressed by the great achievements of the teams working on the EUV optical products. For the Supervisory Board, such visits are highly valuable because it increases our understanding of our suppliers and the challenges they face.

Additional topics

Other topics considered during Supervisory Board meetings in 2023 included:

- Compliance with rules and regulations: We monitored compliance with rules and regulations including the Dutch Corporate Governance Code and were kept informed on key legal matters, including developments in the area of export control regulations.
- Supervisory Board composition, profile and functioning: We extensively discussed our own composition, profile and functioning, the composition and functioning of Board committees and the composition and functioning of the Board of Management. More information can be found in the report of the Selection and Nomination Committee.
- Board of Management composition and performance: We also monitored the performance of the Board of Management and decided on the Board of Management's remuneration targets and target achievements. More information can be found in the reports of the Selection & Nomination Committee and the Remuneration Committee.

An overview of topics discussed during the year can be found in the table on the next page.

Supervisory Board focus in 2023 (continued)

The table on this page provides a schematic overview of the topics discussed in the meetings of the Supervisory Board during 2023.

Recurring topics on each Supervisory Board meeting are a CEO report, focusing on market and customer developments, share price development and investor perceptions, performance on the business priorities including ESG, a financial update and the Supervisory Board Committee reports.

Strategy & sustainable long-term value creation

Q1

- ESG strategy, including deep dives on EUV energy efficiency and Diversity & Inclusion
- Expansions beyond current scope and M&A strategy
- Remuneration Board of Management and Supervisory

Q2

- Deep dive: Future operating model
- Deep dive: Tool allocation policy
- Deep dive: Scenarios to ramp the end-to-end supply chain including industrial footprint

Q3

- Deep dive: value strategy and service business model
- Deep dive: BPI

Q4

- Annual strategy review
- Deep dive: Semi & litho market
- Deep dive: Geopolitics & market access
- Deep dive: Global footprint
- Deep dive: Cost & Flexibility

Business developments

Q2

- Market outlook and demand drivers
- Update on business sectors: EUV, DUV, Applications

Q4

- Transformation projects related to sourcing & supply chain, Customer and future operating model

Risk management

Q1

- Update risk landscape & deep dive: security

Financial & operational performance

Q1

- 2022 Annual Results and Annual Report
- 2022 external audit report
- Final dividend 2022
- External auditor rotation
- Legal matters report

Q3

- 2022 statutory interim report
- Cash return including dividend policy and interim dividend
- Business Performance Improvement initiative including update on Our New Enterprise (ONE) program

Q4

- Update of business plans of the business sectors and functions
- Cash return including interim dividend and share buyback program

People & organization

Q1

- Composition of Supervisory Board
- Composition of Board of Management
- Remuneration Policy for the Board of Management

Q3

- Human Resources & Organization (HR&O) update
- Composition of Supervisory Board
- Composition of Board of Management
- HR&O, including deep dives on Diversity & Inclusion and Culture

Q4

- Composition of Supervisory Board
- Composition of Board of Management
- People Strategy
- Results of employee engagement survey

Governance and stakeholders

Q1

- Outcome of Supervisory Board evaluation
- AGM agenda
- New Dutch Corporate Governance Code
- Amendment to the Rules of Procedure Board of Management and Supervisory Board

Q2

- AGM update

Q3

- ESG oversight by Supervisory Board and Committees

Q4

- Implementation of the Dutch Corporate Governance Code
- Amendment Rules of Procedure Supervisory Board and Board of Management
- D&I Policies
- Supplier deep dive: Zeiss
- Supplier visit: Zeiss

Meetings and attendance

Meetings and attendance

The Supervisory Board meets at least four times per year in accordance with its annual schedule and whenever the Chair, one or more of its members, or the Board of Management requests a meeting.

In 2023, the Supervisory Board held six meetings. Of these meetings, one was held virtually and five were held in person. Three in-person meetings were held at ASML's headquarters, one was held offsite in Belgium and one was held in Germany. In addition to these meetings, there were several informal meetings and interactions among Supervisory Board and/or Board of Management members.

Supervisory Board meetings and Supervisory Board committee meetings are held over several days, ensuring there is time for review and discussion. At each meeting, the Supervisory Board members discuss among themselves the goals and outcome of the meeting, as well as topics such as the functioning and composition of the Supervisory Board and the Board of Management. Also discussed during each meeting are the reports from the different committees of the Supervisory Board.

The Supervisory Board meetings and the meetings of the four Supervisory Board committees were well attended, as is shown in the table on the right.

In addition to the Supervisory Board members, the members of the Board of Management are invited to the Supervisory Board meetings. All Board of Management members were present at the Supervisory Board meetings in 2023. Members of senior management are regularly invited to provide updates on topics within their area of expertise. This gives the Supervisory Board the opportunity to become acquainted with a variety of ASML managers, which the Supervisory Board considers very useful in connection with its talent management and succession-planning activities.

Meetings of the Supervisory Board

Most Supervisory Board and Committee meetings held in 2023 were in-person meeting, but the Supervisory Board also met virtually on some occasions. In addition to plenary discussions, break-out sessions in smaller groups were organized for discussing key strategic topics to optimize interaction. We also used preview videos for meeting preparation in addition to written meeting documents, in order to allow as much time as possible for discussion.

Supervisory Board meeting attendance overview¹



Name	Supervisory Board	Audit Committee	Remuneration Committee	Selection and Nomination Committee	Technology Committee	ESG Committee
Nils Andersen (Chair) ²	4/4	3/3	n/a	4/4	n/a	n/a
Annet Aris	6/6	n/a	5/5	6/6	5/5	n/a
Birgit Conix	6/6	6/6	n/a	n/a	n/a	2/2
Mark Durcan	6/6	n/a	n/a	6/6	5/5	n/a
Warren East	6/6	6/6	n/a	n/a	5/5	n/a
Alexander Everke	6/6	n/a	5/5	n/a	n/a	2/2
Terri Kelly	6/6	n/a	5/5	6/6	n/a	n/a
Jack de Kreij ³	4/4	3/3	3/3	n/a	n/a	n/a
An Steegen	5/6	n/a	n/a	n/a	1/2	1/2
Gerard Kleisterlee ⁴	2/2	n/a	1/1	2/2	3/3	n/a
Rolf-Dieter Schwalb ⁴	2/2	3/3	2/2	n/a	n/a	n/a

1. This overview contains the attendance data as of the formal date of appointment of until the formal end date of the appointment.
2. Appointed at the AGM on April 26, 2023; also appointed as chair of the Selection and Nomination Committee.
3. Appointed at the AGM on April 26, 2023; also appointed as chair of the Audit Committee and member of the Remuneration Committee.
4. Stepped down per the AGM on April 26, 2023.

Meetings and attendance (continued)

Composition

The Supervisory Board determines the number of members required to perform its functions, the minimum being three members. The Supervisory Board currently consists of nine members. The Supervisory Board attaches great importance to its composition, independence and diversity and strives to meet all the associated guidelines and requirements. To ensure an appropriate and balanced composition, the Supervisory Board spends considerable time on an ongoing basis discussing its profile, composition and rotation schedule.

Independence

In order to properly perform its tasks, the Supervisory Board considers it to be very important that its members are able to act critically and independently of one another, the Board of Management and other stakeholders. The independence of the Supervisory Board and its individual members is assessed on an annual basis. All current members of the Supervisory Board are fully independent, as defined by the Dutch Corporate Governance Code as well as under Nasdaq rules, and have completed the annual questionnaire addressing the relevant independence requirements.

Diversity

The current composition of ASML's Supervisory Board is diverse in terms of gender, nationality, knowledge, experience and background and has a suitable level of experience in the financial, economic, technological, social and legal aspects of international business. For more information about diversity, see Corporate governance – Other Board-related Matters.

Supervisory Board skills										
Board member	General skills						ASML skills			
	(Former) Executive board member of (listed) international company	Finance / governance	Remuneration	Human resources / employee relations	IT / digital / cyber	ESG	Semiconductor ecosystem	Deep understanding of semiconductor technology	High-tech manufacturing / integrated supply chain management	Business in Asia
Nils Andersen (Chair)	●	●	●	●	●	●			●	●
Annet Aris		●	●	●	●	●	●	●	●	
Birgit Conix	●	●				●			●	●
Marc Durcan	●	●	●	●		●	●	●	●	●
Warren East	●	●	●	●	●	●	●	●	●	●
Alexander Everke	●	●	●	●	●	●	●	●	●	●
Terri Kelly	●		●	●		●			●	●
Jack de Kreij	●	●	●	●	●	●	●			●
An Steegen	●			●	●	●	●	●	●	●

Changes in composition in 2023

As their terms of appointment had expired, Gerard Kleisterlee and Rolf-Dieter Schwalb stepped down from the Supervisory Board at the 2023 AGM, both having served eight years on the Supervisory Board. The Supervisory Board decided, with due observance of the Supervisory Board profile and rotation schedule, to nominate Nils Andersen and Jack de Kreij, for appointment at the 2023 AGM.

The General Meeting resolved to appoint Nils Andersen and Jack de Kreij for a term of four years effective from the date of the 2023 AGM.

Changes in composition in 2024

At the 2023 AGM, the Supervisory Board gave notice that the appointment terms of Annet Aris, Warren East and Mark Durcan would expire per the 2024 AGM.

Annet Aris, Warren East and Mark Durcan have informed the Supervisory Board that they are available for reappointment and the Supervisory Board intends to nominate these members for reappointment per the 2024 AGM.

Meetings and attendance (continued)

For the position currently held by Annet Aris, the Works Council has a strengthened recommendation right. The Works Council informed the Supervisory Board that it intends to use its strengthened right to recommend Annet Aris for reappointment.

The Supervisory Board considered the fact that Annet Aris, per the date of the 2024 AGM, will have been on the Supervisory Board for nine years. The Supervisory Board is of the opinion that a reappointment of Annet Aris, who is also the Vice Chair of the Supervisory Board, is beneficial for the Company for reasons of continuity, given the Supervisory Board Chair change in 2023, and also because of her wealth of knowledge of ASML and her experience as an ASML Supervisory Board member.

The agenda and explanatory notes for the 2024 AGM will contain further information about the intended nominations for reappointment of these three Supervisory Board members.

Induction and training

We have a comprehensive induction program in place for newly appointed Supervisory Board members, designed to ensure that new members gain a good understanding of our business and strategy, as well as the key risks we face. The induction program includes meetings with other Supervisory Board and Board of Management members, a technology tutorial and detailed presentations by our business, operational and corporate sectors. A site visit and factory tour is also part of the induction program. On joining the Supervisory Board, Nils Andersen and Jack de Kreij completed the induction program.

In addition to the fixed elements to the induction program, additional induction sessions may be planned depending on the wishes of the Supervisory Board members concerned. In the case of both Nils Andersen and Jack de Kreij, several specific sessions were organized during 2023 to deep dive into topics of relevance.

To ensure permanent education, the Supervisory Board is provided with regular deep dives on a variety of topics, both in the plenary meetings and in the meetings of the Supervisory Board's committees. During 2023, strategy and risk deep dives were held on a variety of topics: see the Our Activities 2023 section in this Supervisory Board Report. Furthermore, external speakers or advisers attended various committee meetings to provide outside-in views on topics such as technology developments and technology outlook and executive remuneration.

The Supervisory Board also performed site visits. The Technology Committee visited ASML's industrial site in Wilton, CT, USA. The Committee met with local management and was updated on the product portfolio and related technology roadmaps and on the organization and paid a visit to the factory. The Wilton visit provided the Technology Committee with valuable insights into the contributions of this industrial site to ASML's technology and business. In November 2023, the Supervisory Board visited Zeiss SMT in Oberkochen, Germany, as further described in the section Our activities 2023 in this Supervisory Board Report.

Evaluation

The Supervisory Board greatly values the structural and ongoing evaluation process as a means of ensuring continuous improvement in our way of working. Each year, the Supervisory Board, assisted by the Selection and Nomination Committee, evaluates the composition, competence and functioning of the Supervisory Board and its committees, the relationship between the Supervisory Board and the Board of Management, its committees, its individual members, the chairs of both the Supervisory Board and the committees, as well as the composition and functioning of the Board of Management and its individual members, and the education and training needs for the Supervisory Board and Board of Management members.

In principle, the evaluation of the Supervisory Board is performed once every three years by an external adviser; in the other two years, the evaluation of the Supervisory Board is performed by means of a self-assessment using a written questionnaire, followed by one-to-one meetings between the Chair and individual Supervisory Board members.

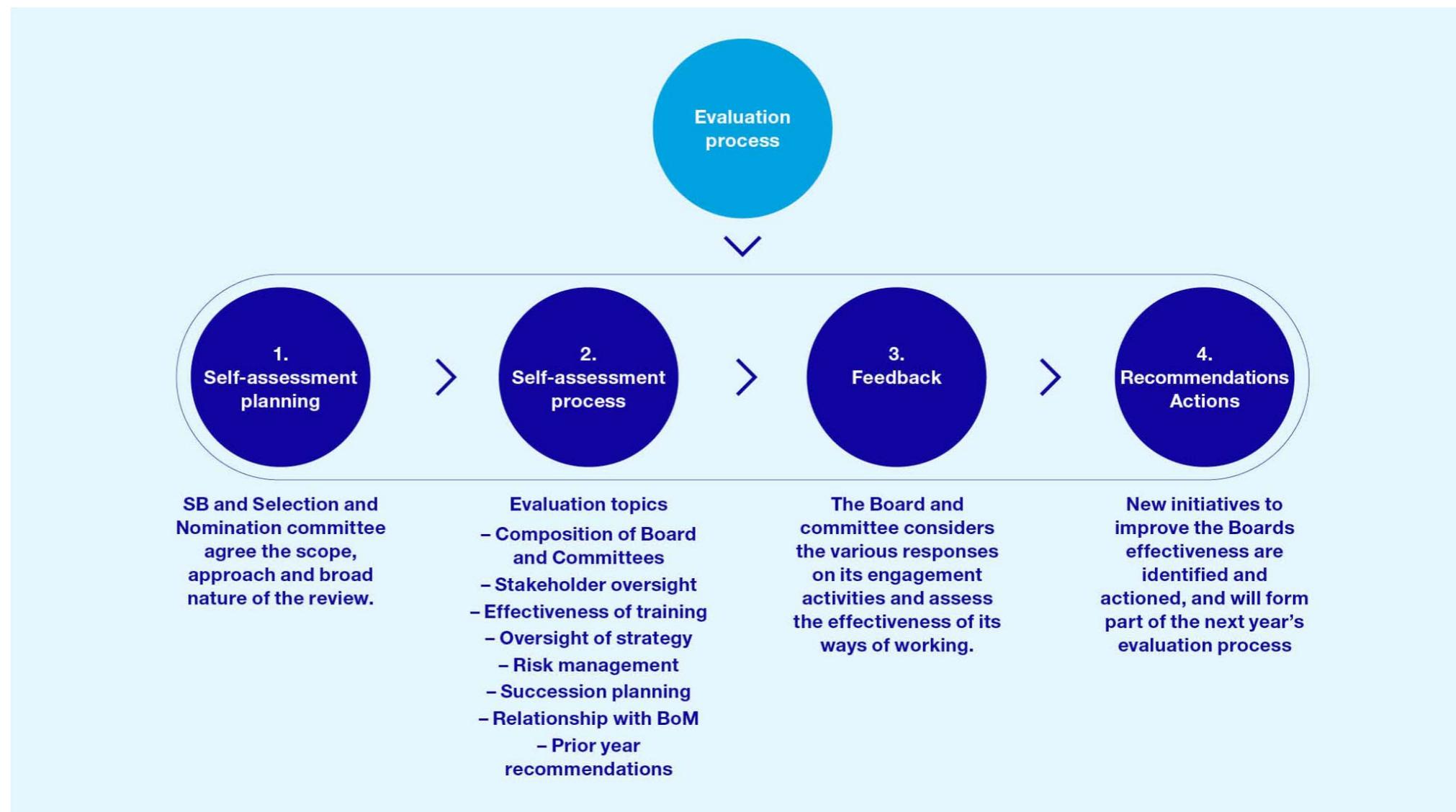
The 2023 evaluation of the Supervisory Board and its committees was performed through a web-based survey, which was prepared by the Selection and Nomination Committee. The Chair of the Supervisory Board also met with the individual Supervisory Board members. The evaluation was centered around the following themes: composition, stakeholder oversight, oversight of strategy, risk management and succession planning, management and focus of meetings and priorities for improvement. Specific focus areas were the follow-up of prior-year recommendations and the Supervisory Board Chair change that took place in April

2023. An upward review by the Board of Management was also part of the annual assessment.

The results of the Supervisory Board evaluation were discussed in early 2024. The conclusion was that the Supervisory Board and its committees continue to function well. In particular, the level of progress made on the Supervisory Board's priorities over 2023 received positive feedback. The leadership of the new Supervisory Board Chair and the dynamics and the quality of the discussions at meetings also received positive feedback. The performance of each of the Supervisory Board Committees was positively rated, and the ESG Committee established in 2023 was considered to have made a strong start. Suggestions to further improve the functioning of the Supervisory Board will be implemented in 2024. These suggestions include continuous enhancement of the oversight on stakeholders, including by means of customer and supplier visits, building on the dynamics following the changes in the Board of Management that will occur per the 2024 AGM, further optimizing the flow of information, continued focus on (implementation of) the transformation programs and further increasing the exposure to senior management. The Supervisory Board also noted the importance of a continued focus on succession and talent management and sees diversity, in particular amongst management, as a key area of attention.

Meetings and attendance (continued)

The Board of Management evaluated its own functioning in 2023, focusing on the role, responsibilities and performance of the Board of Management collectively, and on the functioning of the individual Board of Management members, also in light of the changes in the Board of Management that will become effective per the date of the 2024 AGM. This self-evaluation took place in an offsite Board of Management meetings throughout the year. Important aspects addressed by the Board of Management include the Board of Management's strategic focus, stakeholder involvement, people & organization, Board dynamics and (future) Board of Management organization. The overall conclusion of the self-evaluation was that ASML has a well-functioning Board of Management. The self-evaluation was also discussed with the Supervisory Board and its Selection and Nomination Committee.

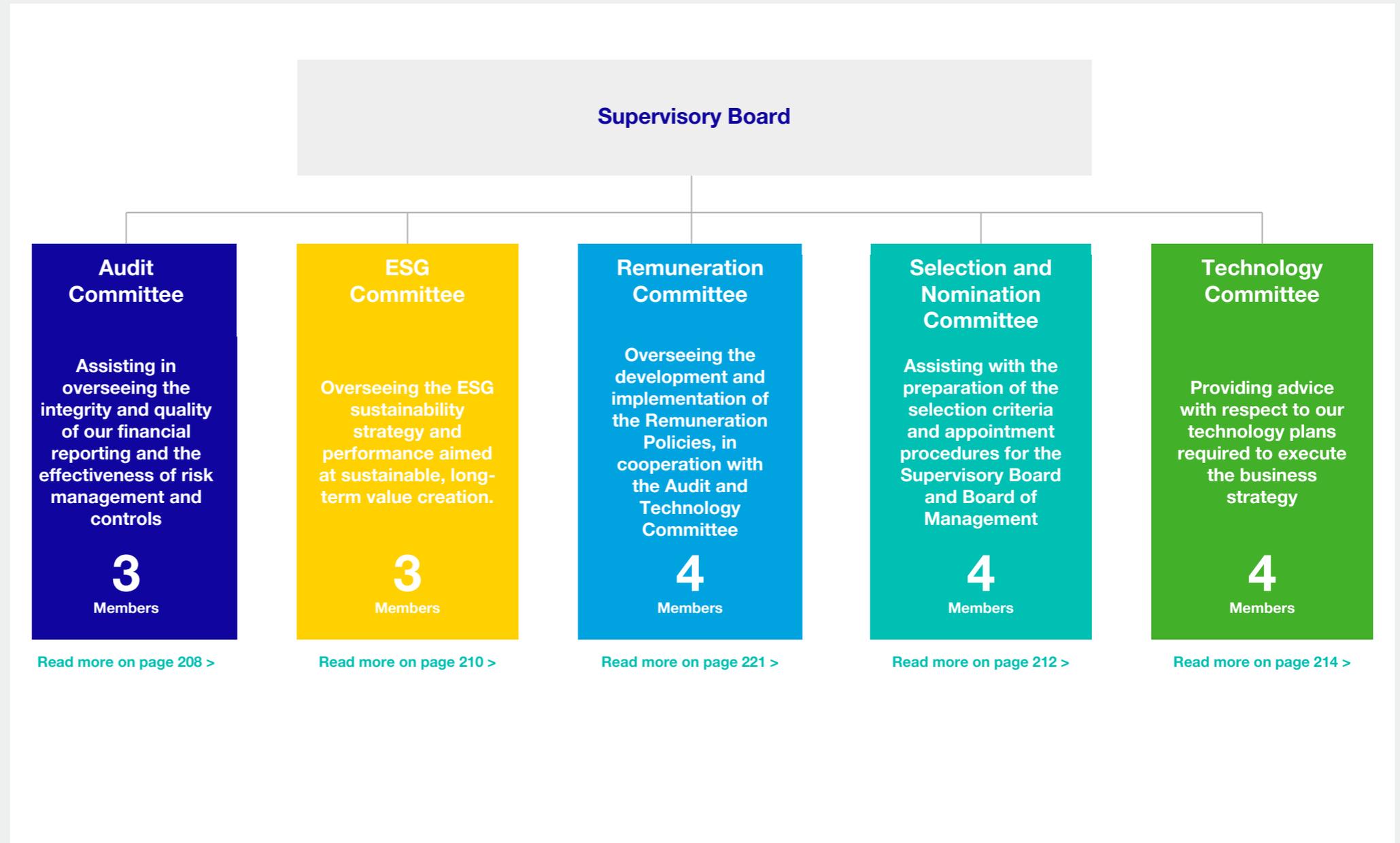


Supervisory Board committees

The Supervisory Board has five standing committees, with members appointed by the Supervisory Board from among its members. The full Supervisory Board remains responsible for all decisions, including those prepared and taken by one of the Supervisory Board's Committees.

The five committees of the Supervisory Board support the decision-making of the full Board. In the plenary Supervisory Board meetings, the chairs of the committees report on the items discussed in their committee meetings. In addition, the meeting documents and minutes of the committee meetings are available to all Supervisory Board members, enabling the full Supervisory Board to make the appropriate decisions.

Further information about the Audit Committee, the ESG Committee, the Technology Committee and the Selection and Nomination Committee can be found in this Supervisory Board Report. Further information about the Remuneration Committee can be found in the Remuneration Report.



Supervisory Board committees (continued)

Audit Committee

The Audit Committee assists the Supervisory Board in overseeing the integrity and quality of our financial reporting and the effectiveness of the internal risk management and internal control systems.



Members:

- Jack de Kreij (Chair)
- Birgit Conix
- Warren East

The members of the Audit Committee are all independent members of the Supervisory Board.

The Supervisory Board has determined that both Jack De Kreij and Birgit Conix qualify as Audit Committee financial experts pursuant to section 407 of the Sarbanes-Oxley Act and Dutch statutory rules, taking into consideration their extensive financial backgrounds and experience.

A key area of focus for the Audit Committee in 2023 was how to navigate macroeconomic and semiconductor industry cycle related challenges while investing in future growth

Main responsibilities:

- Overseeing the integrity and quality of ASML's Financial Statements and sustainability disclosures and submitting proposals to ensure such integrity;
- Overseeing the accounting, financial and sustainability reporting processes and the audits of the Financial Statements;
- Overseeing the effectiveness of our internal risk management and control systems, including compliance with the relevant legislation and regulations, and the effect of codes of conduct;
- Overseeing the integrity and effectiveness of our system of disclosure controls and procedures and our system of internal controls over financial and sustainability reporting;
- Overseeing the External Auditor's qualifications, independence, performance and determining its compensation; and
- Overseeing the functioning of Internal Audit.

Recurring agenda topics (quarterly)

- Financial update
- Review of the quarterly financial results and press release
- Accounting and Internal Control update
- Observations of External Auditor
- Risk update, incl. (IT) Security
- Internal Audit update
- Disclosure Committee report
- Legal matters report
- Ethics and compliance

Attendance

In addition to the Audit Committee members, the Chair of the Supervisory Board attends the Audit Committee meetings whenever possible. The external auditor and the internal auditor have a standing invitation for Audit Committee meetings and attended all Audit Committee meetings in 2023. The CEO, CFO, EVP Finance, Corporate Chief Accountant, the Head of Risk and Business Assurance are invited to the meetings.

The overview below provides a number of topics discussed during Audit Committee meetings in 2023, in addition to the recurring agenda topics.

Q1

- 2022 Annual Report and Financial Statements US GAAP and EU-IFRS
- Accounting deep dive: Balance sheet review
- 2022 External audit report
- Annual reporting process
- Capital return, incl. interim dividend Q1 '23 and final dividend 2022
- Fraud-risk assessment
- Results of the external auditor evaluation 2022
- Results of the Audit Committee self-evaluation
- Annual plans of Risk and Internal Audit
- Compliance deep dives: Finance, ABC and Antitrust
- Appointment new head of Internal Audit

Q2

- 2023 SOX plan incl. materiality and scoping
- External audit plan 2023
- Audit on expense reporting Board of Management and Supervisory Board 2022
- Update Internal Audit Charter
- Initial independence discussion with newly to be appointed external auditor

Q3

- Statutory Interim report 2023
- Capital return, incl. interim dividend Q3'23
- Compliance deep dive: Finance
- Audit Committee responsibilities in the area of ESG

Q4

- Financing
- Capital return including Q4 2023 interim dividend
- 2023 Annual Report process
- Long-term financial plan
- Annual Plan 2024
- Internal Audit Plan 2024
- Compliance deep dive: legal compliance
- Annual tax update
- External audit update on 'hard close' procedures
- Review of Rules of Procedure for the Audit Committee

Supervisory Board committees (continued)

Audit Committee

The Audit Committee is provided with all relevant information to be able to adequately and efficiently supervise the preparation and disclosure of financial information. This includes information on the status and development of the semiconductor market to support judgment regarding the outlook and budget for the next six to 12 months, the application of EU-IFRS and US GAAP, the choice of accounting policies and the work of the internal and external auditor.

Audit Committee meetings in 2023

The Audit Committee meets at least four times a year and always before the publication of the quarterly, half-year and annual financial results. In 2023, the Audit Committee held six meetings.

Financials

In 2023, the Audit Committee focused, among other matters, on financial reporting, most particularly the review of ASML's Annual and Interim Reports, including the annual and interim Financial Statements and non-financial information. The Audit Committee also closely monitored the progress and discussed the outcomes of the year-end US GAAP and EU-IFRS audits. The quarterly results and the accompanying press releases were reviewed before publication.

On a quarterly basis, the Audit Committee was provided with accounting updates by the Corporate Chief Accountant, highlighting the main accounting matters relevant for the quarter. A recurring item of focus of the Audit Committee in this regard is revenue recognition, as this is a complex accounting matter also identified as a critical audit matter by the external auditor. Other important elements of the Audit Committee's quarterly procedures included the discussion of the observations of the external auditor in relation to the accounting matters, as well as the report by the Disclosure Committee on the accuracy and completeness of the quarterly disclosures. Throughout the year, specific accounting topics were addressed in depth and an annual in-depth balance sheet review was also performed.

The operational and financial short- and long-term performance of ASML was discussed extensively, looking at various performance scenarios and their impact on ASML's results and cash generation. Particular attention was paid to the macroeconomic challenges including those related to inflation and semiconductor market developments, where we have seen reduced investments by customers. Geopolitical challenges and in particular the potential impact of increasing export control restrictions on ASML's business was another topic of focus for the Audit Committee.

The Audit Committee reviewed and provided the Supervisory Board with advice regarding the long-term financial plan, the financing of ASML and ASML's cash return policy. Topics specifically discussed included the execution of the share buyback program and the proposed final dividend payment in respect of the 2022 financial year and the interim dividends for the financial year 2023, which were approved by the Supervisory Board following recommendation by the Audit Committee. Extra attention was also paid to free cash flow, which was relatively low compared to prior years given the challenging economic climate as well as because ASML decided to support customers and suppliers in navigating liquidity issues.

Risk management and internal control

Throughout 2023, the Audit Committee closely monitored risk management and the risk management process, including the timely follow-up of high-priority actions based on quarterly progress updates. Key focus areas of the Audit Committee included those risks showing an upward trend, such as geopolitics, uncertain global economy, pressure on the innovation ecosystem (including security) and strengthening ESG regulations & increasing stakeholder expectations. The Audit Committee oversaw the annual internal control process, with a focus on scoping, materiality levels, updates to the internal control framework, the tests of design and effectiveness and management's assessment of ASML's internal control over financial reporting and disclosures. The observations made by the internal auditor and the external auditor on the design and effectiveness of internal controls were also discussed with the Audit Committee.

Ethics and compliance

We recognize that acting with the highest standards of integrity is vitally important to value creation for our stakeholders and the long-term success of ASML. The Audit Committee received quarterly reports on the Ethics program, including the trends and risks in the area of ethics and the Ethics training strategy. During 2023, ASML's Compliance Program was discussed on multiple occasions, with deep dives on ABC, Antitrust and Finance compliance. Furthermore, an annual update on fraud and fraud risk management was provided.

Supervisory Board committees (continued)

Audit Committee

Internal audit

During 2023, a new Head of Internal Audit was appointed by the Board of Management, after obtaining a positive recommendation from the Audit Committee and approval of the Supervisory Board. An updated Internal Audit Charter was discussed, incorporating changes resulting from the revision of the Dutch Corporate Governance Code, among others. The Audit Committee reviewed the annual internal audit plan, including the scope of the audit at the start of 2023. During the year, the Audit Committee was kept updated on the progress of the internal audit activities on a quarterly basis and reviewed the results of audits performed as well as the status of the follow-up on action plans. The Audit Committee also discussed the internal management letter and monitored the follow-up by the Board of Management on the recommendations made in the internal management letter.

External audit

At the 2022 AGM, KPMG was appointed as the external auditor for the reporting years 2023 and 2024.

In 2023, the Audit Committee reviewed the 2023 external audit plan, including scoping, materiality level and fees. It monitored the progress of the external audit activities, including review of the observations made throughout the year. The Audit Committee oversaw the follow-up by the Board of Management on the recommendations made by the external auditor in their periodic internal control update. The Audit Committee confirms that the communication over the 2023 financial year contained no significant items that need to be mentioned in this report.

The Audit Committee evaluated the performance of the external auditor at the end of 2023, including a review of their independence..

After a carefully conducted selection process in 2021 and 2022, the Supervisory Board submitted the proposal to the 2023 AGM to appoint PricewaterhouseCoopers Accountants NV (PwC) as external auditor for the reporting year 2025. This proposal was adopted by the General Meeting. Due to the fact that the current lead audit partner, for independence reasons, can only remain in this role until and including the reporting year 2024, the current external auditor will rotate off after the 2024 reporting year. The Audit Committee considered it important to start the preparations and selection process in a timely manner, given the limited number of qualifying audit firms available. In addition, the Audit Committee considered it essential to have sufficient time for onboarding the new external audit firm and for transferring any non-audit services currently performed by the newly appointed external audit firm. In September 2021, the Audit Committee started the selection process in connection with the mandatory external audit firm rotation. A Selection Committee was established, consisting of the members of the Audit Committee, the CFO, the EVP Finance and the Corporate Chief Accountant. The Selection Committee invited the other three 'Big Four' audit firms (other than ASML's current external auditor) as well as one other from the 'Big Six' firms,

to participate in the selection process. The three 'Big Four' audit firms decided to participate in the selection process. Following a series of interviews, as well as two presentation rounds, in which the participating firms were offered the opportunity to present themselves and their audit proposals, the Selection Committee evaluated the firms based on certain pre-defined selection criteria. These included the planned involvement of experts, the fit with the audit partner and the audit team, the level of innovation in audit approach, experience in the high-tech industry, quality and reference rating, the international network of the audit firm, the onboarding strategy, the competitiveness of the audit fee and the proposal documentation and presentations provided by the invited audit firms. The Selection Committee concluded that Deloitte Accountants BV (Deloitte) was the preferred audit firm, with PricewaterhouseCoopers Accountants NV (PwC) as runner-up. Unfortunately, the Supervisory Board had to withdraw the nomination of Deloitte after it was informed by Deloitte that they would not be able to complete in a timely manner and therefore resolve a conflicting advisory role involving a company in which ASML holds an equity stake. The Supervisory Board immediately re-initiated the selection process and announced in April 2022 that PwC had been identified as the preferred audit firm to become ASML's external auditor for the reporting year 2025.

Other topics

Other topics discussed by the Audit Committee in 2023 included ASML's tax policy and developments in the area of tax laws including their potential impact on ASML, the responsibilities of the Audit Committee in the area of ESG and the quarterly overviews of legal matters.

The Audit Committee also performed an annual review and update of its Rules of Procedure.

Following most Audit Committee meetings, the internal and external auditor each meet with the Audit Committee without management present to discuss their views on the matters warranting the attention of the Audit Committee. This may include their relationship with the Audit Committee, the relationship with the Board of Management and any other matters deemed necessary to be discussed. The Audit Committee also held regular one-to-one meetings with the CFO.

Supervisory Board committees (continued)

ESG Committee

The ESG Committee advises the Supervisory Board in carrying out its governance and oversight responsibilities with regard to sustainability, environmental, social and governance matters.



Members:

- Birgit Conix (Chair)
- Alexander Everke
- An Steegen

The ESG Committee may be supported by external experts as well as experts from within ASML who act as advisers on the subjects reviewed and discussed.

On April 26, 2023, the Supervisory Board decided to establish the ESG Committee to focus on ESG and sustainability in recognition of their importance to ASML.

Main responsibilities:

- the ESG sustainability strategy, including the various sub-themes of the ESG sustainability strategy;
- the integration of ESG in the Company and the ESG sustainability strategy;
- the periodic assessment and evaluation of ASML's ESG sustainability performance and progress against its objectives;
- the relationships and engagement with ASML's stakeholders; and
- the (impact of) external ESG matters and developments which are relevant for ASML and the general evolution of the ESG landscape.

Recurring agenda topics (quarterly)

- ESG Strategy and performance
- ESG Governance
- ESG Compliance

ESG Committee meetings in 2023

In general, the ESG Committee meets at least twice a year and more frequently when deemed necessary. In 2023, the ESG Committee held two meetings.

Attendance

In addition to the ESG Committee members, the EVP & Chief Business Officer, the EVP & CFO and the Head of ESG Sustainability have a standing invitation to attend the ESG Committee meetings. Internal experts and external advisers may also be invited to attend the ESG Committee meetings when deemed necessary. The advisers do not have voting rights.

The overview below provides details on the topics discussed during ESG Committee meetings in 2023.

Q1

- No meetings

Q3

- Performance on ESG KPIs and ESG targets for the Long-Term Incentive (LTI)
- Feedback from ESG benchmarks
- Update on preparations for CSRD compliance
- Deep dive on Scope 1 & 2 emissions
- Human Rights Policy
- Formalities related to ESG Committee set-up

Q2

- No meetings

Q4

- Performance on ESG KPIs and ESG LTI targets
- Feedback from relevant benchmarks and update on selection of benchmarks
- ESG Strategy update
- Update on preparations for CSRD compliance
- Deep dive on EUV energy use per wafer pass

Supervisory Board committees (continued)

ESG Committee

Setting up an ESG Committee

In April 2023, the Supervisory Board discussed the possibility of setting up of an ESG Committee as a new sub-committee of the Supervisory Board. Factors considered included that ASML had made a step-up in terms of ESG Sustainability ambition and had amended its ESG Sustainability strategy; that expectations from stakeholders in relation to ESG Sustainability are increasing, including on how the strategy and performance on ESG Sustainability are being supervised; that regulatory requirements in the area of ESG Sustainability are significantly increasing; and that increased stakeholder expectations and regulatory requirements result in an increased risk profile for the company and its Board of Management and Supervisory Board members. The Supervisory Board concluded that, in order to ensure sufficient time and attention is devoted to the topic of ESG Sustainability at the level of the Supervisory Board, it was desirable to establish an ESG sub-committee.

In July 2023, the ESG Committee held its first meeting. Topics discussed were the formalities related to the set-up of the committee, including the selection of Birgit Conix as the Committee's chair and the adoption of the Rules of Procedure. The Committee also reviewed the latest feedback from the ESG benchmarks relevant for ASML as well as the performance on the 21 ESG KPIs and on the ESG related targets in the Long-Term Incentive of the Board of Management and ASML's Senior Management.

The progress made in relation to the preparations for compliance with the EU-CSRD were reviewed and a deep dive was performed on the progress of ASML's program to bring scope 1 and 2 emissions to net zero by 2025. The ESG Committee also reviewed the updated Human Rights Policy. Finally, the ESG Committee reviewed an overview of supervisory responsibilities in relation to ESG and how these responsibilities are divided over the full Supervisory Board and the Supervisory Board's committees, where the potential areas of overlap are and how to deal with those areas. A high level summary of the outcome of this discussion is shown in the table on this page.

In Q4, the ESG Committee reviewed the preliminary results of the double materiality assessment for the year 2024 and the proposed minor adjustments to the ESG Sustainability Strategy. Furthermore, performance on the 21 ESG KPIs and on the ESG related targets in the Long-Term Incentive of the Board of Management and ASML's Senior Management was reviewed as was the progress made in relation to the preparations for compliance with the EU-CSRD. The ESG Committee was also updated on the review of which ESG benchmarks to participate in and a deep dive was performed on the progress of ASML's program on EUV energy use per wafer pass.

The ESG Committee's in-depth discussions on ESG and the subsequent reporting of the main points of these discussions to the full Supervisory Board are seen as very valuable, as it further strengthens the Supervisory Board's oversight over ESG matters.

Supervisory activities in the area of ESG Sustainability



Supervisory Board committees (continued)

Selection and Nomination Committee

The Selection and Nomination Committee assists the Supervisory Board in relation to its responsibilities over the composition and functioning of the Supervisory Board and the Board of Management and the monitoring of corporate governance developments.

**Members:**

- Nils Andersen (Chair)
- Annet Aris
- Mark Durcan
- Terri Kelly

Each member is an independent, non-executive member of our Supervisory Board, in accordance with the Nasdaq Listing Rules.

In 2023, the Selection and Nomination Committee's key area of focus was Board of Management composition and succession.

Main responsibilities:

- Preparing the selection criteria and appointment procedures for members of the Supervisory Board and Board of Management, and the supervision of the Board of Management's policy in relation to the selection and appointment criteria for senior management;
- Periodically evaluating the scope and composition of the Board of Management and the Supervisory Board, and proposing the profile of the Supervisory Board;
- Periodically evaluating the functioning of the Board of Management and the Supervisory Board, and their individual members;
- Preparing the Supervisory Board's decisions for appointing and reappointing members of the Board of Management and proposing (re)appointments of members of the Supervisory Board; and
- Monitoring and discussing developments in corporate governance.

Recurring agenda topics

- Role, composition and functioning of the Board of Management
- Role, composition and functioning of the Supervisory Board
- Corporate governance

Attendance

In addition to the Selection and Nomination Committee members, the two presidents and the EVP HRO are regularly invited to attend (parts of) its meetings. An external adviser is also invited to attend the Selection and Nomination Committee meetings when deemed necessary.

The overview below provides details on the topics discussed during Selection and Nomination Committee meetings in 2023.

H1

- Composition of Board of Management, including succession and transition pipeline
- Profile and composition of Supervisory Board and composition of its committees
- Nominations for appointment of Supervisory Board members
- Induction program for new Supervisory Board members
- Amendment of Rules of Procedure Board of Management and Supervisory Board
- Outcome of evaluation of Supervisory Board and committees
- Performance of the Board of Management and individual members
- Diversity policy of the Board of Management
- New Dutch Corporate Governance Code
- ESG Sustainability Committee set-up and composition

H2

- Composition of Board of Management, including diversity aspects & requirements, and succession pipeline
- End of appointment term, retirement of the Co-Presidents and appointment of Christophe Fouquet as President and CEO per the 2024 AGM
- Intended appointment of Jim Koonmen as member of the Board of Management per the 2024 AGM
- Profile and composition of Supervisory Board
- Nomination for appointment of Annet Aris, Mark Durcan and Warren East as Supervisory Board members per the 2024 AGM
- Approach to the 2023 self-evaluation of the Supervisory Board and Committees
- Implementation of the revised Dutch Corporate Governance Code, including related governance documents,
- Responsibilities of the Selection & Nomination Committee in the area of ESG

Supervisory Board committees (continued)

Selection and Nomination Committee

Composition, role and responsibilities of the Board of Management

In 2023, the Selection and Nomination Committee devoted significant time to discussing the (future) composition, role and responsibilities of the Board of Management. For example, we reviewed the talent bench and discussed career development of top talent to prepare for future Board of Management roles. The Committee also assessed the functioning of the Board of Management and its individual members. For this purpose, discussions took place with each individual Board of Management member, the outcome of which was discussed with the Committee.

During the 2023 AGM, Wayne Allan was appointed as EVP and Chief Strategic Sourcing & Procurement Officer, as member of the Board of Management effective per the 2023 AGM. Following this appointment, the Board of Management consisted of six members. The rationale behind Wayne's appointment was the increased strategic importance of the Strategic Sourcing & Procurement Officer function for ASML's strategy.

The Selection and Nomination Committee and the Supervisory Board continually discuss succession planning with respect to the Board of Management. During 2023, ample time was spent discussing the end of the appointment terms, per the 2024 AGM, of ASML's co-Presidents, Peter Wennink and Martin van den Brink and their potential succession in case their appointment terms would not be extended. On November 30, 2023, we announced that Peter and Martin will retire from ASML upon completion of their current appointment terms per the 2024 AGM, and

that we intend to appoint Christophe Fouquet, currently ASML's Chief Business Officer and member of the Board of Management, as the company's next President and Chief Executive Officer. This appointment is subject to notification of the AGM on April 24, 2024. The Supervisory Board, together with the management team, has gone through a comprehensive succession planning process. With Christophe, we have identified a very experienced leader with deep understanding of ASML's technology and the semiconductor industry ecosystem – acquired through different roles at ASML and other companies – and the right leadership qualities and culture fit.

In addition, we intend to appoint Jim Koonmen as Chief Customer Officer, a new position in ASML's Board of Management, subject to notification of the Annual General Meeting of Shareholders on April 24, 2024. Jim's appointment underscores ASML's ambition to continuously increase our responsiveness to customer needs, and to consistently deliver high-performance products and services.

After the retirement of Martin van den Brink as co-President of ASML, Martin will continue to support the future growth of ASML by taking up a role as a technology advisor.

Composition, role and responsibilities of the Supervisory Board

The Selection and Nomination Committee spent a significant amount of time discussing the Supervisory Board's composition, profile and rotation schedule, particularly the appointment and reappointment of Supervisory Board members to fill vacancies both in the short and longer term. The Supervisory Board profile was

reviewed in light of the long-term strategic challenges faced by ASML and what these mean for the oversight to be performed by the Supervisory Board. While the conclusion was that the requirements for the size of and the competencies to be represented in the Supervisory Board were generally still appropriate, some adjustments were considered desirable. Furthermore, the paragraph on diversity was shortened, since a separate Supervisory Board D&I Policy was adopted in light of the revised Dutch Corporate Governance Code. The revised profile can be found in the Supervisory Board's Rules of Procedure on our website. For the actual changes in composition of the Supervisory Board, reference is made to the section on Supervisory Board composition in this Annual Report.

The Selection and Nomination Committee also discussed changes to the composition of the Supervisory Board effective per the 2023 AGM. The Selection and Nomination Committee advised the Supervisory Board on the nominations for the appointment of successors to Gerard Kleisterlee and Rolf-Dieter Schwalb, who retired during the 2023 AGM having served eight years on our Supervisory Board.

Changes to Supervisory Board Committees in 2023

The Selection and Nomination Committee also discussed the composition of the Supervisory Board committees in light of the retirement of Gerard Kleisterlee and Rolf-Dieter Schwalb and the appointment of Nils Andersen and Jack de Kreij. Several changes in the composition of the Supervisory Board Committees took effect per the 2023 AGM. Nils Andersen became Chair of the Supervisory Board and Chair of the Selection and Nomination Committee. Jack de Kreij

became Chair of the Audit Committee and a member of the Remuneration Committee.

[Read more in Supervisory Board report - Meetings and attendance - Composition](#)

At the end of 2023 and in early 2024, the Selection and Nomination Committee discussed the functioning of the individual members of the Supervisory Board as well as the process and outcome of the Supervisory Board's self-evaluation.

[Read more in Supervisory Board report - Meetings and attendance - Evaluation](#)

Corporate governance

As part of its responsibility to monitor corporate governance developments, the Selection and Nomination Committee discussed the revised Dutch Corporate Governance Code that came into effect on December 22, 2022 and what actions were required for ASML to comply with the revised code. The Committee reviewed proposed updates to the Rules of Procedure for the Board of Management and the Supervisory Board, the D&I Policies for the Supervisory Board and for the entire workforce of ASML, including Senior Management, the Stakeholder Engagement Policy and the updated Policy for Bilateral Contacts with Shareholders. Where relevant, the Selection and Nomination Committee provided positive recommendations to the Supervisory Board for adoption or approval of these corporate governance documents. The Committee also discussed developments in the area of Corporate Governance in general, including matters of interest to investors and shareholder organizations.

Supervisory Board committees (continued)

Technology Committee

The Technology Committee advises the Supervisory Board with respect to the technology plans required to execute our business strategy.

**Members:**

- Mark Durcan (Chair)
- Annet Aris
- Warren East
- An Steegen

The Technology Committee is supported by external experts as well as experts from within ASML who act as advisers on the subjects reviewed and discussed. External experts may include representatives of customers, suppliers and partners to increase the Committee's understanding of the technology and research required to develop our leading-edge systems.

In Q4 2023, the Technology Committee visited ASML's facility in Wilton, CT, USA.

Main responsibilities:

- Advising on technology trends, the study of potential alternative strategies, the technology strategy, product roadmaps, required technical resources and operational performance in R&D;
- Making recommendations to the Supervisory Board on technology-related projects with respect to ASML's competitive position; and
- Discussing the technology targets set to measure short- and long-term performance as well as the achievements related to these, and advising the Remuneration Committee on this topic.

Recurring agenda topics (quarterly)

- Role, composition and functioning of the Board of Management
- Role, composition and functioning of the Supervisory Board
- Corporate governance

Technology Committee meetings in 2023

In general, the Technology Committee meets at least twice a year and more frequently when deemed necessary. In 2023, the Technology Committee held five meetings.

Attendance

In addition to the Technology Committee members, the Committee's external and internal advisers regularly attended committee meetings. The advisers do not have voting rights.

The overview below provides details on the topics discussed during Technology Committee meetings in 2023.

Q1

- Review of Applications
- Technology Leadership Index performance review 2022 and 2020-2022 and target setting for 2023 and 2023-2025

Q3

- Review of DUV (including Installed Base and Service and Mature Products)
- Device Roadmap

Q2

- Review of the Development & Engineering, System Engineering and Research

Q4

- Review of EUV Low NA and High NA
- Visit to ASML's facility in Wilton, CT, USA

Supervisory Board committees (continued)

Technology Committee**Review of technology programs**

As in previous years, the Technology Committee's primary focus in 2023 was on the review of the execution and implementation of technology programs and roadmaps in EUV 0.55 NA (High NA), EUV 0.33 NA, DUV and Applications. In this respect, the key challenges and opportunities, from a business perspective as well as from a technology standpoint, were reviewed and discussed in depth. During each meeting the Technology Committee also discussed the progress made on the technology targets included in the Technology Leadership Index, a performance measure for the short-term and long-term variable remuneration of the Board of Management. At the beginning of the year, in a meeting especially planned for this purpose, the Technology Committee discussed the final achievements on the technology targets. In the same meeting, new technology targets were set for the new performance period. The Technology Committee subsequently provided advice to the Remuneration Committee and the Supervisory Board.

The meeting in Q1 was dedicated to the achievements within Applications. The Technology Committee was presented with a recap of the achievements in 2022 and was informed about the roadmap toward 2028, the market developments, competitive landscape and the opportunities in that respect. In addition, updates were provided on computational lithography, optical metrology, e-beam metrology and control and data products.

In Q2, the main focus of the meeting was on the Development & Engineering sector of ASML, including its Research department. In addition, a presentation was provided on system engineering within ASML and how this contributes to the product and technology roadmap. Furthermore, the Technology Committee was informed on ASML's intellectual property portfolio as well as the protection thereof.

After a successful contribution in 2022 the Technology Committee invited imec back to provide an update of its view on the long-term device roadmap for both Logic and Memory during the Q3 meeting. The presentations by imec were followed by a detailed discussion of the potential impact of the device roadmap on ASML's lithography roadmap. Next to this, the Technology Committee discussed the developments and achievements in DUV. Apart from the product roadmaps and the technology programs, the Technology Committee was informed about the installed base and service strategy. Furthermore, the Committee paid attention to Mature Products & Services and the related challenges and opportunities.

In Q4, the Technology Committee visited ASML's second largest facility in Wilton, U.S.A. During this two-day meeting, the Technology Committee primarily focused on the achievements and challenges in EUV 0.33 NA and EUV 0.55 NA (High NA). Special attention was paid to the overall roadmap, market developments and EUV field performance as well as the status of new product development. The Technology Committee was also informed about the focus on quality, productivity, the drive for commonality and reduction of energy consumption. The second day of the visit to Wilton was focused on providing insight in how the facility in Wilton contributes to ASML's overall technology and manufacturing network. Furthermore, the Technology Committee was provided with a tour through the cleanroom at the Wilton facility.

The Technology Committee's in-depth technology discussions and the subsequent reporting of the main points of these discussions to the full Supervisory Board increases the Supervisory Board's understanding of our technology requirements. It also enables the Supervisory Board to adequately supervise the strategic choices we face, including our investment in R&D.

Financial Statements and Profit Allocation

The Financial Statements of ASML for the financial year 2023, as prepared by the Board of Management, have been audited by KPMG Accountants NV. All members of the Board of Management and the Supervisory Board have signed these Financial Statements.

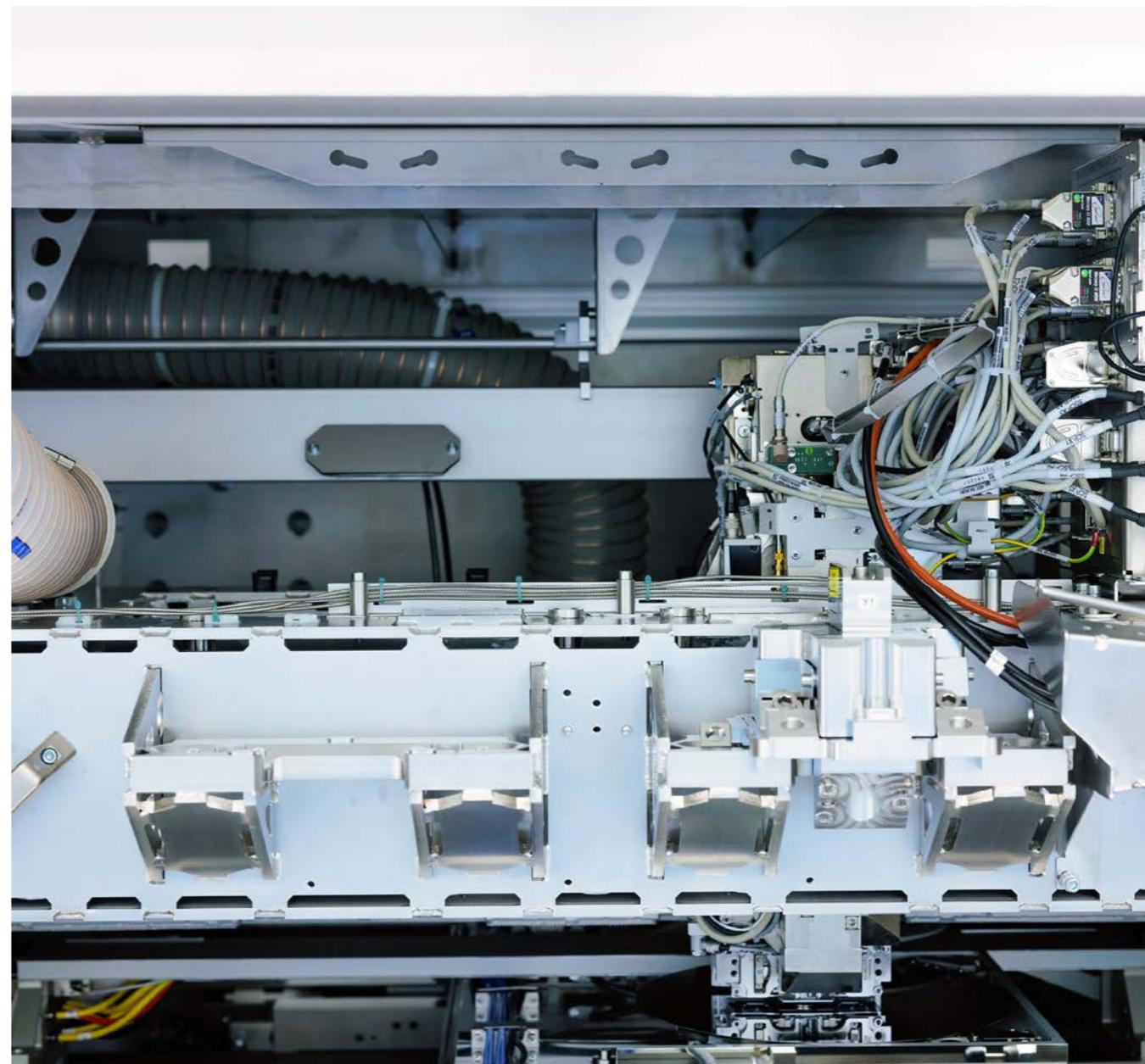
We recommend to shareholders that they adopt the 2023 Financial Statements. We also recommend that our shareholders adopt the Board of Management's proposal to make a final dividend payment of €1.75 per ordinary share. Together with the interim dividends paid in respect of the 2023 financial year, which add up to €4.35 per ordinary share, this leads to a total dividend of €6.10 per ordinary share for the year 2023.

Finally, we would like to extend a word of thanks to the Board of Management and all ASML employees for their continued commitment and hard work during this challenging year.

The Supervisory Board,

Nils Andersen, Chair
Annet Aris, Vice Chair
Birgit Conix
Mark Durcan
Warren East
Alexander Everke
Terri Kelly
Jack de Kreij
An Steegen

Veldhoven, February 14, 2024



Message from the Chair of the Remuneration Committee



2023 was again a very dynamic, challenging year for ASML and this translated into another busy year for our committee as we continued to evolve the ways in which we can support the growth of the company.”

Terri Kelly

Chair of the Remuneration Committee

Dear Stakeholder,

On behalf of the Remuneration Committee, I am pleased to present the 2023 Remuneration Report, which provides a summary of the remuneration policies for the Board of Management and the Supervisory Board. The following pages explain how these policies were applied in 2023. Transparency is highly important to us, and we have worked hard to ensure that this report not only explains what we do but also how we do it and the factors we considered in arriving at our conclusions.

Making connections

The connections and linkages we make across the business are absolutely fundamental to the committee's efforts. Remuneration can be a sensitive topic and it has been pleasing to see how our close working relationship with Board of Management members has set the scene for reasoned and informed two-way conversations. Together, we are working to ensure we have the input we need to make the correct decisions.

Overall, we believe we are setting the right amount of stretch in our targets, while ensuring that these are both achievable and aligned with desired behaviors and the main drivers of ASML strategy.

Our 2023 performance

In 2023, ASML performed very well on the metrics that are part of the Board of Management's incentive plans. For the short-term incentive (STI), performance was between target and stretch for all performance measures – EBIT Margin %, Customer Orientation and Technology Leadership Index – resulting in an overall pay-out of 128.2% of target. For the long-term incentive (LTI) 2021-2023 series, ASML exceeded target on most of the performance metrics – TSR, ROAIC and Technology Leadership Index. ASML was below threshold on the

ESG metric, which is measured using ASML's performance on the Dow Jones Sustainability Index (DJSI). In absolute terms, ASML scored very well, ranking #6 out of 347 companies in the DJSI. However, the DJSI score is measured by the percentage deviation from the industry leader for incentive purposes. For the 2021-2023 performance period, ASML was slightly below threshold looking at the percentage deviation from the industry leader. The overall LTI result is a vesting of 157.7% of target.

Key workstreams

Our philosophy is that if we focus on the right things - engaging with our people, promoting an inclusive environment, shaping our corporate culture, investing in innovation and so on - then the business results and creation of shareholder value are the logical outcomes.

Societal fairness

One of the most challenging new workstreams of 2023 was our drive to achieve societal fairness. This is a relatively new and emotional topic – balancing what is seen as fair within the company and our global peer group with what is regarded as fair in the external environment, for example in the Veldhoven area where we have a large footprint. I think ASML is ahead of many organizations in trying to unpack this issue and I am proud of our interactions with the Works Council. With their support and that of an external advisor, we have worked to put more quantitative measures around the concept of societal fairness, and you can read about our deliberations on the following pages.

Message from the Chair of the Remuneration Committee (continued)

Improved STI and LTI metrics

Another important area for the committee had to do with the metrics we use for our incentive plans. With regard to the STI, we looked into how we can best measure our customer orientation. Complementing the good work carried out by the team, we have been devising a new and better way to ensure that the voice of the customer plays an enhanced role in our short-term incentives. This will be implemented in 2024.

For the LTI, we have reintroduced return on average invested capital (ROAIC) as an important financial measure, using a revised methodology to better mitigate some of the inherent risks associated with ASML's business model. We continue to strive for incentive measures that best align with our strategy and overall performance. To that end, we have also updated our ESG sustainability measures, which include a good balance of social and environmental measures. As noted in the report, we have opted to move away from the DJSI, as it was deemed not to be a very meaningful measure to drive our ESG sustainability strategy and initiatives. While we contemplated replacing it with other external ESG indices which could also be benchmarked with other peer organizations, based on valuable feedback from a number of our key stakeholders, we opted to continue with an important measure related to the diversity of our talent pipeline.

Remuneration Policy

After spending significant time and effort on updating our policy for the Board of Management in the previous year, we turned our attention to the Supervisory Board in 2023 and – after looking at the data as well as the growth and scale of ASML – we introduced some adjustments to remuneration, which are explained in the section on Supervisory Board remuneration of this Remuneration

Report. As Remuneration Committee, we were pleased that the 2023 Remuneration Policy for the Supervisory Board was adopted with 98.88% support, and that the remuneration amounts for the Supervisory Board were adopted with 99.20% support.

Transparency

While the 2022 Remuneration Report received 93.21% support at the 2023 AGM, transparency around remuneration continues to be a topic of focus for the Remuneration Committee. In the section about the Remuneration Committee's activities in 2023, the efforts we made to further improve the transparency and readability of the Remuneration Report are explained.

Listening to our stakeholders

When setting remuneration policies, we aim to listen and respond to the diverse views of all our stakeholders. In line with our annual stakeholder engagement process, during 2023 we engaged with both internal and external stakeholders on the topic of remuneration. As Remuneration Committee we appreciate this on-going dialogue, through which we have learned that some of the views of our stakeholders are quite different. For example, while some stakeholders will be concerned that our executive remuneration may not be competitive enough to attract and retain our leaders, others feel we are overpaying, considering societal fairness aspects.

ASML is a unique organization, with not many comparable companies against which to benchmark remuneration. It is our job to take an overview of the global pay landscape, to look at the specifics associated with our particular geographies and growth trajectory, and then arrive at a balanced judgement that supports the recruitment, development and retention of the diverse talent we need to thrive.

In the past we have carried out work to identify the regions where we gain talent and where we lose it. We then added a proportion of US-based companies to our peer group, but also introduced a cap to total incentive opportunities in order to align more closely with European practices. We will continue to assess this in such a way that we are able to achieve our overall business objectives.

Changes to the committee

At the 2023 AGM, Rolf-Dieter Schwalb stepped down, and I would like to thank him for his outstanding work over the past years, particularly as his role as Chair of the Audit Committee helped forge very solid links between our two committees. We are pleased to have Jack de Kreij join our committee, and as Jack is also the Chair of the Audit Committee, we maintain the valuable connection between these committees. Jack has already added a great deal of knowledge and expertise to our discussions, and I look forward to working with him over the coming years.

Outlook

As we transition to 2024, we will continue to gather input from key stakeholders, both internal and external, to help provide input on some of our new incentive measures and inform our thinking ahead of the AGM.

Throughout the year, we will be assessing the adequacy of our Remuneration Policies, particularly in light of the announced changes in the leadership structure of our Board of Management and transition to a single President.

As in previous years, governance policies will continue to evolve and we will closely follow developments in this area. We will also continue to manage and anticipate any further changes in the Board of Management structure, focusing on potential members and how our policy and practices can support the desired outcomes.

Finally, I would like to thank the members of the Remuneration Committee and the Supervisory Board for their time, skills and wisdom over the last 12 months. It has been a busy year but one that I firmly believe has enabled our team to underpin the future prospects of ASML.

Terri Kelly
Chair of the Remuneration Committee

Remuneration at a glance

Remuneration is an essential tool to motivate the right talent to continue to achieve our technology roadmap and business priorities.

Our remuneration principles for performance support long-term success and sustainable value

- Competitiveness** The remuneration structure and levels intend to be competitive in the relevant labor market, while at the same time taking into account societal trends and perceptions.
- Alignment** The remuneration policy is aligned with the short-term and long-term incentive policies for ASML senior management and other ASML employees and takes into account internal relativities.
- Long-term orientation** The policy and incentives focus on sustainable and long-term value creation.
- Compliance** ASML adopts the highest standards of good corporate governance.
- Simplicity and transparency** The policy and its execution are as simple as possible and easily understandable to all stakeholders.

Linking remuneration to purpose and strategy



How we performed in 2023

Financial (based on US GAAP)

€27.6bn Total sales (2022: €21.2bn)	€14.1bn Gross profit (2022: €10.7bn)	€9.0bn Income from operations (2022: €6.5bn)
€5.4bn Net cash provided by operating activities (2022: €8.5bn)	€19.91 Earning per share (2022: €14.14)	65.8% ROAIC (Non-GAAP measure) ¹ (2022: 48.2%)

Non-financial

7.8 Technology Leadership Index score (2022: 8.1)	10.8% Dow Jones Sustainability Index (DJSI) ² (2022: 10.8%)
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1. The ROAIC (Non-GAAP measure) is based on a three-year (2021-2023) average by dividing the Income after income taxes by the Average Invested Capital. Average Invested Capital is calculated by taking the average of Total assets minus Cash and cash equivalents, Short-term investments, Total current liabilities and Non-current contract liabilities at the start and end of each quarter over three years. We believe that ROAIC is a meaningful measure because it quantifies our effectiveness in generating returns relative to the capital invested in our business over the past three years.
 2. The DJSI score is measured by the % deviation from the industry leader at the end of the 3-year performance period.

Relative TSR - ASML vs PHLX



Remuneration at a glance (continued)



We aim to align the total remuneration for our Board of Management to our business strategy through a combination of fixed pay and short- and long-term incentives, underpinned by stretching performance targets.

€24.6m
Total remuneration

128.2%
Achieved of STI target

157.7%
Achieved of LTI target

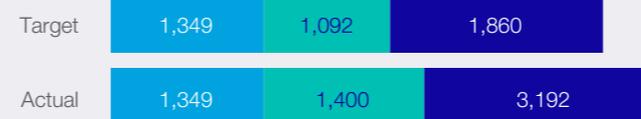
43:1
CEO vs. average per FTE¹

Board of Management

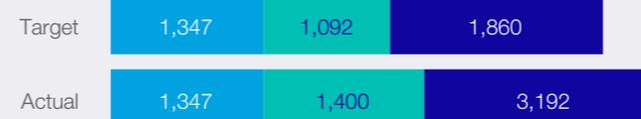
Remuneration summary (€'000s)

Peter T.F.M. Wennink¹

Total remuneration 2023 (€'000s)

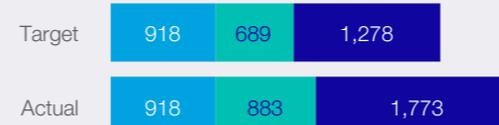
€5,941Martin A. van den Brink¹

Total remuneration 2023 (€'000s)

€5,939

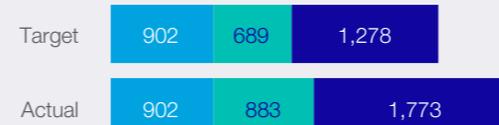
Frédéric J.M. Schneider-Maunoury

Total remuneration 2023 (€'000s)

€3,574

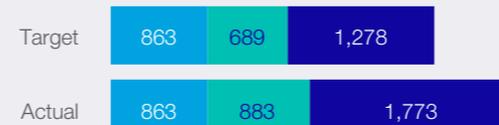
Roger J.M. Dassen

Total remuneration 2023 (€'000s)

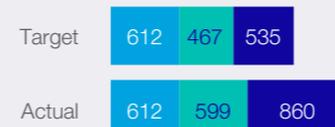
€3,558

Christophe D. Fouquet

Total remuneration 2023 (€'000s)

€3,519Wayne R. Allan²

Total remuneration 2023 (€'000s)

€2,071

■ Base salary and benefit ■ STI ■ LTI

Stakeholder engagement in 2023

During 2023, we consulted with our large shareholders and other stakeholders. The Remuneration Committee also consulted the views of the Board of Management.

Shareholders

Number of organizations met	8
Number of meetings	8
Percentage of issued share capital owned ³	20%

Shareholders representatives and proxy advisers

Number of organizations met	3
Number of meetings	3

Works Council

Number of organizations met	1
Number of meetings	>5

- On November 30, 2023, ASML announced that Mr. Wennink and Mr. van den Brink will retire as Presidents of ASML on April, 24 2024, upon completion of their current appointment terms. Mr. Wennink and Mr. van den Brink will remain entitled to performance shares granted under their running LTI plans, which will vest in accordance with the relevant performance criteria as stated in the grant letters. All LTI expenses for the running LTI plans are accounted over their remaining service period in 2023 and 2024. For comparison purposes, if Mr. Wennink's and Mr. van den Brink were to remain in service, their normalized LTI expense would be €2,575 thousand each in 2023 and the outcome of the CEO vs. average per FTE ratio would be 39:1.
- Wayne R. Allan was appointed as a BoM member on April 26, 2023.
- Based on the issued share capital and share positions at the time of the AGM record date, March 29, 2023.

Remuneration Committee

Remuneration Committee

The Remuneration Committee advises the Supervisory Board and prepares the Supervisory Board's resolutions with respect to the remuneration of the Board of Management and the Supervisory Board.



Members:

- Terri Kelly (Chair)
- Annet Aris
- Alexander Everke
- Jack de Kreij

Each member is an independent, non-executive member of our Supervisory Board in accordance with the Nasdaq Listing Rules. Ms. Kelly is neither a former member of our Board of Management, nor a member of the management board of another company. Currently, no member of the Remuneration Committee is a member of the management board of another Dutch listed company.

The Committee will continue to consider what the optimal incentive measures are to drive sustainable long-term value creation.

Main responsibilities:

- Overseeing the development and implementation of the Remuneration Policy for the Board of Management and preparing the Supervisory Board Remuneration Policy;
- Reviewing and proposing to the Supervisory Board corporate goals and objectives relevant to the variable part of the Board of Management's remuneration;
- Carrying out scenario analyses of the possible financial outcomes on the variable remuneration of meeting these goals, as well as exceeding these goals, before proposing these corporate goals and objectives to the Supervisory Board for approval; and
- Evaluating the performance of the members of the Board of Management in view of those goals and objectives, and – based on this evaluation – recommending to the Supervisory Board appropriate compensation levels for the members of the Board of Management.
- Staying apprised of external pay practices and the effectiveness of our remuneration policy and incentive measures in attracting and retaining top talent.

Recurring agenda topics

- Remuneration of the Board of Management
- Remuneration of the Supervisory Board
- Update on performance on targets for short- and long-term incentive

Attendance

In addition to the Remuneration Committee members, the Remuneration Committee generally invites the CEO, the EVP HRO, the Head of Compensation and Benefits and in some instances also the CFO or the CBO, as BoM member responsible for ESG, to attend (parts of) its meetings. The Remuneration Committee's external adviser is also invited to attend the Remuneration Committee meetings when deemed necessary.

The below overview provides details on the topics discussed during Remuneration Committee meetings in 2023.

Q1

- Total remuneration BoM 2023, incl. base salary 2023, and STI and LTI at-target levels
- Short-Term Incentive Plan: Performance 2022, pay-out 2022 and targets 2023
- Long-Term Incentive Plan: share vesting performance period 2020-2022, and conditional grant and targets performance period 2023-2025
- Compliance with share ownership requirements
- Remuneration Report 2022
- Self-evaluation of Remuneration Committee
- Supervisory Board Remuneration Policy review including stakeholder outreach

Q2

- No meetings

Q3

- Progress STI and LTI targets and metrics
- Review of potential changes in STI or LTI metrics within limits of Remuneration Policy
- Latest trends in policies and reporting
- Report on interaction with the Works Council, including discussion on societal benchmark
- ESG related activities within scope of Remuneration Committee

Q4

- Progress STI and LTI targets
- Board of Management remuneration 2024, including base salary, at-target levels for STI and LTI, selection of STI and LTI metrics and target levels
- Update on corporate governance developments: remuneration
- US Claw Back Policy
- Engagement of external auditor for agreed-upon procedures on remuneration
- Draft Remuneration Report 2023
- Share planning for the period AGM 2024-2025
- Compliance of BoM members with share ownership requirement

Remuneration Committee (continued)

Remuneration of the Board of Management

Following a fundamental review performed in H2 2021 and Q1 2022, a new Remuneration Policy for the Board of Management was adopted at the 2022 AGM with 93.18% support. The 2022 BoM Remuneration Policy contains market competitive maximum levels for the STI (120% for the Presidents and 100% for the other Board of Management members) and the LTI (200%) for on-target performance. The Supervisory Board decided to implement a phased approach towards these maximum levels.

At the end of 2022 a light review of Board of Management remuneration levels was performed in order to determine whether an increase of the on-target levels for STI and/or LTI towards the policy maximum levels was warranted. The Supervisory Board concluded that this was the case and decided to increase the on-target levels for the STI from 95% to 105% for the Presidents and from 90% to 95% for the non-Presidents. For the LTI the on-target levels were increased from 160% to 170%. These changes became effective per January 1, 2023.

The Remuneration Committee made recommendations to the Supervisory Board concerning the total remuneration package of the Board of Management and the variable remuneration consisting of an STI in cash and an LTI in shares. The Remuneration Committee proposed 2023 targets for the Board of Management's variable remuneration to the Supervisory Board. During the year, the Remuneration Committee closely monitored the Board of Management's performance. It provided recommendations to the Supervisory Board regarding the achievement of the 2023 targets and related compensation levels for the Board of Management members.

In proposing and evaluating the Board of Management's performance in relation to the corporate goals and

objectives for the variable remuneration of the Board of Management members, the Remuneration Committee closely cooperates with the Audit Committee, the ESG Committee and the Technology Committee.

A similar review process was conducted at the end of 2023 with regard to the 2024 Board of Management Remuneration. The Supervisory Board approved the recommendation from the Remuneration Committee to increase the on-target levels for the STI of the President to 120%, the outgoing dual-Presidents to 105%, and for the non-Presidents to 100%. For the LTI, the on-target levels for the President were increased to 200% and for the outgoing dual-Presidents and non-Presidents were increased to 180%.

The Remuneration Committee has taken note of the views of the individual members of the Board of Management with regard to the amount and structure of their remuneration.

The shareholding positions of the Board of Management members were reviewed by the Remuneration Committee in order to assess compliance with the share ownership guideline as included in the Remuneration Policy for the Board of Management.

The Remuneration Committee engaged the external auditor to perform certain agreed-upon procedures regarding the reported performance by the Board of Management on the STI Plan 2023 and LTI Plan 2021-2023

In order to comply with the rules implementing incentive-based compensation recovery (clawback) as issued by the SEC and Nasdaq, the Supervisory Board adopted the ASML Clawback Policy under US/Nasdaq Rules. This Policy has been filed as an exhibit to ASML's 2023 Annual Report on Form 20-F.

The Remuneration Committee also prepared the Remuneration Report, which details the remuneration of members of the Supervisory Board and the Board of Management. Transparency around remuneration continues to be a topic of focus for the Remuneration Committee and in 2023 we made further efforts to improve the transparency and readability of the Remuneration Report, taking into account feedback we received from our stakeholders during engagement sessions. For example, we added non-financial indicators to the table 'Relationship between accounted remuneration and company's performance' and we added visualizations of the target setting process related to the variable remuneration and the vesting of performance shares.

Remuneration Committee (continued)

Remuneration of the Supervisory Board

In Q1 2023, the Remuneration Committee finalized its review of the Remuneration Policy for the Supervisory Board and concluded that it was desirable to make certain amendments to the remuneration amount and Remuneration Policy for the Supervisory Board.

The key changes are explained in more detail in: [Remuneration Report - Supervisory Board Remuneration](#)

Before submitting the resulting proposals to the General Meeting, the Remuneration Committee consulted extensively with shareholders, shareholder representatives and other stakeholders, including the Works Council of ASML Netherlands BV. For more information about the stakeholder feedback, reference is made to the 2023 AGM page on our website. The Supervisory Board, upon recommendation of the Remuneration Committee, proposed to the General Meeting to amend the Remuneration Policy for the Supervisory Board. The amended policy was adopted on April 26, 2023 at the 2023 AGM.

Societal benchmark

In the context of the most recent changes to the Board of Management and Supervisory Board Remuneration Policies, the Works Council raised the topic of societal fairness of executive remuneration in relation to non-executive remuneration. To follow-up on this topic, a societal benchmark analysis was conducted during 2023 in close collaboration between a delegation of the Remuneration Committee and the Works Council, supported by the Remuneration Committee's external advisor.

As a first step, the societal benchmark group was established, consisting of companies of societal relevance in the Netherlands that have comparable and

consistent remuneration disclosure. It was then established that comparing absolute levels of remuneration between ASML and the societal benchmark group would not be appropriate or relevant given the significant differences in factors (such as size, scope, geographic footprint, complexity of business, leadership structure). Therefore, the approach was taken of comparing relative pay progression of the societal group versus CEO pay, lowest Collective Labor Agreement (CLA) scale and Supervisory Board pay, to determine the pace of remuneration growth over time.

The outcome of the societal benchmark was that overall, ASML's relative pay progression is well aligned to the societal benchmark group. CEO pay progression was below the 75th percentile of the group, the progression of ASML's lowest CLA scale progression has outpaced the benchmarking group and the 2023 increases in Supervisory Board remuneration is aligned to the benchmarking group.

The Remuneration Committee intends to perform this societal benchmark periodically going forward to serve as reference to overall remuneration.

Board of Management remuneration

In this section of the Remuneration Report, we provide an overview of the Remuneration Policy for the Board of Management, which was adopted by the General Meeting on April 29, 2022, and has applied as of January 1, 2022 onwards. It also contains information about the execution of the Remuneration Policy for the Board of Management as well as details of the Board of Management members' actual remuneration for the financial year 2023. The Remuneration Policy for the Board of Management can be found in the Governance section of our website.

Remuneration Policy

Remuneration as a strategic instrument

The 2022 Remuneration Policy for the Board of Management supports the strategy, long-term interests and sustainability of ASML in a highly dynamic environment, while aiming to fulfill all stakeholders' requirements and keeping an acceptable risk profile. More than ever, the challenges for ASML are to drive technology, to serve our customers and to satisfy our stakeholders. These drivers are embedded in the identity, mission and values of ASML and its affiliated enterprises and are the backbone of the 2022 Remuneration Policy for the Board of Management. The Supervisory Board ensures that the 2022 Remuneration Policy for the Board of Management and its implementation are linked to ASML's objectives. A direct way in which this is achieved is by determining performance measures and setting targets with respect to variable compensation that are linked to our short-term and long-term ambitions.

More indirectly, we want to ensure that our 2022 Remuneration Policy for the Board of Management enables ASML to attract, motivate and retain qualified industry professionals for the Board of Management in order to define and achieve our strategic goals. This is reflected by our drive to determine a remuneration structure and remuneration levels that intends to be competitive in the relevant labor market, while at the same time being aware of societal trends and perception. Therefore, the 2022 Remuneration Policy for the Board of Management acknowledges the internal and external context as well as our business needs and long-term strategy.

The 2022 Remuneration Policy for the Board of Management is designed to encourage behavior that is focused on long-term value creation and the long-term interests and sustainability of ASML, while adopting the highest standards of good corporate governance. The 2022 Remuneration Policy for the Board of Management is aimed at motivating the Board of Management members to achieve outstanding results, using a combination of non-financial and financial performance measures as well as an appropriate ratio between base salary and variable compensation. Technology leadership, customer value creation and employee engagement are the key drivers of sustainable returns to our shareholders.

Remuneration principles

The remuneration philosophy that ASML applies for all its employees includes the principle that ASML wants to be competitive in its relevant labor markets and pay what is fair in such markets, while maintaining internal consistency in reflecting differences in size and complexity of individual responsibilities. The Supervisory Board applies the same principle for the Board of Management of ASML and in doing so takes the pay and employment conditions for the ASML employees into account when formulating the Remuneration Policy for the Board of Management. The level of stakeholder support, including the support of society, for the Remuneration Policy for the Board of Management that ASML applies is important to us and was also taken into account when formulating the various elements of the policy. When preparing the Remuneration Policy for the Board of Management, the Supervisory Board considered the external environment in which the Company operates, the relevant statutory provisions and provisions of the Dutch Corporate Governance Code and competitive market practice as well as the guidance issued by organizations representing institutional shareholders. The Supervisory Board's Remuneration Committee engaged extensively with various stakeholders to obtain their perspectives. These stakeholders included ASML's shareholders, shareholder interest organizations, proxy advisers and the Works Council of ASML Netherlands BV. In line with the Dutch Corporate Governance Code, the members of the Board of Management have been asked to share their views on their remuneration. Furthermore, advice has been obtained from an external remuneration expert.

The 2022 Remuneration Policy for the Board of Management is built on the following principles:

- **Competitiveness:** The remuneration structure and levels intend to be competitive in the relevant labor market, while at the same time taking into account societal trends and perceptions;
- **Alignment:** The policy is aligned with the Short-term Incentive and/or Long-term Incentive Policy for ASML senior management and other ASML employees and takes into account internal relativities;
- **Long-term orientation:** The policy and incentives focus on sustainable long-term value creation;
- **Compliance:** ASML adopts the highest standards of good corporate governance; and
- **Simplicity and transparency:** The policy and its execution are as simple as possible and easily understandable to all stakeholders.

Board of Management remuneration (continued)

Reference group and market positioning

Similar to the remuneration philosophy for all ASML employees, we aim to offer the members of the Board of Management a remuneration package that is competitive compared with a relevant labor market. To define this market, we created a reference group consisting of companies that are comparable to ASML in terms of size and complexity, industry or business profile, data transparency and geographical area. The reference group may include Dutch and international companies where members of the Board of Management might be recruited to and from.

For as long as ASML is positioned around the median of the group of companies with respect to size (measured by enterprise value, revenue and number of employees) and thus complexity, the median market level may serve as a reference in determining the level of remuneration for the Board of Management.

As ASML is a Dutch-headquartered company, the Supervisory Board also takes into account the external environment in which the Company operates in the Netherlands, and furthermore considers competitive market practices as well as guidance issued by organizations representing institutional shareholders in the Netherlands, and has decided for the 2022 Remuneration Policy not to follow the (high) international market level for long-term incentives (LTI) and to cap the maximum target LTI award at 200% of base salary. This means that the reference to a median market level described above will be used for the cash compensation only (i.e. the base salary and the short-term incentive (STI), as the LTI will be capped).

As ASML has a dual presidency and considers the two presidents of equal weight and importance to the Company, for the year 2023 the Supervisory Board has decided to continue the Company's longstanding practice that the relevant benchmark reference level for the two presidents is the average of the CEO level and that of the other members of the Board of Management in the labor market data, instead of benchmarking against CEO data only. For the other members of the Board of Management, the Supervisory Board has applied the average of all non-CEO members of the Board of Management in the benchmark as relevant reference, instead of differentiating between members of the Board of Management. With reference to the announcement of November 30, 2023, following the appointment of Christophe Fouquet as our sole president and CEO effective per the 2024 AGM, references to the dual presidency and Presidents should be considered a reference to our sole president. While no changes to our remuneration policy are being proposed for 2024, the Remuneration Committee will be contemplating whether any changes in policy should be implemented for 2025 and beyond.

In principle, a benchmark of the Board of Management remuneration is conducted every two years. In the year without a market assessment, the Supervisory Board considers the appropriateness of any change of base salary, taking into account the market environment as well as the salary adjustments for other ASML employees. To ensure an appropriate composition of the relevant labor market, the Supervisory Board reviews the composition of the reference group at the time a benchmark is conducted. The composition of the reference group may be adjusted as a result of takeover transactions, mergers or other corporate activities.

Substantial changes applied to the composition of the reference group will be proposed to shareholders.

The current reference group consists of the following companies:

Current reference group composition

European companies with focus on long-term technology/ industrial engineering/R&D	Semiconductor manufacturing companies	Semiconductor equipment companies
ABB	Broadcom	Applied Materials
Airbus	Intel	Lam Research
Dassault Systèmes	Qualcomm	
Infineon Technologies		
Linde		
Medtronic		
Novartis		
NXP Semiconductors		
Philips		
Roche		
SAP		
Schneider Electric		
Shell		
Siemens		
Siemens Healthineers		

Total direct compensation

The remuneration levels are determined using the Total Cash Compensation (TCC). TCC consists of base salary and variable remuneration in the form of a capped STI and a capped LTI, which together constitutes the total direct compensation.

Base salary

The 2022 Remuneration Policy for the Board of Management prescribes a benchmark that will only be conducted for the TCC level. The base salary of Board of Management members is derived from this TCC level. The actual base salary and annual increases will be reported in the Remuneration Report. The base salary for the Board of Management for the reporting year 2023 is disclosed in the table 'Total remuneration Board of Management.'

Board of Management remuneration (continued)

Variable compensation

The variable compensation consists of the STI and the LTI. The performance metrics are set by the Supervisory Board and consist of financial and non-financial metrics in such a way that an optimal balance is achieved between the various Company objectives, both in the short-term and the long-term. By doing so, we ensure that the variable compensation contributes to the strategy, long-term interests and sustainability of the Company. The Supervisory Board may adjust the performance metrics and their relative weighting of the variable income based on the rules and principles as outlined in the 2022 Remuneration Policy for the Board of Management of ASML Holding NV, if required by changed strategic priorities in any given year. The Supervisory Board assesses the extent to which performance metrics are met at the end of a performance period.

The 2022 Remuneration Policy for the Board of Management contains maximum levels for the STI and the LTI for on-target performance. These maximum levels can be implemented if ASML's relative positioning in the reference group is at least equal to the median (in terms of size). The Supervisory Board has decided to apply a gradual transition into the new policy levels. For 2023, the target STI levels were set at 105% for the presidents (2022: 95%) and 95% for the other members of the Board of Management (2022: 90%), aligned with a positioning in the reference group slightly below the median (in terms of size) at the time of designing the Remuneration Policy. For the same reason, the target LTI level for 2023 was set at 170% of base salary for all members of the Board of Management (2022: 160%).

The Supervisory Board has the discretionary power to adjust the incentive pay-out upward or downward if it feels that the outcome is unreasonable due to exceptional circumstances during the performance period.

Scenario analyses of the possible outcomes of the variable remuneration components and their effect on the remuneration of the Board of Management are conducted annually.

The following table represents the variable pay as percentage of base salary for the Board of Management in the case of on-target performance.



Board of Management remuneration (continued)

Summary of 2022 Remuneration Policy Board of Management

The elements of the 2022 Remuneration Policy for the Board of Management and their link to the strategy of ASML are summarized below.

Summary of 2022 Remuneration Policy



Fixed remuneration (base salary)

Link to strategy/rationale

Attract, motivate and retain qualified industry professionals for the Board of Management in order to define and achieve strategic goals.

2022 policy

Benchmark

- Consisting of 20 most relevant technology and R&D oriented companies, including ASML's talent competitors and business peers and (indirect) customers
- Composition of companies in the reference group takes into account ASML's geographic location – it's weighted toward European companies (75% weighting), with some US companies (25% weighting)

STI (cash bonus)

Link to strategy/rationale

Ensure a balanced focus on both the (financial) performance of ASML in the short-term, and the sustained company future in terms of technological advancement and customer satisfaction, fueling long-term success.

2022 policy

- Maximum target STI: 120% of base salary for the presidents and 100% for the other BoM members
- 2023 target STI: 105% of base salary for the presidents and 95% for the other BoM members

The weight of the individual STI performance metrics is as follows:

- 60% Financial
- 20% Technology Leadership Index
- 20% Customer Orientation

LTI (share-based incentive)

Link to strategy/rationale

Contribute to the strategy, long-term interests and sustainability of ASML using performance measures which balance the direct interest of ASML's investors, the long-term financial success of ASML, the long-term continuation of technological advancement and the environmental and social dimensions of sustainability.

2022 policy

Maximum target LTI: capped at 200% of base salary
2023 target LTI: 170% of base salary

The weight of the individual LTI performance metrics is as follows:

- 30% Relative TSR
- 20-30% ESG measures; 2023 weight: 20%
- 20-30% Technology Leadership Index; 2023 weight: 20%
- 20-30% Strategic value drivers; 2023 weight: 30%

Other elements of fixed remuneration (pension and other benefits)

Link to strategy/rationale

Contribute to the competitiveness of the overall remuneration package and create alignment with market practice.

2022 policy

- Pension arrangement based on the 'excedent' (supplementary) arrangement for ASML employees in the Netherlands – a defined contribution plan
- Expense reimbursements, such as company car costs, travel expenses, representation allowances, housing costs (gross amount before taxes), social security costs and health and disability insurance costs

Share ownership guidelines

Link to strategy/rationale

Requirement for a minimum share ownership by members of the Board of Management. Ensure alignment between the interests of the Board of Management members and ASML's long-term value creation.

2022 policy

- Presidents three times annual base salary, other Board members two times annual base salary
- 5-year period to comply for new members
- Supervisory Board has discretion to allow a temporary deviation in extraordinary circumstances
- Any shortfall will be remediated through the next vesting of shares

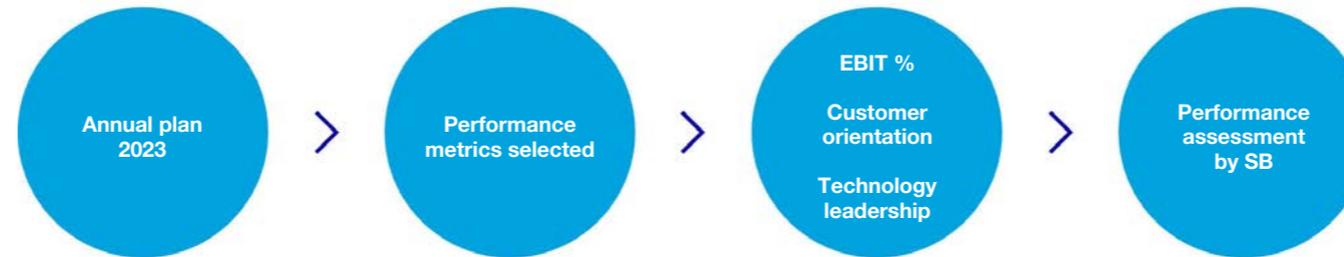
Board of Management remuneration (continued)

Remuneration of Board of Management in 2023

The remuneration of the Board of Management for the financial year 2023 is an implementation of and complies with the 2022 Remuneration Policy for the Board of Management, as further explained below. As such, the remuneration of the Board of Management in 2023 contributed to the objectives of the 2022 Remuneration Policy for the Board of Management and, as a result, to ASML's strategy aimed at sustainable long-term value creation. The Supervisory Board carried out a scenario analysis when determining the structure, level and actual payouts of Board of Management remuneration for 2023, in accordance with the Dutch Corporate Governance Code. For variable remuneration elements, the Supervisory Board reviews performance measures, target setting and payout levels to understand the possible outcomes on total remuneration of the Board of Management and to ensure appropriate pay-for-performance relationships under different economic scenarios and performance levels. The Supervisory Board believes the current remuneration structure and outcomes are appropriate for 2023 and are aligned with company performance and shareholder experience.

Base Salary

The base salaries of the members of the Board of Management were set at the beginning of 2023. To further implement the 2022 BoM Remuneration Policy and to more closely align with the market, moderate base salary increases were applied for the BoM in 2023. For 2023 base salary levels, reference is made to the section Total remuneration Board of Management.



Short-term incentive 2023

The financial and non-financial target levels for the STI were set at the beginning of the 2023 financial year in accordance with the 2022 Remuneration Policy for the Board of Management and taking into account the annual plan (forecast) for 2023.

For the STI, the Supervisory Board, taking into consideration ASML's business challenges and circumstances in 2023, decided to select a performance metric focused on margin and profitability:

- EBIT Margin %, measuring Income from operations as percentage of Total net sales

In setting the EBIT Margin % target for 2023, the Supervisory Board considered that it intended to increase the EBIT Margin % target levels in case of any change in accounting treatment, which would no longer result in a delay in revenue recognition related to fast shipments. During 2023, management made substantial changes in the operational procedures and testing protocols for DUV immersion fast shipments. These optimized procedures and protocols, which were agreed and accepted by our customers, led to optimizations in cycle time and to recognition of revenue upon delivery.

In its final determination of the STI pay-out level for 2023, the Supervisory Board considered that the changes management had made regarding the DUV immersion fast shipments procedures were operational in nature, resulted in efficiency improvements and accordingly were value adding to the company, rather than a change in accounting treatment. Therefore, the Supervisory Board has determined that there is insufficient rationale to retroactively adjust the EBIT Margin % STI target levels.

In addition, the following non-financial performance metrics applied for the STI in 2023, in accordance with the Remuneration Policy for the Board of Management:

- Customer Orientation: This metric consisted of four equally weighed sub-targets measuring ASML's positioning in the market and its performance in terms of customer experience, customer satisfaction and quality.

The sub-targets were: the Applications market share of YieldStar and HMI Single Beam, as these are parts of the Applications market where ASML faces intense competition; DUV output in terms of systems, in light of the 2023 supply-demand situation; EUV availability of the NXE:3600D tool, which is a key metric reflecting the quality of the performance of our tools at the customer

site and as such is considered an appropriate metric to measure customer satisfaction; and overall customer satisfaction, which was measured using an external benchmark: the TechInsights (formerly known as VLSI) Survey.

- Technology Leadership Index: A set of internal targets related to ASML's product and technology roadmaps. The index measures the technological progress made by ASML over the relevant performance period, supporting our efforts to drive innovation and thereby helping our customers achieve their goals and realize new technology and applications.

The Technology Leadership Index for 2023 consisted of a list of 19 key projects in Applications, DUV and EUV. Among others, these projects related to improvements in inspection and metrology systems, manufacturing capacity expressed in wafers per day, component commonality to decrease costs and the power of the (EUV) light source. Exact details of the key projects included in the Technology Leadership Index are not disclosed, given that this would be detrimental to the Company and its stakeholders from a competitive and strategic point of view. To calculate the Technology Leadership Index performance, each project is scored between 1 and 10; the overall Technology Leadership Index score is the average of the 18 individual scores. Both the STI and LTI make use of the Technology Leadership Index as a qualitative performance measure. The objectives are the same for both, but the applicable measures, targets and performance periods are different and aligned with specific short- and long-term strategic priorities.

Board of Management remuneration (continued)

After the end of the performance period, the Supervisory Board assessed the performance achieved against the targets, in cooperation with the relevant subcommittees: the Technology Committee, Audit Committee, ESG Committee and Remuneration Committee. The target and actual achievement levels for the STI performance criteria are set out in the table below, excluding information which qualifies as commercially or strategically sensitive. The Supervisory Board considers disclosure of this information not to be in the interest of ASML and its stakeholders. In view of transparency, we report performance for these metrics as percentage of target.

	Performance targets ¹				Actual outcome	Pay-out ²
	Weight	Threshold	Target	Stretch		
EBIT Margin (%) (Non-GAAP measure)	60%	29%	31%	34%	32.8 %	130.2 %
Customer Orientation	20%					127.8 %
<i>Consisting of the following equally weighted sub-targets:</i>						
Applications market share	5%		*			110.0 %
DUV output (systems)	5%		*			101.3 %
EUV availability	5%		*			150.0 %
TechInsights survey	5%	Top 5	Top 3	Top 2	Top 2	150.0 %
Technology Leadership Index	20%	4	6	10	7.8	122.5 %
Total	100%					128.2 %

1. Certain performance targets (*) are not disclosed due to strategic or commercial sensitivity.

2. The pay-out % is based on the pay-out levels as included in the Summary of 2022 Remuneration Policy Board of Management.

The 2023 EBIT Margin % (Non-GAAP measure) of 32.8% is calculated as Income from operations of €9,042 million divided by Total net sales of €27,559 million.

The actual outcome for Customer Orientation amounts to 127.8%, which is an increase compared to last year performance.

The actual outcome for Technology Leadership Index of 7.8 is in line with last year performance.

The total STI outcome for current Board of Management results in a cash pay-out of €6.0 million, representing a payout as % of target of 128.2%.

Short-Term Incentive 2024

For 2024, the Supervisory Board has decided to apply the following STI performance measures:

	Weight
EBIT Margin (%) (Non-GAAP measure)	60%
Customer Orientation	20%
<i>Consisting of the following sub-targets:</i>	
Applications: Adoption of Multi Beam	2.5%
DUV Cost and Competitiveness	2.5%
EUV Low NA Maturity	2.5%
EUV High NA Performance	2.5%
ASML Customer Trust Survey	10%
Technology Leadership Index	20%
Total	100%

Board of Management remuneration (continued)

Board of Management Remuneration in 2023 – Long-term incentive

Conditionally granted Long-term incentive 2023–2025 Plan in 2023

At the beginning of 2023, 33,478 performance shares were conditionally granted to the current members of the Board of Management for the 2023-2025 LTI performance plan. These conditional grants are based on the maximum achievable opportunity.

Target setting process



At the beginning of 2023, the Supervisory Board, in line with the recommendation of the Remuneration Committee, selected the performance metrics to be used to measure ASML's performance related to strategic value drivers and ESG Sustainability. The Supervisory Board also set the target levels related to all performance metrics for the 2023–2025 LTI Plan, as listed below. This was done taking into account the long-term product roadmap, ESG goals and the long-term financial plan, thereby ensuring alignment between the various targets and ASML's long-term strategic priorities and encouraging behavior focused on sustainable long-term value creation.

For the 2023-2025 LTI Plan, the following performance metrics apply, in accordance with the 2022 Remuneration Policy for the Board of Management:

- **Total shareholder return (TSR) vs. Index:** Measuring ASML's relative change in share price, plus dividends paid over the relevant performance period. The TSR is calculated as the difference between (i) the average (closing) share price during the last quarter of the performance period and (ii) the average (closing) share price during the quarter preceding the performance period; in the calculation, dividends are reinvested at the ex-dividend date. The TSR of ASML (calculated with the ASML New York share) is compared with the PHLX Semiconductor Sector Index. This Nasdaq index is designed to track the performance of a set of companies engaged in the design, distribution, manufacture and sale of semiconductors. There are two versions of this index, a price return index and a total return index, the latter of which has been chosen (Nasdaq: X.SOX), as this index reinvests cash dividends, equivalent to the TSR definition described above.
- **Strategic value driver:** Normalized three-year average cash conversion rate is a measure to ensure a focus on balance sheet and cash generation, in addition to the focus on margin that is already part of the 2023 STI (by including EBIT Margin). The Normalized Cash Conversion Rate percentage is calculated over a three-year average by dividing Normalized Free Cash Flow (non-GAAP measure) by Net Income. Free Cash Flow is a non-GAAP measure and is defined as net cash provided by operating activities minus purchase of property, plant and equipment and purchase of intangible assets. Normalized Free Cash Flow (non-GAAP measure) is Free Cash Flow (non-GAAP measure) excluding early payments received in a certain financial year from customers without a contractual payment obligation in that financial year.
- **Technology Leadership Index:** A qualitative measure which is also applied for the STI. As a metric for the LTI, the Technology Leadership Index is more forward looking than its STI equivalent. It consists of targets to be achieved three years ahead, two years ahead and in the coming year. Each year, new targets are defined for the period three years ahead. The targets for two years ahead are based on the prior-year targets (that were three years ahead at that time) and a correction factor on the score (up or down) depending on whether targets appeared to be easier or more difficult to achieve. The same approach is utilized for subsequent years. The total score for the Technology Leadership Index over the three-year performance period is the average of the scores over the three years, including the relevant correction factors applied on each year's score.
- **ESG:** A qualitative measure consisting of three equally weighted sub-targets: (1) ASML Manufacturing net scope emission (Scope 1+2) with minimum compensation, (2) employee engagement and (3) Inflow % female as part of total ASML new hire (both total inflow as well as for JG 9+)

Board of Management remuneration (continued)

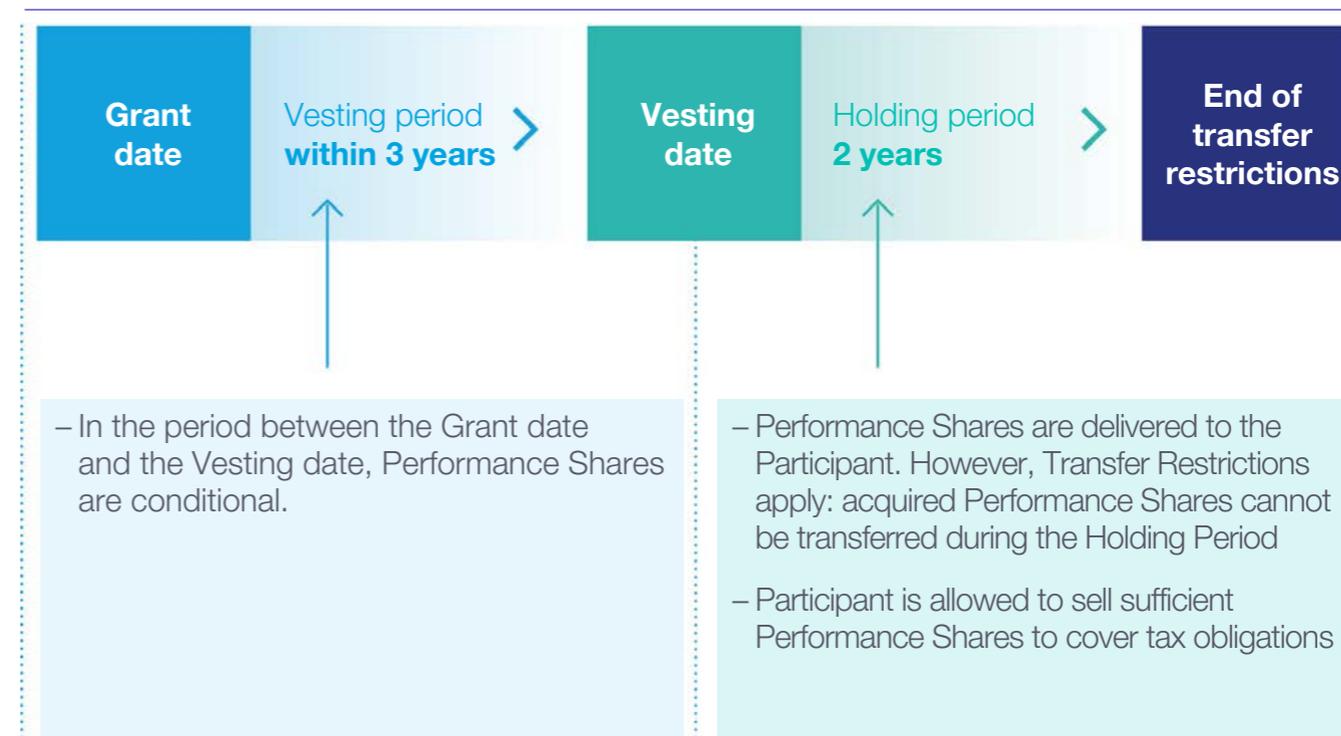
Performance metric	Weight	Performance targets		
		Threshold	Target	Maximum
Relative TSR	30%	Lower quartile	Median	Upper quartile
Normalized three-years average Cash Conversion Rate %¹	30%	85%	90%	95%
ESG Measures	20%			
<i>Consisting of equally weighted sub-metrics:</i>				
Net zero emission (Scope 1+2) with minimum compensation		<37kT compensation	<30kT compensation	<20kT compensation
Employee engagement		X ² – 4% point	X ² – 2% point	X ²
Total and JG9+ Inflow of women		22%	24%	26%
Technology Leadership Index	20%	4	6	10
Total	100%			

1. The Normalized three-year average Cash Conversion Rate % (CCR) is calculated by dividing Normalized Free Cash Flow (Non-GAAP measure) by Net Income (three-year average). Free Cash Flow (Non-GAAP measure) is normalized by excluding early payments received in a certain financial year from customers without a contractual payment obligation in that financial year.

2. X = top 25% companies.

Vesting under the Long-Term Incentive 2021–2023 Plan

Following the end of the three-year performance period 2021-2023, the Supervisory Board assessed the performance achieved against the LTI targets, in cooperation with the Technology Committee, Audit Committee, ESG Committee and Remuneration Committee. The performance metrics that applied to the LTI 2021-2023 Plan were Relative Total Shareholder Return vs. Index, Return on Average Invested Capital (ROAIC), Technology Leadership Index and Sustainability, in accordance with the 2020 Remuneration Policy for the Board of Management. The target and actual achievement levels for the LTI performance criteria based on the Remuneration Policy for the Board of Management are set out in the table below.

Vesting of shares process

Board of Management remuneration (continued)

Performance metric	Performance targets					Actual performance	Pay-out % ² % of target
	Weight	Threshold	Target	Exceed	Stretch		
Relative TSR	30%	(20%)	0%	n/a	20%	11.0%	155.0%
ROAIC¹	40%	27.0%	30.0%	33.0%	36.0%	65.8%	200.0%
Technology Leadership Index	20%	4	6	8	10	8.2%	155.8%
Sustainability	10%	≤10.0%	≤9%	n/a	≤7%	10.8%	0.0% ⁴
Total	100%						157.7%³

1. The ROAIC (Non-GAAP measure) is based on a three-year (2021-2023) average by dividing the Income after income taxes by the Average Invested Capital. Average Invested Capital is calculated by taking the average of Total assets minus Cash and cash equivalents, Short-term investments, Total current liabilities and Non-current contract liabilities at the start and end of each quarter over three years.

2. The pay-out % is based on the pay-out levels as included in the Summary of 2020 Remuneration Policy Board of Management.

3. Total Actual Performance score of 157.7% is based on weighting of individual performance metrics multiplied by the pay-out %.

4. In absolute terms, ASML scored very well, ranking #6 out of 347 companies in the DJSI. However, the DJSI score is measured by the percentage deviation from the industry leader for incentive purposes. For the 2021-2023 performance period, ASML was slightly below threshold looking at the percentage deviation from the industry leader.

The total LTI outcome results in a share vesting of 157.7% of target.

LTI Plan 2024-2026

At the beginning of 2024, 24,678 performance shares were conditionally granted to the current members of the Board of Management for the 2024-2026 LTI performance plan. These conditional grants are based on the maximum achievable opportunity for 2024.

For the 2024-2026 performance period, the Supervisory Board has decided to apply the following LTI performance measures and target setting:

Performance metric	Performance targets			
	Weight	Threshold	Target	Maximum
Relative TSR	30%	As per remuneration policy		
ROAIC (2024-2026)¹	30%	45%	70%	90%
ESG measures	20%			
<i>Consisting of the following sub-measures:</i>				
Employee engagement (Relative benchmark target vs top 25% performing companies)	6.7 %	-4	-2	0
Gender diversity:	6.7 %			
• % Inflow of women all JG and JG 9+		24 %	26 %	28 %
• % Representation of women in JG 13+		12 %	14 %	16 %
Commitment of top-80% suppliers (based on CO2e emissions) to reduce their CO2e footprint by 2030	6.7 %	65 %	75 %	85 %
Technology Leadership Index	20%	4	6	10
Total	100%			

1. For ASML long term incentive purposes, the ROAIC 2024-2026 (Non-GAAP measure) is based on a three-year (2024-2026) average by dividing the Income after income taxes (at target R&D) by the Average Invested Capital. Average Invested Capital is calculated by taking the average of Total assets minus Cash and cash equivalents, Short-term investments, Total current liabilities and Non-current contract liabilities at the start and end of each quarter over three years. Mergers and acquisitions will be excluded from the evaluation after the LTI period. We believe that ROAIC is a meaningful measure because it quantifies our effectiveness in generating returns relative to the capital invested in our business over the past three years.

Board of Management remuneration (continued)

Other remuneration

In 2023, members of the Board of Management participated in the pension arrangement for the Board of Management, which is based on the 'excedent' (supplementary) arrangement for our employees in the Netherlands, a defined contribution opportunity as defined in Dutch fiscal regulations. It consists of a gross pension element (for the salary below approximately €129k) and a net pension element (for the salary above approximately €129k). Some members opted out of the net pension due to different tax treatment of this outside the Netherlands. Details of the incurred accounting expenses relating to the application of the pension arrangement in 2023 can be found in the table Total Remuneration Board of Management.

Expenses reimbursed by ASML in 2023 included company car costs, representation allowances, social security costs and health and disability insurance costs.

Share ownership guidelines

The table below shows the share ownership guidelines, number of outstanding vested shares and share ownership ratio of each Board of Management member as per December 31, 2023. All members of the Board of Management complied with the minimum ownership guidelines per year end 2023.

Board of Management	Ownership guidelines	2023 base salary (in € thousands)	Number of outstanding vested shares	Ownership ratio ¹
P.T.F.M. Wennink	3x base	1,040	39,292	25.76
M.A. van den Brink	3x base	1,040	11,609	7.61
F.J.M. Schneider-Maunoury	2x base	725	20,685	19.45
R.J.M. Dassen	2x base	725	16,718	15.72
C.D. Fouquet	2x base	725	7,179	6.75
W.R. Allan	2x base	725	4,677	4.40

1. The Ownership ratio is calculated by multiplying the number of outstanding vested shares with the share price of €681.70 (based on the closing share price of December 29, 2023) and dividing this by the base salary.

Board of Management remuneration (continued)

Total remuneration Board of Management

The remuneration of the members of the Board of Management based on incurred accounting expenses in 2023, 2022 and 2021 was as follows (amounts are in € thousands):

Board of Management	Financial Year	Base salary	Pension	Other benefits	Total fixed	% Fixed	STI	LTI	Total variable	% Variable	Total Remuneration	Relative proportion fixed vs. variable
P.T.F.M. Wennink ¹	2023	1,040	248	61	1,349	22.7 %	1,400	3,192	4,592	77.3 %	5,941	0.29
	2022	1,020	206	58	1,284	30.0 %	961	2,035	2,996	70.0 %	4,280	0.43
	2021	1,020	206	57	1,283	26.6 %	1,098	2,439	3,537	73.4 %	4,820	0.36
M.A. van den Brink ¹	2023	1,040	248	59	1,347	22.7 %	1,400	3,192	4,592	77.3 %	5,939	0.29
	2022	1,020	206	57	1,283	30.0 %	961	2,035	2,996	70.0 %	4,279	0.43
	2021	1,020	206	56	1,282	26.6 %	1,098	2,439	3,537	73.4 %	4,819	0.36
F.J.M. Schneider-Maunoury	2023	725	148	45	918	25.7 %	883	1,773	2,656	74.3 %	3,574	0.35
	2022	694	141	36	871	30.6 %	619	1,354	1,973	69.4 %	2,844	0.44
	2021	694	115	36	845	26.8 %	747	1,566	2,313	73.2 %	3,158	0.37
R.J.M. Dassen	2023	725	121	56	902	25.4 %	883	1,773	2,656	74.6 %	3,558	0.34
	2022	694	116	51	861	30.4 %	619	1,354	1,973	69.6 %	2,834	0.44
	2021	694	115	51	860	22.6 %	747	2,193	2,940	77.4 %	3,800	0.29
C.D. Fouquet	2023	725	82	56	863	24.5 %	883	1,773	2,656	75.5 %	3,519	0.32
	2022	694	78	53	825	29.5 %	619	1,354	1,973	70.5 %	2,798	0.42
	2021	694	78	52	824	26.3 %	747	1,566	2,313	73.7 %	3,137	0.36
W.R. Allan ²	2023	492	82	38	612	29.6 %	599	860 ³	1,459	70.4 %	2,071	0.42
Total Board of Management	2023	4,747	929	315	5,991	24.4 %	6,048	12,563	18,611	75.6 %	24,602	0.32
	2022	4,122	747	255	5,124	30.1 %	3,779	8,132	11,911	69.9 %	17,035	0.43
	2021	4,122	720	252	5,094	25.8 %	4,437	10,203	14,640	74.2 %	19,734	0.35

1. On November 30, 2023 it was announced that Mr. Wennink and Mr. van den Brink will retire as Presidents of ASML on April, 24 2024 upon completion of their current appointment terms. Mr. Wennink and Mr. van den Brink will remain entitled to performance shares granted under the LTI plans in 2021, 2022 and 2023, which will vest in accordance with the relevant performance criteria as stated in the grant letters. All LTI expenses for the running LTI plans are accounted in 2023 and 2024 over the remaining service period, since no services are provided beyond the end of the service period in 2024. For comparison purposes, if Mr. Wennink's and Mr. van den Brink were to remain in service, their normalized LTI expense would be €2,575 thousand each in 2023.

2. Wayne R. Allan was appointed as a BoM member on April 26, 2023.

3. Wayne R. Allan's 2023 LTI expense is based on the signed grant letter dated January 27, 2023, adopted by the terms and conditions as applicable to other Board of Management members subject to performance and service criteria within 3 years vesting period. Although not a member of the Board of Management at the grant date, Wayne R. Allan received a grant on January 27, 2023 in anticipation of the appointment as a member of the Board of Management.

The remuneration reported as part of the LTI (share awards) is based on costs incurred under accounting values. The costs of share awards are charged to the Consolidated Statements of Operations over the three-year vesting period based on the number of awards expected to vest for non-market-based elements. For the first two years, we apply the maximum achievable number of share awards, and in the final performance year of the awards we update this estimate for the non-market performance conditions to the best estimated number of awards which are anticipated to vest. Any difference between the amount based on the best estimate of achievable number of shares awards and the amount based on the actual number of share awards that vest, is taken into account in the Consolidated Statements of Operations in the financial year in which the share awards vest. Market-based elements are accounted at target.

Board of Management remuneration (continued)

Total remuneration Former Board of Management

F.J. van Hout is no longer part of the Board of Management as he retired from ASML in 2021.

Former Board of Management	Financial Year	Base salary	Pension	Other benefits	Total fixed	% Fixed	STI	LTI	Total variable	% Variable	Total Remuneration	Relative proportion fixed vs. variable
F.J. van Hout ¹	2021	231	47	16	294	11.4 %	243	2,036	2,279	88.6 %	2,573	0.13

1. The 2021 total remuneration of F.J. van Hout excluded an estimated tax levy payable to the Dutch tax authorities by the Company on termination benefits pursuant to article 32bb of the Dutch Wage Tax Act.

Board of Management remuneration (continued)

Share-based payments

Performance-based share-based remuneration for current members of the Board of Management is disclosed in the table below. Fractional shares are rounded down to full shares for reporting purposes.

Board of Management	Grant date	Status	Full control	Market-based element		Non-market-based elements		Total number of shares at target	Total number of shares at maximum (200%)	Vesting date	Number of vested shares on publication date	Year-end closing share price in year of vesting	End of lock-up date
				Number of shares at target	Fair value at grant date	Number of shares at target	Fair value at grant date						
P.T.F.M. Wennink	1/27/23	Conditional	No	1,049	901.9	2,447	603.4	3,496	6,991	1/1/26	n/a	n/a	1/1/28
	4/29/22	Conditional	No	709	596.0	1,655	533.5	2,364	4,727	1/1/25	n/a	n/a	1/1/27
	1/22/21	Conditional ¹	No	1,053	635.6	2,455	454.9	3,508	7,016	1/1/24	5,531	681.7	1/1/26
	1/24/20	Unconditional	No	1,387	286.9	3,235	263.7	4,622	9,245	1/1/23	8,420	503.8	1/1/25
	7/19/19	Unconditional	No	2,217	245.4	5,173	194.4	7,390	14,780	1/1/22	13,326	706.7	1/1/24
M.A. van den Brink	1/27/23	Conditional	No	1,049	901.9	2,447	603.4	3,496	6,991	1/1/26	n/a	n/a	1/1/28
	4/29/22	Conditional	No	709	596.0	1,655	533.5	2,364	4,727	1/1/25	n/a	n/a	1/1/27
	1/22/21	Conditional ¹	No	1,053	635.6	2,455	454.9	3,508	7,016	1/1/24	5,531	681.7	1/1/26
	1/24/20	Unconditional	No	1,387	286.9	3,235	263.7	4,622	9,245	1/1/23	8,420	503.8	1/1/25
	7/19/19	Unconditional	No	2,217	245.4	5,173	194.4	7,390	14,780	1/1/22	13,326	706.7	1/1/24
F.J.M. Schneider-Maunoury	1/27/23	Conditional	No	731	901.9	1,706	603.4	2,437	4,874	1/1/26	n/a	n/a	1/1/28
	4/29/22	Conditional	No	483	596.0	1,126	533.5	1,609	3,217	1/1/25	n/a	n/a	1/1/27
	1/22/21	Conditional ¹	No	717	635.6	1,670	454.9	2,387	4,774	1/1/24	3,763	681.7	1/1/26
	1/24/20	Unconditional	No	858	286.9	2,001	263.7	2,859	5,718	1/1/23	5,208	503.8	1/1/25
	7/19/19	Unconditional	No	1,371	245.4	3,198	194.4	4,569	9,137	1/1/22	8,239	706.7	1/1/24
R.J.M. Dassen	1/27/23	Conditional	No	731	901.9	1,706	603.4	2,437	4,874	1/1/26	n/a	n/a	1/1/28
	4/29/22	Conditional	No	483	596.0	1,126	533.5	1,609	3,217	1/1/25	n/a	n/a	1/1/27
	1/22/21	Conditional ¹	No	717	635.6	1,670	454.9	2,387	4,774	1/1/24	3,763	681.7	1/1/26
	1/24/20	Unconditional	No	858	286.9	2,001	263.7	2,859	5,718	1/1/23	5,208	503.8	1/1/25
	7/19/19	Unconditional	No	1,371	245.4	3,198	194.4	4,569	9,137	1/1/22	8,239	706.7	1/1/24
	1/25/19	Unconditional	No	3,000	169.0	7,000	148.3	10,000	20,000	1/1/22	18,032	706.7	1/1/24
C.D. Fouquet	1/27/23	Conditional	No	731	901.9	1,706	603.4	2,437	4,874	1/1/26	n/a	n/a	1/1/28
	4/29/22	Conditional	No	483	596.0	1,126	533.5	1,609	3,217	1/1/25	n/a	n/a	1/1/27
	1/22/21	Conditional ¹	No	717	635.6	1,670	454.9	2,387	4,774	1/1/24	3,763	681.7	1/1/26
	1/24/20	Unconditional	No	858	286.9	2,001	263.7	2,859	5,718	1/1/23	5,208	503.8	1/1/25
	7/19/19	Unconditional	No	1,371	245.4	3,198	194.4	4,569	9,137	1/1/22	8,239	706.7	1/1/24
W.R. Allan ²	1/27/23	Conditional	No	731	901.9	1,706	603.4	2,437	4,874	1/1/26	n/a	n/a	1/1/28

1. The 2021-2023 LTI plans became unconditional after vesting date in January 2024.

2. Wayne R. Allan was appointed as a BoM member on April 26, 2023. His conditionally granted shares are based on the signed grant letter dated January 27, 2023, adopted by the terms and conditions as applicable to other Board of Management members subject to performance and service criteria within 3 years vesting period. Although not a member of the Board of Management at the grant date, Wayne R. Allan received a grant on January 27, 2023 in anticipation of the appointment as a member of the Board of Management.

Board of Management remuneration (continued)

Performance-based share-based remuneration for former members of the Board of Management is disclosed in below table. Fractional shares are rounded down to full shares for reporting purposes.

Former Board of Management	Grant date	Status	Full control	Market-based element		Non-market-based elements		Total number of shares at target	Total number of shares at maximum (200%)	Vesting date	Number of vested shares on publication date	Year-end closing share price in year of vesting	End of lock-up date
				Number of shares at target	Fair value at grant date	Number of shares at target	Fair value at grant date						
F.J. van Hout	1/22/21	Conditional ¹	No	239	635.6	557	454.9	796	1,592	1/1/24	1,255	681.7	1/1/26
	1/24/20	Unconditional	No	858	286.9	2,001	263.7	2,859	5,718	1/1/23	5,208	503.8	1/1/25
	7/19/19	Unconditional	No	1,371	245.4	3,198	194.4	4,569	9,137	1/1/22	8,239	706.7	1/1/24

1. The 2021-2023 LTI plans became unconditional after vesting date in January 2024.

Reasons, criteria and principal conditions for granting shares

For the reasons and criteria for granting the performance shares to each member of the Board of Management, reference is made to the Summary of 2022 Remuneration Policy Board of Management and to the section Board of Management Remuneration in 2023 – Long-term incentive as included in this Remuneration Report.

The principal conditions applicable to the 2023 performance shares are described below. These apply to each member of the Board of Management.

Instrument:	Performance shares
Grant	Conditional grant on an annual basis based on maximum achievable opportunity. The number of performance shares to be conditionally awarded is calculated using the volume-weighted average share price during the last quarter of the year preceding the conditional award.
Grant date	Date on which the performance shares are conditionally granted.
Performance period	Period of three-years over which the achievement of the pre-defined performance targets is measured.
Vesting	The shares will become unconditional after the end of the performance period, depending on the level of achievement of the predetermined performance targets.
Lock-up period	The minimum holding period is two years after the vesting date. Upon termination of contract, the transfer restrictions will remain in place during the holding period except in case of decease. In case a tax payment is due by the members of the Board of Management over the retrieved variable income, performance shares may be partially sold at vesting ('sell to cover') in accordance with the law and internal regulations.

Board of Management remuneration (continued)

Relationship between accounted remuneration and company's performance

The following table provides an overview of the relationship between accounted remuneration and the company's performance for the past five years:

For the year ended December 31 (€ in thousands)	2019	2020	Change (in %)	2021	Change (in %)	2022	Change (in %)	2023	Change (in %)
Net sales	11,820,001	13,978,452	18 %	18,610,994	33 %	21,173,448	14 %	27,558,506	30 %
Net income based on US GAAP	2,592,252	3,553,670	37 %	5,883,177	66 %	5,624,209	(4)%	7,838,994	39 %
Net income based on EU-IFRS	2,581,107	3,696,813	43 %	6,134,595	66 %	6,395,775	4 %	8,115,168	27 %
ASML share price (closing price on Euronext Amsterdam in €)	263.7	397.6	51 %	706.7	78 %	503.8	(29)%	681.7	35 %
Average number of payroll employees in FTEs	22,192	24,727	11 %	28,223	14 %	33,071	17 %	38,805	17 %
Dow Jones Sustainability Index (DJSI) ¹	10.2 %	9.0 %	(11.8)%	12.1 %	34.4 %	10.8 %	(10.7)%	10.8 %	— %
Remuneration P.T.F.M. Wennink (CEO) ²	4,361	4,564	5 %	4,820	6 %	4,280	(11)%	5,941	39 %
Remuneration M.A. van den Brink ²	4,360	4,564	5 %	4,819	6 %	4,279	(11)%	5,939	39 %
Remuneration R.J.M. Dassen	2,956	3,804	29 %	3,800	— %	2,834	(25)%	3,558	26 %
Remuneration C.D. Fouquet	2,203	2,975	35 %	3,137	5 %	2,798	(11)%	3,519	26 %
Remuneration F.J.M. Schneider-Maunoury	2,724	2,927	7 %	3,158	8 %	2,844	(10)%	3,574	26 %
Remuneration W.R. Allan ⁵	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2,071	n/a
Average remuneration per FTE ⁴ based on US GAAP	114	120	5 %	122	2 %	125	2 %	138	10 %
Average remuneration per FTE ⁴ based on EU-IFRS	114	120	5 %	122	2 %	118	(3)%	143	21 %
Internal pay ratio (CEO versus employee remuneration based on US GAAP) ^{2,3}	38	38	— %	40	5 %	34	(15)%	43	26 %
Internal pay ratio (CEO versus employee remuneration based on EU-IFRS) ^{2,3}	38	38	— %	40	5 %	36	(10)%	42	17 %
Ratio of the percentage increase in annual total compensation for CEO to the percentage increase in average annual remuneration for all employees ⁴ based on US GAAP	n/a	n/a	n/a	n/a	n/a	(5.5)	n/a	3.9	(171)%
Ratio of the percentage increase in annual total compensation for CEO to the percentage increase in average annual remuneration for all employees ⁴ based on EU-IFRS	n/a	n/a	n/a	n/a	n/a	3.7	n/a	1.9	(49)%

1. The DJSI score is measured by the % deviation from the industry leader at the end of the 3-year performance period.

2. On November 30, 2023, ASML announced that Mr. Wennink will retire from ASML per the 2024 AGM. Consequently, the LTI expenses for his running LTI plans are accelerated for over his remaining service period in 2023 and 2024. For comparison purposes, if Mr. Wennink's and Mr. van den Brink were to remain in service, their normalized LTI expense would be €2,575 thousand each in 2023 and the outcome of the CEO vs. average per FTE ratio would be and the outcome of the CEO internal pay ratio calculation would be 39 (based on US GAAP) and 37 (based on EU-IFRS) in 2023.

3. The calculation approach of the internal pay ratio is disclosed in the section Relationship between CEO and average remuneration (pay ratio).

4. The ratio of the percentage increase in annual total compensation for CEO to percentage increase in average annual remuneration for all employees is calculated by dividing the % annual increase in the remuneration of the CEO by the % annual increase in the average remuneration per FTE. This ratio is only applicable as of 2022 to comply with the GRI Standards 2021.

5. Wayne R. Allan was appointed as a BoM member on April 26, 2023.

Board of Management remuneration (continued)

Explanation of changes in company's performance versus remuneration

The foregoing table aims to provide insight into the Company's performance over the past five years and the development of the remuneration. The metrics net sales, net income and share price are used to measure Company performance, as they are key metrics serving as a good proxy for ASML's general performance, as well as in view of comparability with other companies. The Company has grown significantly over recent years, not only reflected in the number of employees but also in terms of performance. Over the last 5 years, net sales increased by 133%, net income increased by 202% based on US GAAP (214% based on EU-IFRS) and ASML's share price increased by more than 150%. This shows that the Company's performance has improved significantly over the last five years. The significant growth of the Company has led to revisions of the Remuneration Policy for the Board of Management in 2019, 2021 and 2022, resulting in higher base salaries as well as higher levels of STI (at target) and LTI (at target), resulting in a relatively similar increase in the remuneration over this same period. Actual remuneration may fluctuate year over year depending on actual STI pay-out in any year, as well as the vesting of performance shares (LTI) in any year and the share price at that moment.

Relationship between CEO and average remuneration (pay ratio)

The internal pay ratio consists of the CEO's total remuneration (including all remuneration components) during 2023 of €5,941 thousand, compared to the average remuneration of all employees. The average remuneration of all employees was calculated using the average number of payroll employees in FTE (wages and salaries + social security expenses + pension and retirement expenses + share-based payments) divided by the average number of payroll employees = €5,341.2 million divided by 38,805 = €138 thousand. This ratio has not been prepared to comply with the Pay Ratio Disclosure requirements under SEC regulations. The ratio is based on the highest paid individual according to accounting values consisting of fixed and variable remuneration elements compared to the average remuneration of all employees that are in service with the company, which excludes all other Board Members. This calculation approach brings the ratios more in line with the requirements from the Corporate Governance Code.

The internal pay ratio (CEO versus employee remuneration) based on US GAAP increased towards 43:1 in 2023 (2022: 34:1) and based on EU-IFRS increased towards 42:1 in 2023 (2022: 36:1). The increase is mainly due to the increase in the overall performance and an accounting consequence related to the Mr. Wennink's retirement as per the 2024 AGM. After this date, Mr. Wennink's service to the Company ends, which increases the incurred accounting expenses in 2023 and 2024, since his remaining expected LTI expenses are accelerated over his remaining service period. ASML intends to grant competitive remuneration to employees at all position levels within the Company. At each level remuneration should reflect the responsibilities of the role. The build-up of remuneration from level to level should therefore be gradual and in line with increasing responsibilities, also following market practice. At the highest level the steps become gradually bigger as responsibilities ultimately rise from a divisional level to an overall company level. The Supervisory Board considers the current build-up and the overall pay ratio to be equitable, considering the current performance of the company.

Supervisory Board remuneration

In this section of the Remuneration Report, we provide an overview of the 2023 Remuneration Policy for the Supervisory Board as adopted by the General Meeting on April 26, 2023, and as in force from April 1, 2023 onwards. It provides information about the implementation of the 2023 Remuneration Policy for the Supervisory Board in 2023 and contains the details of the Supervisory Board members' actual remuneration in 2023. The 2023 Remuneration Policy for the Supervisory Board can be found in the Governance section of our website.

During 2022 the Remuneration Committee performed a review of the Remuneration Policy for the Supervisory Board and performed the recurring bi-annual benchmark of Supervisory Board remuneration. Based on the result of the review and benchmark, it was proposed to amend the remuneration for the Supervisory Board.

The key proposed changes to the Remuneration Policy for the Supervisory Board were:

1. The revised Remuneration Policy for the Supervisory Board no longer includes specific amounts for the remuneration of the Supervisory Board, but rather provides the guidelines for remuneration of the Supervisory Board, just as is the case for the Remuneration Policy for the Board of Management. The actual amounts will be determined by the general meeting within the scope of the remuneration policy, in conformity with article 26.2 of ASML's articles of association.

2. A clause was included which allows the Supervisory Board to grant additional remuneration in special circumstances. As a result, the Supervisory Board may, upon recommendation of the Remuneration Committee, grant increased Supervisory Board and/or Committee fees, depending on the character of the circumstances, for instance in case a significant increase in time investment by its members. As a starting point, the Supervisory Board considers an increase of at least 25% a significant increase. The additional annual remuneration per member will be capped at one time the amount of the annual Supervisory Board membership fee payable to such member.

Since the actual amounts of the Supervisory Board remuneration are no longer included in the remuneration policy itself, a proposal was submitted to the General Meeting to amend Supervisory Board remuneration.

Both proposals were adopted with a majority of 98.88% and 99.20% of votes cast respectively.

More details on the changes made to the Supervisory Board Remuneration Policy and quantum of remuneration can be found on our website.

Remuneration Policy

Remuneration objectives and principles

The 2023 Remuneration Policy for the Supervisory Board is designed to enable ASML to attract and retain qualified Supervisory Board members, who together compose a diverse and balanced Supervisory Board with the appropriate level of skills, competencies and experience required to properly supervise (the execution of) ASML's strategy and the performance of ASML, which is focused on the creation of sustainable long-term value for all stakeholders.

The 2023 Remuneration Policy for the Supervisory Board is built on the following principles:

- **Competitiveness** – The remuneration structure and levels intend to be competitive in the relevant market, while at the same time taking into account societal trends and perceptions.
- **Alignment** – The Remuneration Policy is benchmarked to market practice
- **Fairness** - The remuneration should reflect the time spent and the responsibilities of the role of the members of the Supervisory Board
- **Independence** - the remuneration of a Supervisory Board member may not be made dependent on the results of the Company
- **Compliance** - ASML adopts the highest standards of good corporate governance
- **Simplicity and transparency** – the remuneration policy and its execution are as simple as possible and easily understandable to all stakeholders

Reference group and market positioning

The remuneration of the Supervisory Board should be competitive compared with a relevant reference market. This market is defined using a reference group of companies with a two-tier board structure included in the AEX Index of Euronext Amsterdam. To determine the appropriate positioning within this group, market cap, revenue and number of employees are taken into account. In addition given the international character of ASML and ASML's Supervisory Board, market benchmark is also conducted against the international Board of Management reference group to provide broader market reference and context.

Supervisory Board remuneration (continued)

Summary of Remuneration of the Supervisory Board

This table provides an overview and description of the elements of the 2023 Remuneration Policy for the Supervisory Board.

Fixed remuneration			
Description in 2023 Remuneration Policy		2022	2023
Fixed remuneration paid in cash including a base membership fee, committee fees and additional compensation contingent on SB members' activities and responsibilities	Chair of Supervisory Board	€130,000	€140,000
	Vice Chair of Supervisory Board	€94,000	€100,000
	Member of Supervisory Board	€75,000	€80,000
	Chair Audit Committee	€25,500	€27,000
	Member Audit Committee	€18,000	€18,000
	Chair of other Committees	€20,000	€22,000
	Member of other Committees	€14,500	€16,000

Extra allowance for intercontinental meetings			
Description in 2023 Remuneration Policy		2022	2023
Extra, fixed allowance paid in connection with additional time commitment for intercontinental travel	For each meeting that involves intercontinental travel	€5,000	€5,000

Expenses			
Description in 2023 Remuneration Policy		2022	2023
Expenses incurred in relation to meeting attendance are reimbursed. In addition, a fixed net cost allowance is paid, covering certain pre-defined out-of-pocket expenses	Fixed net cost allowance		
	Chair of Supervisory Board	€1,980	€1,980
	Member of Supervisory Board	€1,380	€1,380
Remuneration in special circumstances			
The Supervisory Board may, upon recommendation of the Remuneration Committee, grant additional remuneration in special circumstances. This may concern granting increased Supervisory Board and/or Committee fees, depending on the character of the circumstances, for instance in case of a significant increase in time investment by its members.	The additional annual remuneration per member will be capped at one time the amount of the annual Supervisory Board membership fee payable to such member.		
	The Supervisory Board considers an increase of at least 25% a significant increase in time investment		

Loans and guarantees	
Description	Value
No (personal) loans or guarantees or the like will be granted	Not applicable

Shares and share ownership	
Description	Value
No (rights to) shares are granted by way of remuneration. Any holding of ASML shares is for the purpose of long-term investment. Any trading activity is subject to ASML's Insider Trading Rules	Not applicable

Other arrangements	
Description	Value
(Re)appointment based on Dutch law and ASML's Articles of Association. No claw-back, severance or change in control arrangements are in place	Not applicable

Supervisory Board remuneration (continued)

Remuneration of the Supervisory Board in 2023

Overview of the remuneration of the Supervisory Board members based on incurred accounting expenses over the last five years (amounts are in € thousands):

	Membership fees 2023	Committee fees 2023	Allowances 2023 ¹	Proportion fixed vs. variable 2023	Total remuneration 2023	Total remuneration 2022	Total remuneration 2021	Total remuneration 2020	Total remuneration 2019
T.L. Kelly	79	37	21	100:0	137	126	107	88	101
A.P. Aris	99	47	6	100:0	152	144	127	95	98
B.M. Conix	79	29	1	100:0	109	99	63	n/a	n/a
D.M. Durcan	79	37	21	100:0	137	126	112	57	n/a
D.W.A. East	79	34	6	100:0	119	99	93	59	n/a
N.S. Andersen ²	95	27	1	100:0	123	n/a	n/a	n/a	n/a
J.P. de Kreij ³	55	29	1	100:0	85	n/a	n/a	n/a	n/a
A.F.M. Everke	79	24	1	100:0	104	66	n/a	n/a	n/a
A.L. Steegen	79	24	6	100:0	109	66	n/a	n/a	n/a
Total	723	288	64	100:0	1,075	726	502	299	199

1. Allowances consist of fixed-expense allowances and allowances for intercontinental meetings.

2. Appointed as chair of the Supervisory Board at the AGM on April 26, 2023, also appointed as chair of the Selection and Nomination Committee.

3. Appointed as member of the Supervisory Board at the AGM on April 26, 2023, also appointed as chair of the Audit Committee and member of the Remuneration Committee.

No pay has been granted in 2023 pursuant to the 'Remuneration in special circumstances clause' as included in the 2023 Remuneration Policy for the Supervisory Board. No variable pay has been granted to the current and former members of the Supervisory Board during the last five years. The remuneration of the Supervisory Board is not directly linked to the performance of ASML, in line with the remuneration principles set out in the 2023 Remuneration Policy for the Supervisory Board.

Remuneration of former Supervisory Board members

Overview of the remuneration awarded to the former Supervisory Board members in 2023, 2022 and 2021 (amounts are in € thousands):

	Membership fees 2023	Committee fees 2023	Allowances 2023 ¹	Proportion fixed vs. variable 2023	Total remuneration 2023	Total remuneration 2022	Total remuneration 2021
G.J. Kleisterlee ²	43	17	1	100:0	61	190	178
R.D. Schwalb ²	24	13	—	100:0	37	116	113
J.M.C. Stork	n/a	n/a	n/a	n/a	n/a	40	113
D.A. Grose	n/a	n/a	n/a	n/a	n/a	n/a	36
C.M.S. Smits Nusteling	n/a	n/a	n/a	n/a	n/a	n/a	31
Total	67	30	1	100:0	98	346	471

1. Allowances consist of fixed-expense allowances and allowances for intercontinental meetings.

2. Stepped down per the AGM on April 26, 2023.

Remuneration Report - Other Information

Other information

Total remuneration

The total annual remuneration for the members of the Board of Management and the Supervisory Board, including former members, during 2023 amounts to €25.8 million (2022: €18.1 million).

Other arrangements

No remuneration has been granted and allocated by subsidiaries or other companies whose financials are consolidated by ASML, since all members of the Board of Management and the Supervisory Board are paid directly by ASML Holding NV.

No (personal) loans have been granted to the members of the Board of Management or the Supervisory Board and no guarantees or the like have been granted in favor of any of the members of the Board of Management and the Supervisory Board.

No severance payments were granted to members of the Board of Management and the Supervisory Board in 2023 and no variable remuneration has been clawed back.

Deviations

In 2023, no deviations took place from the decision-making process for the implementation of the applicable Remuneration Policies for the Board of Management and the Supervisory Board and no temporary deviations took place from the applicable Remuneration Policies for the Board of Management and the Supervisory Board.

Shareholder voting

At the 2023 AGM, the 2023 Remuneration Policy for the Supervisory Board was adopted with 98.88% of the votes cast in favor of the proposal and the remuneration amounts for the Supervisory Board were adopted with 99.20% of the votes cast in favor of the proposal.

The Remuneration Report for the financial year 2022 was submitted to the 2023 AGM for an advisory vote. 93.21% of the votes were cast in favor. In the Message from the Remuneration Committee Chair at the beginning of this Remuneration Report, we discuss how we have taken into account the feedback received on Board of Management and Supervisory Board remuneration.

This Remuneration Report will be submitted to the 2024 AGM for an advisory vote in line with Dutch law.

Financials & Non-financials

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Report of Independent Registered Public Accounting Firm

To the Shareholders and the Supervisory Board

ASML Holding NV:

Opinions on the Consolidated Financial Statements and Internal Control Over Financial Reporting

We have audited the accompanying consolidated balance sheets of ASML Holding NV and subsidiaries (the Company) as of December 31, 2023 and 2022, the related consolidated statements of operations, comprehensive income, shareholders' equity, and cash flows for each of the years in the three-year period ended December 31, 2023, and the related notes (collectively, the consolidated financial statements). We also have audited the Company's internal control over financial reporting as of December 31, 2023, based on criteria established in Internal Control - Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission.

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of the Company as of December 31, 2023 and 2022, and the results of its operations and its cash flows for each of the years in the three-year period ended December 31, 2023, in conformity with U.S. generally accepted accounting principles. Also in our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2023 based on criteria established in Internal Control - Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission.

Basis for Opinions

The Company's management is responsible for these consolidated financial statements, for maintaining effective internal control over financial reporting, and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Management's report on internal control over financial reporting. Our responsibility is to express an opinion on the Company's consolidated financial statements and an opinion on the Company's internal control over financial reporting based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud, and whether effective internal control over financial reporting was maintained in all material respects.

Our audits of the consolidated financial statements included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audits also included performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide a reasonable basis for our opinions.

Definition and Limitations of Internal Control Over Financial Reporting

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

Critical Audit Matter

The critical audit matter communicated below is a matter arising from the current period audit of the consolidated financial statements that was communicated or required to be communicated to the audit committee and that: (1) relates to accounts or disclosures that are material to the consolidated financial statements and (2) involved our especially challenging, subjective, or complex judgments. The communication of a critical audit matter does not alter in any way our opinion on the consolidated financial statements, taken as a whole, and we are not, by communicating the critical audit matter below, providing a separate opinion on the critical audit matter or on the accounts or disclosures to which it relates.

Report of Independent Registered Public Accounting Firm (continued)

Revenue recognition – Identification of distinct performance obligations and allocation of the total contract consideration

As discussed in Note 2 to the consolidated financial statements, net system sales was EUR 21,939 million for the year ended December 31, 2023. Sales of systems are usually entered into with customers under volume purchase agreements (VPAs). These VPAs contain multiple performance obligations, including for example, delivery of goods, installation, warranty and training.

We identified the evaluation of the distinct performance obligations identified by the Company in certain VPAs as a critical audit matter. A high degree of auditor judgment was required in evaluating the Company's identification of distinct performance obligations in these VPAs.

The following are the primary procedures we performed to address this critical audit matter. We evaluated the design and tested the operating effectiveness of an internal control over the Company's revenue recognition process related to the identification of distinct performance obligations included in VPAs. We evaluated the identification of distinct performance obligations in a selection of VPAs by obtaining and reading the VPA and the underlying accounting analysis. Specifically, we evaluated the completeness and accuracy of the Company's identification of distinct performance obligations by considering terms, conditions and promises that were unique to the selected contracts.

/s/ KPMG Accountants N.V.

We have served as the Company's auditor since 2015.

Amstelveen, the Netherlands

February 14, 2024

Consolidated Statements of Operations

Year ended December 31 (€ in millions, except per share data)	Notes	2021	2022	2023
Net system sales		13,652.8	15,430.3	21,938.6
Net service and field option sales		4,958.2	5,743.1	5,619.9
Total net sales	2, 3	18,611.0	21,173.4	27,558.5
Cost of system sales		(6,482.9)	(7,582.3)	(10,151.0)
Cost of service and field option sales		(2,319.1)	(2,891.0)	(3,271.4)
Total cost of sales¹		(8,802.0)	(10,473.3)	(13,422.4)
Gross profit		9,809.0	10,700.1	14,136.1
Research and development costs		(2,547.0)	(3,253.5)	(3,980.6)
Selling, general and administrative costs		(725.6)	(945.9)	(1,113.2)
Other income	10	213.7	—	—
Income from operations		6,750.1	6,500.7	9,042.3
Interest and other, net	16	(44.6)	(44.6)	41.2
Income before income taxes		6,705.5	6,456.1	9,083.5
Income tax expense	21	(1,021.4)	(969.9)	(1,435.8)
Income after income taxes		5,684.1	5,486.2	7,647.7
Profit from equity method investments	9	199.1	138.0	191.3
Net income		5,883.2	5,624.2	7,839.0
Basic net income per ordinary share	23	14.36	14.14	19.91
Diluted net income per ordinary share	23	14.34	14.13	19.89
Number of ordinary shares used in computing per share amounts:				
Basic	23	409.8	397.7	393.8
Diluted	23	410.4	398.0	394.1

1. Cost of sales includes amounts with related parties of €2,854.5 million, €2,206.1 million and €1,855.2 million in 2023, 2022, and 2021, respectively.

Consolidated Statements of Comprehensive Income

Year ended December 31 (€ in millions)	Notes	2021	2022	2023
Net income		5,883.2	5,624.2	7,839.0
Other comprehensive income (OCI):				
Proportionate share of OCI from equity method investments		22.0	37.7	0.2
Foreign currency translation, net of taxes:				
Gain (loss) on foreign currency translation		93.3	66.0	(68.3)
Financial instruments, net of taxes:				
Gain (loss) on derivative financial instruments	25	16.6	57.6	(15.8)
Transfers to net income	25	22.2	(66.5)	0.6
Other comprehensive income, net of taxes		154.1	94.8	(83.3)
Total comprehensive income, net of taxes		6,037.3	5,719.0	7,755.7
Attributable to equity holders		6,037.3	5,719.0	7,755.7

Consolidated Balance Sheets

As of December 31 (€ in millions, except share and per share data)	Notes	2022	2023
Assets			
Cash and cash equivalents	4	7,268.3	7,004.7
Short-term investments	4	107.7	5.4
Accounts receivable, net	5	5,323.8	4,334.1
Finance receivables, net	6	1,356.7	1,379.2
Current tax assets	21	33.4	1,001.2
Contract assets	2	131.9	240.1
Inventories, net	7	7,199.7	8,850.7
Other assets ¹	8	1,643.4	1,578.5
Total current assets		23,064.9	24,393.9
Finance receivables, net	6	—	60.6
Deferred tax assets	21	1,672.8	1,872.3
Loan receivable ²	26	364.4	929.2
Other assets ³	8	739.8	651.8
Equity method investments	9	923.6	919.6
Goodwill	11	4,555.6	4,588.6
Other intangible assets, net	12	842.4	741.7
Property, plant and equipment, net	13	3,944.2	5,493.2
Right-of-use assets	14	192.7	306.6
Total non-current assets		13,235.5	15,563.6
Total assets		36,300.4	39,957.5

As of December 31 (€ in millions, except share and per share data)	Notes	2022	2023
Liabilities and shareholders' equity			
Accounts payable ⁴		2,565.2	2,347.3
Accrued and other liabilities ⁵	15	1,875.9	2,177.4
Current tax liabilities	21	315.3	308.9
Current portion of long-term debt	16	746.2	0.1
Contract liabilities	2	12,481.0	11,441.0
Total current liabilities		17,983.6	16,274.7
Long-term debt	16	3,514.2	4,631.5
Deferred and other income tax liabilities	21	267.0	372.2
Contract liabilities	2	5,269.9	4,825.5
Accrued and other liabilities	15	454.9	401.2
Total non-current liabilities		9,506.0	10,230.4
Total liabilities		27,489.6	26,505.1
Ordinary shares; €0.09 nominal value; 700,000,000 shares authorized at December 31, 2023 (2022: 700,000,000) 393,421,721 issued and outstanding at December 31, 2023 (2022: 394,589,411)			
Issued and outstanding shares		36.3	36.0
Share premium		3,940.8	3,998.1
Treasury shares at cost		(4,641.3)	(3,306.2)
Retained earnings		9,046.7	12,379.5
Accumulated other comprehensive income		428.3	345.0
Total shareholders' equity	22	8,810.8	13,452.4
Total liabilities and shareholders' equity		36,300.4	39,957.5

1. Other assets – current includes amounts with related parties of €691.9 million and €479.9 million at December 31, 2023 and 2022, respectively.

2. Loan receivable includes amounts with related parties of €912.4 million and €364.4 million at December 31, 2023 and 2022, respectively.

3. Other assets – non-current includes amounts with related parties of €490.8 million and €620.4 million at December 31, 2023 and 2022, respectively.

4. Accounts payable includes amounts with related parties of €4.0 million and €269.2 million at December 31, 2023 and 2022, respectively.

5. Accrued and other liabilities – current includes amounts with related parties of €199.9 million and €111.2 million at December 31, 2023 and 2022, respectively.

Consolidated Statements of Shareholders' Equity

(€, in millions)	Notes	Issued and Outstanding Shares			Treasury Shares at Cost	Retained Earnings	OCI ¹	Total
		Number	Amount	Share Premium				
Balance at January 1, 2021		416.5	37.6	3,780.1	(863.2)	10,731.5	179.4	13,865.4
Components of comprehensive income:								
Net income		—	—	—	—	5,883.2	—	5,883.2
Proportionate share of OCI from equity method investments		—	—	—	—	—	22.0	22.0
Gain (loss) on foreign currency translation		—	—	—	—	—	93.3	93.3
Gain (loss) on financial instruments	25	—	—	—	—	—	38.8	38.8
Total comprehensive income		—	—	—	—	5,883.2	154.1	6,037.3
Purchase of treasury shares	22	(14.4)	—	—	(8,560.3)	—	—	(8,560.3)
Cancellation of treasury shares	22	—	(1.2)	—	6,926.6	(6,925.4)	—	—
Share-based payments	20	—	—	117.5	—	—	—	117.5
Issuance of shares	20	0.5	0.1	(21.5)	74.1	(3.7)	—	49.0
Dividend paid	22	—	—	—	—	(1,368.3)	—	(1,368.3)
Balance at December 31, 2021		402.6	36.5	3,876.1	(2,422.8)	8,317.3	333.5	10,140.6
Components of comprehensive income:								
Net income		—	—	—	—	5,624.2	—	5,624.2
Proportionate share of OCI from equity method investments		—	—	—	—	—	37.7	37.7
Gain (loss) on foreign currency translation		—	—	—	—	—	66.0	66.0
Gain (loss) on financial instruments	25	—	—	—	—	—	(8.9)	(8.9)
Total comprehensive income		—	—	—	—	5,624.2	94.8	5,719.0
Purchase of treasury shares	22	(8.5)	—	—	(4,639.7)	—	—	(4,639.7)
Cancellation of treasury shares	22	—	(0.3)	—	2,333.7	(2,333.4)	—	—
Share-based payments	20	—	—	68.9	—	—	—	68.9
Issuance of shares	20	0.5	0.1	(4.2)	87.5	(1.6)	—	81.8
Dividend paid	22	—	—	—	—	(2,559.8)	—	(2,559.8)
Balance at December 31, 2022		394.6	36.3	3,940.8	(4,641.3)	9,046.7	428.3	8,810.8

Consolidated Statements of Shareholders' Equity (continued)

(€, in millions)	Notes	Issued and Outstanding Shares			Treasury Shares at Cost	Retained Earnings	OCI ¹	Total
		Number	Amount	Share Premium				
Balance at December 31, 2022		394.6	36.3	3,940.8	(4,641.3)	9,046.7	428.3	8,810.8
Components of comprehensive income:								
Net income		—	—	—	—	7,839.0	—	7,839.0
Proportionate share of OCI from equity method investments		—	—	—	—	—	0.2	0.2
Gain (loss) on foreign currency translation		—	—	—	—	—	(68.3)	(68.3)
Gain (loss) on financial instruments	25	—	—	—	—	—	(15.2)	(15.2)
Total comprehensive income		—	—	—	—	7,839.0	(83.3)	7,755.7
Purchase of treasury shares	22	(1.6)	—	—	(1,000.0)	—	—	(1,000.0)
Cancellation of treasury shares	22	—	(0.3)	—	2,105.1	(2,104.8)	—	—
Share-based payments	20	—	—	134.8	—	—	—	134.8
Issuance of shares	20	0.5	—	(77.5)	230.0	(53.1)	—	99.4
Dividend paid	22	—	—	—	—	(2,348.3)	—	(2,348.3)
Balance at December 31, 2023		393.5	36.0	3,998.1	(3,306.2)	12,379.5	345.0	13,452.4

1. As of December 31, 2023, accumulated OCI consists of €33.0 million gain relating to our proportionate share of other comprehensive income from equity method investments (2022: €32.8 million gain; 2021: €4.9 million loss), €319.6 million relating to foreign currency translation gain (2022: €387.9 million gain; 2021: €321.9 million gain) and €7.6 million relating to unrealized loss on financial instruments (2022: €7.6 million gain; 2021: €16.5 million gain).

Consolidated Statements of Cash Flows

Year ended December 31 (€ in millions)	Notes	2021	2022	2023
Cash Flows from Operating Activities				
Net income		5,883.2	5,624.2	7,839.0
Adjustments to reconcile net income to net cash flows from operating activities:				
Depreciation and amortization ¹	12, 13	471.0	583.6	739.8
Impairment and loss (gain) on disposal	12, 13	(15.9)	39.3	37.5
Share-based compensation expense	18, 20	117.5	68.9	134.8
Gain on sale of subsidiaries	10	(213.7)	—	—
Inventory reserves	7	180.7	278.5	485.3
Deferred tax expense (benefit)	21	(419.6)	(564.2)	(133.6)
Equity method investments ²	9	(49.8)	15.3	4.2
Changes in assets and liabilities:				
Accounts receivable, net	5	(1,754.9)	(2,338.0)	959.9
Finance receivables, net	6	542.3	212.2	(88.6)
Inventories	7	(483.2)	(2,080.9)	(1,646.9)
Other assets	8	(222.2)	(864.3)	(344.3)
Accrued and other liabilities	15	347.6	439.7	222.0
Accounts payable		718.6	406.2	(261.7)
Current tax assets and liabilities	21	214.4	33.6	(939.4)
Contract assets and liabilities	2	5,529.8	6,632.7	(1,564.6)
Net cash provided by operating activities		10,845.8	8,486.8	5,443.4
Cash Flows from Investing Activities				
Purchase of property, plant and equipment ³	13	(900.7)	(1,281.8)	(2,155.6)
Purchase of intangible assets	12	(39.6)	(37.5)	(40.6)
Purchase of short-term investments	4	(1,162.7)	(334.3)	(23.6)
Maturity of short-term investments	4	1,826.4	864.7	125.6
Loans issued and other investments	26	(124.4)	(240.0)	(561.5)
Proceeds from sale of subsidiaries (net of cash disposed of)	10	329.0	—	—
Acquisition of subsidiaries (net of cash acquired)	10	—	—	(33.6)
Net cash used in investing activities		(72.0)	(1,028.9)	(2,689.3)

Year ended December 31 (€ in millions)	Notes	2021	2022	2023
Cash Flows from Financing Activities				
Dividend paid	22	(1,368.3)	(2,559.8)	(2,348.3)
Purchase of treasury shares	22	(8,560.3)	(4,639.7)	(1,000.0)
Net proceeds from issuance of shares	20	49.0	81.8	99.4
Net proceeds from issuance of notes, net of issuance costs	16	—	495.6	997.8
Repayment of debt and finance lease obligations	14, 16	(12.1)	(516.2)	(752.8)
Net cash used in financing activities		(9,891.7)	(7,138.3)	(3,003.9)
Net cash flows		882.1	319.6	(249.8)
Effect of changes in exchange rates on cash		20.3	(3.1)	(13.8)
Net increase (decrease) in cash and cash equivalents		902.4	316.5	(263.6)
Cash and cash equivalents at beginning of the year	4	6,049.4	6,951.8	7,268.3
Cash and cash equivalents at end of the year	4	6,951.8	7,268.3	7,004.7
Supplemental Disclosures of Cash Flow Information				
Unpaid portion of property, plant and equipment, excluded in investing activities, included in Accounts payable		29.3	50.3	49.3
Interest received		36.6	42.4	190.8
Interest paid		(83.0)	(82.2)	(137.8)
Income taxes paid, net of refunds		(1,235.0)	(1,734.6)	(2,568.3)

1. Depreciation and amortization include depreciation of property, plant and equipment, amortization of intangible assets, amortization of underwriting commissions and discount related to the bonds and credit facility.
2. Equity method investments relates to our 24.9% equity interest in Carl Zeiss SMT Holding GmbH & Co. KG and includes our share of the net result, dividends received and other equity movements, as well as the capitalization of our R&D funding to Carl Zeiss SMT Holding GmbH & Co. KG as disclosed in Note 26 Related parties and variable interest entities. The dividend received is a cash inflow of €218.0 million (2022: €178.7 million, 2021: €168.0 million).
3. Purchase of property, plant and equipment includes a cash outflow of €45.1 million (2022: €33.8 million, 2021: €69.2 million) to related parties.

Notes to the Consolidated Financial Statements

1. General information / summary of general accounting policies

ASML is a leading supplier to the semiconductor industry. The company provides chipmakers with hardware, software and services to mass produce the patterns of integrated circuits (microchips). Together with its partners, ASML drives the advancement of more affordable, more powerful and more energy-efficient microchips. ASML enables groundbreaking technology to solve some of humanity's toughest challenges, such as in healthcare, energy use and conservation, mobility and agriculture. Headquartered in Europe's top tech hub, the Brainport Eindhoven region in the Netherlands, we are a global team of over 42,000 FTEs. ASML's principal operations are in EMEA, North America and Asia.

Our shares are listed for trading in the form of registered shares on Euronext Amsterdam and on Nasdaq. The principal trading market of our ordinary shares is Euronext Amsterdam.

Basis of preparation

The accompanying Consolidated Financial Statements are stated in millions of euros unless indicated otherwise. The accompanying Consolidated Financial Statements have been prepared in conformity with US GAAP.

Use of estimates

The preparation of our Consolidated Financial Statements in conformity with US GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and the disclosure of contingent assets and liabilities on the balance sheet dates, and the reported amounts of net sales and costs for the reported periods. The inputs into our estimates and assumptions consider economic implications including supply chain constraints, inflation and uncertainty in the macroeconomic environment. We believe that the critical accounting estimates and assumptions are appropriate. ASML will continue to monitor the impacts of economic implications and incorporate them into accounting estimates. Actual results could differ from those estimates. We evaluate our estimates on a regular basis and we base our estimates on historical experience and on various other assumptions that we believe to be reasonable under the circumstances. Actual results may differ from these estimates if the assumptions prove incorrect. To the extent there are material differences between actual results and these estimates, our future results could be materially and adversely affected.

We believe that the accounting policies described below require us to make significant judgments and estimates in the preparation of our Consolidated Financial Statements. Our most critical accounting estimates include:

- Revenue recognition (see Note 2 Revenue from contracts with customers)
- Recoverability of deferred tax assets for capitalized R&D expenditures (see Note 21 Income taxes)

Principles of consolidation

The Consolidated Financial Statements include the Financial Statements of ASML Holding NV and all of its subsidiaries. Subsidiaries are all entities over which ASML controls the financial and operating activities, generally accompanying a shareholding of more than 50.0% of the outstanding voting rights. Subsidiaries are fully consolidated from the date on which control is obtained by ASML. All intercompany transactions, balances and unrealized results on transactions with subsidiaries are eliminated. We also assess if we are the primary beneficiary of, and thus should consolidate, any variable interest entity (VIE).

Foreign currency translation

The financial information for subsidiaries with a functional currency outside the euro-zone is measured using a mix of local currencies or the euro as the functional currency. The Financial Statements of those foreign subsidiaries with a functional currency different than the euro are translated into euros in the preparation of ASML's Consolidated Financial Statements. Assets and liabilities are translated into euros at the exchange rate on the respective balance sheet dates and income and costs are translated into euros based on the average exchange rate for the corresponding period. The resulting translation adjustments are recorded directly in shareholders' equity.

New US GAAP accounting pronouncements adopted

During 2023, there were no new US GAAP accounting pronouncements that were adopted which have a material impact on our Consolidated Financial Statements.

New US GAAP accounting pronouncements issued but not adopted

For 2023, there are no new US GAAP accounting pronouncements issued which have not yet been adopted and are expected to have a material impact on our Consolidated Financial Statements.

2. Revenue from contracts with customers

Accounting Policy

We measure revenue based on the consideration specified in the contracts with our customers, adjusted for any significant financing components, and excluding any taxes collected on behalf of third parties. We recognize revenue when we satisfy a performance obligation by transferring control over a good or service to our customer. We bill our customers for, and recognize as revenue, charges for shipping and handling costs.

Depending on the contract, we obtain a right to payment for our systems through a combination of either a reservation of a production slot or upon delivery of our systems, with the remaining portion upon final acceptance of our systems. Right to payment for our service and field options occurs upon shipment or completion of the service unless described otherwise. The payment is typically due 15-45 days after the aforementioned events. Our contracts typically include cancellation penalties that provide economic protection from the risk of customer cancellation. The costs related to our sales are recognized as cost of sales.

Notes to the Consolidated Financial Statements (continued)

We generate revenue from the sale of integrated patterning solutions for the semiconductor industry, which mainly consist of systems, system-related options and upgrades, other holistic lithography solutions and customer services. The main portion of our net sales is derived from volume purchase agreements with our customers that have multiple performance obligations, which mainly include the sales of our systems, system-related options, installation, training and extended and enhanced warranties. In our volume purchase agreements we offer customers discounts in the normal course of sales negotiations. As part of these volume purchase agreements, we may also offer free goods or services and credits that can be used towards future purchases. Occasionally, systems, with the related extended and enhanced warranties, installation and training services, are ordered individually. Our sales agreements do not include a right of return for any reason other than not meeting the agreed upon specifications.

We account for individual goods and services as separate and distinct performance obligations, including the free or discounted goods or services, if a product or service is separately identifiable from other items and if a customer can benefit from it on its own or with other resources that are readily available to the customer. Options to buy goods or services in addition to the purchase commitment are assessed to determine if they provide a material right to the customer that they would not have received if they had not entered into this contract. Each option to buy additional goods or services provided at a discount from the standalone selling price is considered a material right, for which the likelihood that the option will be exercised is evaluated based on the customer roadmap and their requirements.

The consideration paid for our performance obligations is typically fixed. However, most of our volume purchase agreements with customers contain some component of variable consideration, typically dependent on the final volume of systems ordered by the customer or the system performance. Variable consideration is estimated at contract inception for each performance obligation based on communication with the customer to understand their requirements and roadmap. This is subsequently updated each quarter, using either the expected value method or most likely amount method, whichever is determined to best predict the consideration to be collected from the customer. Variable consideration is only included in the transaction price if it is considered probable that a significant revenue reversal will not occur.

In certain scenarios when entering into a volume purchase agreement, free goods or services are provided directly or through a voucher that can be used on future contracts. Consideration from the contract will be allocated to these performance obligations and revenue recognized when control transfers based on the nature of the goods or services provided.

As a practical expedient, we do not record a significant financing component when we expect, at contract inception, that the period between the transfer of the products or services to the customer and customer payment for the products or services will be one year or less. In addition most of our contracts require our customers to pay a down payment on systems to be shipped. We do not record a significant financing component for down payments as the timing difference between when the consideration is paid and when the system is transferred to the customer arises from reasons other than financing.

The total consideration of the contract is allocated between all distinct performance obligations in the contract based on their standalone selling prices. The standalone selling prices are determined based on other standalone sales that are directly observable, when possible. However, for the majority of our performance obligations these are not available. If no directly observable evidence is available, the standalone selling price is determined using the adjusted market assessment approach, which requires judgment and is based on multiple factors including, but not limited to, historical pricing practices and discounting trends for products and services.

For options to buy goods or services that are considered a material right, the discount offered from the standalone selling price will be allocated from the consideration of the other goods and services in the contract if it is determined the customer will exercise the option to buy, adjusted for the likelihood. Revenue will be recognized in line with the nature of the related goods or services. If it is subsequently determined the customer will not exercise the option to buy, or the option expires, revenue will be recognized.

Occasionally we enter into bill-and-hold transactions where we invoice a customer for a system that is ready for delivery but not shipped to the customer until a later date, based on customer's request. Transfer of control is determined to have occurred only when there is a substantive reason for the arrangement, the system is separately identified as belonging to the customer, the good has been accepted by the customer and is ready for delivery, and we do not have the ability to direct the use of the system.

Notes to the Consolidated Financial Statements (continued)

We generate revenue from lessor agreements, which we classify as a sales-type lease when the lease meets any of the following criteria at lease commencement:

- The lease transfers ownership of the underlying asset to the lessee by the end of the lease term;
- The lease grants the lessee an option to purchase the underlying asset, that the lessee is reasonably certain to exercise;
- The lease term is for the major part of the remaining economic life of the underlying asset. However, if the commencement date falls at or near the end of the economic life of the underlying asset, this criterion shall not be used for purposes of classifying the lease;
- The present value of the sum of the lease payments and any residual value guaranteed by the lessee that is not already reflected in the lease payments equals or exceeds substantially all of the fair value of the underlying asset; or
- The underlying asset is of such a specialized nature that it is expected to have no alternative use to the lessor at the end of the lease term.

For sales-type leases where substantially all the risks and rewards incidental to ownership of an asset are transferred to the lessee, revenue is recognized at commencement of the lease. If material, the difference between the gross finance receivable and the present value of the minimum lease payments is initially recognized as unearned interest and presented as a deduction to the gross finance receivable. Interest income is recognized in the Consolidated Statements of Operations over the term of the lease contract using the effective interest method.

Leases that are not a sales-type lease are operating lease arrangements. If we have offered the customer an operating lease arrangement, the system is included in Property, plant and equipment upon commencement of the lease. Revenue from operating lease arrangements is recognized in the Consolidated Statements of Operations on a straight-line basis over the term of the lease contract.

Goods or services	Nature, timing of satisfying the performance obligations, and significant payment terms
<p>New systems (established technologies)</p>	<p>New systems sales include i-line, KrF, ArF, ArFi and NXE-related systems, along with the related factory options ordered with the base system, as well as metrology and inspection systems.</p> <p>Prior to shipment, the majority of our systems undergo a Factory Acceptance Test (FAT) in our cleanroom facilities, effectively replicating the operating conditions that will be present on the customer's site, in order to verify whether the system meets its standard specifications and any additional technical and performance criteria agreed with the customer.</p> <p>A system undergoing FAT is shipped only after all contractual specifications are met or discrepancies from agreed upon specifications are waived and customer sign-off is received for delivery. Each system's performance is re-tested through a Site Acceptance Test (SAT) after installation at the customer site. We have never failed to successfully complete installation of a system at a customer's premises; therefore, acceptance at FAT is considered to be proven for established technologies with a history of successful customer acceptances at SAT (equal or better than FAT).</p> <p>Transfer of control and recognition of revenue of a system undergoing a FAT and for which customer acceptance at FAT is proven, will occur upon delivery of the system.</p> <p>Transfer of control and recognition of revenue of a system not undergoing a FAT or for which customer acceptance at FAT is not proven, will occur after successful installation upon customer acceptance of the system at SAT.</p> <p>New system sales do not meet the requirements for over time revenue recognition because our customers do not simultaneously receive and consume the benefits provided by our performance, or control the asset throughout any stage of our production process, as well as the systems are considered to have alternative use.</p>

Notes to the Consolidated Financial Statements (continued)

Goods or services	Nature, timing of satisfying the performance obligations, and significant payment terms
Used systems	<p>We have no repurchase commitments in our general sales terms and conditions, however we occasionally repurchase systems that we previously manufactured and sold, in order to refurbish and resell the system to a different customer. This repurchase decision is mainly driven by market demand expressed by other customers.</p> <p>Transfer of control of a used system, and recognition of revenue, follow the same logic as for our “New systems (established technologies)”.</p>
Field upgrades and options (system enhancements)	<p>Field upgrades and options mainly relate to goods and services that are delivered for systems already installed in the customer factories. Certain upgrades require significant installation efforts, enhancing an asset the customer controls, therefore resulting in transfer of control over the period of installation, measured using the cost incurred method which is estimated using labor hours, as this best depicts the satisfaction of our obligation in transferring control. For the options and other upgrades for which the customer receives and consumes the benefit at the moment of delivery, the transfer of control and recognition of revenue will occur upon delivery.</p> <p>As long as we are not able to make a reliable estimate of the total efforts needed to complete the upgrade, we only recognize revenue to cover costs incurred. Margin will be realized at the earlier of us being able to make a reliable estimate or completion of the upgrade.</p>
New product introduction	<p>We sell new products and services, which are evolutions of our existing technologies. If installation is determined not to be a separate performance obligation or if there is not a sufficient established history of acceptance on FAT, the product is determined to be a “new product introduction”.</p> <p>New product introductions are typically newly developed options to be used within our systems. Transfer of control and revenue recognition for new product introductions occurs after successful installation and customer acceptance at SAT. Once there is an established history of successful installation and customer acceptance, revenue will be recognized consistent with other systems and goods after transfer of control.</p>
Installation	<p>Installation is provided within the selling price of a system. Installation is considered to be distinct as it does not significantly modify the system being purchased and the customer or a third party could be capable of performing the installation themselves, if desired. Transfer of control takes place over the period of installation from delivery through SAT, measured on a straight-line basis, as our performance is satisfied evenly over this period of time. Installation is not considered to be distinct when recognition of revenue related to a system occurs upon customer acceptance of the system at SAT after installation is complete.</p>
Warranties	<p>We provide standard warranty coverage on our systems for 12 months, providing labor and non-consumable parts necessary to repair our systems during these warranty periods. These standard warranties cannot be purchased and do not provide a service in addition to the general assurance the system will perform as promised. As a result, no revenue is allocated to these standard warranties.</p> <p>Both the extended and enhanced warranties on our systems are accounted for as a separate performance obligation, with transfer of control taking place over the warranty period, measured on a straight-line basis, as this is a stand-ready obligation.</p>

Goods or services	Nature, timing of satisfying the performance obligations, and significant payment terms
Time-based licenses and related service	<p>Time-based licenses relate to software licenses and the related service which are sold for a period of time. The licenses and the related service are not considered to be individually distinct as the support services are integral to the customer’s ability to continue to use the software license in the rapidly changing technological environment. The transfer of control takes place over the license term, measured on a straight-line basis, as our performance is satisfied evenly over this period of time. Payments are generally made in installments throughout the license term.</p>
Application projects	<p>Application projects are node transition and consulting projects which at times may be provided as free service within a volume purchase agreement. Measuring satisfaction of this performance obligation is performed through an input method based on the labor hours expended relative to the estimated total labor hours as this best depicts the transfer of control of these kind of services.</p>
Service contracts	<p>Service contracts are entered into with our customers to support our systems used in their ongoing operations during the systems life cycle, typically in the form of full-service agreements, limited manpower agreements, other labor agreements, parts availability or parts usage agreements. These services are for a specified period of time and typically have a fixed price. Control transfers over this period of time, measured on a straight-line basis, as these are stand-ready obligations. For service contracts where the price is not fixed, the transaction price has a variable component that is based on the performance of the system.</p>
Billable parts and labor	<p>Billable labor represents maintenance services to our systems installed in the customer’s factories while in operation, through purchase orders from our customer. Control over these services is transferred to the customer upon receipt of customer sign-off.</p> <p>Billable parts represent spare parts including optical components relating to our systems installed in the customer’s factories while in operation, through purchase orders from our customer.</p> <p>Billable parts can be:</p> <ul style="list-style-type: none"> • Sold as direct spare parts, for which control transfers point in time upon delivery; or • Sold as part of maintenance services, where control transfers point in time upon receipt of customer sign-off.
Field projects (relocations)	<p>Field projects represent mainly relocation services. Measuring satisfaction of this performance obligation is performed through an input method based on the labor hours expended relative to the estimated total labor hours as this best depicts the transfer of control of our service.</p>
OnPulse Maintenance	<p>OnPulse maintenance services are provided over a specified period of time on our light source systems. Payment is determined by the number of pulses counted from each light source system, which is variable. Invoicing is monthly based on the pulses counted. Revenue is recognized in line with invoicing using the practical expedient in ASC 606-10-55-18.</p>

Notes to the Consolidated Financial Statements (continued)

Disaggregation of revenue

Our revenue from contracts with customers, on a disaggregated basis, aligns with our reportable segment disclosures with the addition of disaggregation of net system sales per technology and per end-use.

Net system sales per technology were as follows:

Year ended December 31	Net system sales in units	Net system sales in € millions
2023		
NXE	53	9,124.0
ArFi	125	9,017.4
ArF dry	32	780.2
KrF	184	2,202.5
I-line	55	278.4
Metrology & Inspection	151	536.1
Total	600	21,938.6
2022		
NXE	40	7,045.3
ArFi	81	5,236.5
ArF dry	28	623.7
KrF	151	1,653.7
I-line	45	211.5
Metrology & Inspection	216	659.6
Total	561	15,430.3
2021		
NXE	42	6,284.0
ArFi	81	4,959.6
ArF dry	22	431.9
KrF	131	1,321.3
I-line	33	142.3
Metrology & Inspection	196	513.7
Total	505	13,652.8

Net system sales per end-use were as follows:

Year ended December 31	Net system sales in units	Net system sales in € millions
2023		
Logic	439	15,984.7
Memory	161	5,953.9
Total	600	21,938.6
2022		
Logic	357	9,977.6
Memory	204	5,452.7
Total	561	15,430.3
2021		
Logic	327	9,588.5
Memory	178	4,064.3
Total	505	13,652.8

Contract assets and liabilities

The contract assets relate to our right to a consideration in exchange for goods or services delivered, when that right is conditional on something other than the passage of time. The contract assets are transferred to the receivables when the receivables become unconditional. The contract liabilities primarily relate to remaining performance obligations for which consideration has been received for systems not yet recognized in revenue, as well as deferred revenue from system shipments, based on the allocation of the consideration to the related performance obligations in the contract.

The majority of our customer contracts result in both asset and liability positions. At the end of each reporting period, these positions are netted on a contract basis and presented as either an asset or a liability in the Consolidated Balance Sheets. Consequently, a contract balance can change between periods from a net contract asset balance to a net contract liability balance in the balance sheet.

Notes to the Consolidated Financial Statements (continued)

Significant changes in the contract assets and the contract liabilities balances during the periods are as follows.

Year ended December 31 (€ in millions)	2022		2023	
	Contract Assets	Contract Liabilities	Contract Assets	Contract Liabilities
Balance at beginning of the year	164.6	11,160.9	131.9	17,750.9
Transferred from contract assets to accounts receivables	(393.4)	—	(402.0)	—
Revenue recognized during the year ending in contract assets	116.5	—	135.1	—
Revenue recognized that was included in contract liabilities	—	(6,326.6)	—	(11,106.1)
Changes as a result of cumulative catch-up adjustments arising from changes in estimates	—	(118.0)	—	(24.9)
Remaining performance obligations for which considerations have been received, or for which we have an unconditional right to consideration	—	12,790.4	—	9,416.3
Transfer between contract assets and liabilities	244.2	244.2	375.1	375.1
Other	—	—	—	(144.8)
Total	131.9	17,750.9	240.1	16,266.5

The decrease in the net contract liabilities to €16.0 billion as of December 31, 2023 compared to €17.6 billion as of December 31, 2022 is mainly driven by a lower volume of fast shipment systems shipped for which revenue has not yet been recognized. This is partially offset by an increase of down payments for systems which will be shipped in the future. Cumulative catch-up adjustments recognized in our current year revenue are due to updated estimates for system volume, discounts and credits included in our volume purchase agreements.

Remaining performance obligations

Our customers generally commit to purchase systems, service, or field options through separate sales orders and service contracts. Typically the terms and conditions of these sales orders come from volume purchase agreements with our customers which can cover up to 5 years. The revenues for each committed performance obligation are estimated based on the terms and conditions agreed through the volume purchase agreements.

When revenues will be recognized is mainly dependent on when systems are delivered or installed, as well as when service projects and field upgrades are performed and completed. All of which is estimated based on contract terms and communication with our customers, including the customer facility readiness to take delivery of our goods or services. The volume purchase agreements may be subject to modifications, impacting the amount and timing of revenue recognition for the anticipated revenues.

As of December 31, 2023, the remaining performance obligations amount to €45.0 billion (December 31, 2022: €45.4 billion). The remaining performance obligations mainly include orders related to DUV immersion and NXE lithography systems, and our next-generation EUV platform, High NA. We estimate that 57% (December 31, 2022: 56%) of these anticipated revenues will be recognized during the next 12 months.

3. Segment disclosure

ASML has one reportable segment, since we are a holistic lithography solution provider, for the development, production, marketing, sales, upgrading and servicing of advanced semiconductor equipment systems, consisting of lithography, metrology and inspection systems. The Chief Operating Decision Maker regularly sets and monitors goals and boundaries on a consolidated basis to make decisions about resource allocation and assess performance.

Management reporting includes net system sales figures of new and used systems, sales per technology and sales per end-use. For sales per technology and end-use, see Note 2 Revenue from contracts with customers.

Net system sales for new and used systems were as follows:

Year ended December 31 (€ in millions)	2021	2022	2023
New systems	13,446.1	15,152.3	21,622.4
Used systems	206.7	278.0	316.2
Net system sales	13,652.8	15,430.3	21,938.6

For geographical reporting, total net sales are attributed to the geographic location in which the customers' facilities are located. Long-lived assets are attributed to the geographic location in which these assets are located. Total net sales and long-lived assets by geographic region were as follows:

Year ended December 31 (€ in millions)	Total net sales	Long-lived assets
2023		
Japan	613.6	10.4
South Korea	6,949.2	148.1
Singapore	282.1	5.0
Taiwan	8,074.6	354.5
China	7,251.8	48.6
Rest of Asia	3.9	0.2
Netherlands	25.1	3,783.6
EMEA	1,206.8	314.5
United States	3,151.4	1,134.9
Total	27,558.5	5,799.8

Notes to the Consolidated Financial Statements (continued)

Year ended December 31 (€ in millions)	Total net sales	Long-lived assets
2022		
Japan	1,008.6	7.9
South Korea	6,045.6	85.4
Singapore	475.5	5.5
Taiwan	8,095.5	216.3
China	2,916.0	40.8
Rest of Asia	7.2	0.2
Netherlands	9.2	2,748.5
EMEA	624.5	228.5
United States	1,991.3	803.8
Total	21,173.4	4,136.9
2021		
Japan	459.3	5.5
South Korea	6,223.0	61.2
Singapore	126.2	7.3
Taiwan	7,327.9	163.6
China	2,740.8	17.0
Rest of Asia	1.8	0.2
Netherlands	14.2	2,048.1
EMEA	134.6	124.0
United States	1,583.2	555.8
Total	18,611.0	2,982.7

In 2023, 2 customers exceed more than 10% of total net sales, totaling €14.9 billion, or 53.9%, of total net sales. In 2022 and 2021, 2 customers exceeded more than 10% of total net sales, in 2022 totaling €11.8 billion, or 55.8% (2021: €12.5 billion, or 67.2%). Our three largest customers (based on total net sales) accounted for €3.7 billion, or 64.4%, of accounts receivable and finance receivables at December 31, 2023, compared with €5.3 billion, or 78.6%, at December 31, 2022 and €3.9 billion, or 83.7%, at December 31, 2021.

The increase in total net sales of €6.4 billion, or 30.2%, to €27.6 billion in 2023, from €21.2 billion in 2022 is driven by higher sales volumes for NXE and DUV immersion systems, a catch-up in the backlog of orders from Chinese customers and the timing of revenue recognition for DUV immersion fast shipments. For 2023 DUV immersion fast shipments, customer acceptance after FAT is considered to be proven for established technologies with a history of successful customer acceptances after the SAT. Transfer of control and recognition of revenue related to these systems has occurred upon delivery of the systems.

The decrease in net service and field option sales is mainly driven by lower field upgrade sales due to lower lithography tool utilization levels and customers delaying productivity enhancement packages, partially offset by higher service sales, which has benefited from a growing installed base.

The Logic sector continued to be strong in 2023 and was the largest consumer of our most advanced EUV systems. Revenue growth in the Memory market was less pronounced in 2023, stemming from historically low lithography tool utilization levels. China saw the largest geographic sales growth in support of expanding capacity to meet worldwide demand and a catch-up in backlog of orders that were previously unfulfilled due to supply constraints.

The increase in non-current assets in the Netherlands during 2023 is primarily related to the construction of ASML's logistics facility, the High NA factory and office space at our headquarters in Veldhoven, in order to support our continued growth.

4. Cash and cash equivalents and short-term investments

Accounting Policy

Cash and cash equivalents consist primarily of highly liquid investments, such as bank deposits, deposits with governments and government-related bodies, money market funds and bank accounts readily convertible to known amounts of cash with insignificant interest rate risk and original maturities to the entity holding the investments 3 months or less at the date of acquisition.

Investments with original maturities at the date of acquisition greater than 3 months and 1 year or less are presented as short-term investments. Fair value changes in these investments, which are not temporary, are recognized in the Consolidated Statements of Operations. Short-term investments have insignificant interest rate risk.

Notes to the Consolidated Financial Statements (continued)

Cash and cash equivalents and short-term investments consist of the following:

Year ended December 31 (€ in millions)	2022	2023
Deposits with financial institutions, governments and government-related bodies	2,548.1	1,348.7
Investments in money market funds	3,196.7	3,167.4
Bank accounts	1,523.5	2,488.6
Cash and cash equivalents	7,268.3	7,004.7
Deposits with financial institutions, governments and government-related bodies	107.7	5.4
Short-term investments	107.7	5.4

Cash and cash equivalents and short-term investments are mainly impacted by net cash provided by operating activities, driven by net income and down payments, mainly offset by purchase of property, plant and equipment, purchase of treasury shares and dividend paid.

Deposits with financial institutions, governments and government-related bodies and investments in money market funds have an investment-grade credit rating as rated by credit rating institutions such as Standard & Poor's, Moody's or Fitch. Our cash and cash equivalents are predominantly denominated in euros and to some extent in US dollars, Taiwanese dollars, South Korean won and Chinese yuan.

The carrying amount of these assets approximates their fair value.

As of December 31, 2023, no restrictions on usage of cash and cash equivalents exist (2022: no restrictions).

5. Accounts receivable, net

Accounting Policy

Accounts receivable are measured at fair value and are subsequently measured at amortized cost, less allowance for credit losses, if material. The carrying amount of the accounts receivable approximates the fair value. We perform ongoing credit evaluations on our customers' financial condition. We periodically review whether an allowance for credit losses is needed by considering factors such as historical payment experience, credit quality, aging of the accounts receivable balances, expected lifetime losses, and current economic conditions that may affect a customer's ability to pay.

When entering into arrangements to sell our receivable, we derecognize the receivable only when meeting the derecognition criteria. The criteria require isolation from the seller, granting the buyer the right to pledge or exchange the receivables, and legal transfer of control over the receivable.

Accounts receivable consist of the following:

Year ended December 31 (€ in millions)	2022	2023
Accounts receivable, gross	5,327.9	4,334.1
Allowance for credit losses	(4.1)	—
Accounts receivable, net	5,323.8	4,334.1

The decrease in accounts receivable as of December 31, 2023, compared to December 31, 2022, is mainly due to the factoring of receivables during 2023 and the timing of cash receipts from our customers, which is partially offset by an increase in our sales.

In 2023, €993.4 million of receivables were sold through factoring arrangements (2022: €0.0 million). The amounts consist of €245.8 million (2022: €0.0 million) of regular trade receivables and €747.6 million (2022: €0.0 million) of absolute, unconditional, irrevocable accounts receivable for down payments on systems to be shipped in 2024. The amounts have been derecognized since the asset is isolated from the seller, control is transferred to the buyer and there are no restrictions on the buyer related to the factored items. The fair value of the receivables sold was substantially the same as their carrying value. The cash receipt is treated as an operating cash flow within the Consolidated Statements of Cash Flows.

6. Finance receivables, net

Accounting Policy

Finance receivables consist of receivables in relation to sales-type leases. We perform ongoing credit evaluations of our customers' financial condition. We periodically review whether an allowance for credit losses is needed by considering factors such as historical payment experience, credit quality, the aging of the finance receivables balances, expected lifetime losses, and current economic conditions that may affect a customer's ability to pay.

The following table lists the components of the finance receivables as of December 31, 2023 and 2022:

Year ended December 31 (€ in millions)	2022	2023
Finance receivables, gross	1,356.7	1,439.8
Unearned interest	—	—
Finance receivables, net	1,356.7	1,439.8
Current portion of finance receivables, gross	1,356.7	1,379.2
Current portion of unearned interest	—	—
Non-current portion of finance receivables, net	—	60.6

Notes to the Consolidated Financial Statements (continued)

The increase in finance receivables as of December 31, 2023, compared to December 31, 2022, is the result of providing additional systems with a free-use or evaluation period, partly offset by the expiration of free-use and evaluation periods of systems shipped. These sales-type leases support the capacity ramp-up of high-end systems which are part of the early-insertion life cycle of the technology or system type. It is expected that these systems will be purchased at the end of the free-use or evaluation period.

Gross profit recognized at the commencement date of the lease for our sales-type leases amounted to €460.9 million during 2023 (2022: €429.1 million; 2021: €514.2 million).

At December 31, 2023, payment of the finance receivables in the next five years and thereafter are:

(€, in millions)	Amount
2024	1,379.2
2025	60.6
2026	—
2027	—
2028	—
Thereafter	—
Finance receivables, gross	1,439.8

In 2023, 2022 and 2021 we did not record any expected credit losses from finance receivables. As of December 31, 2023, the finance receivables were neither past due nor impaired.

7. Inventories, net

Accounting Policy

Inventory costs are computed on a first-in, first-out basis. Our inventory values are comprised of purchased materials, freight expenses, customs, duties, production labor and overhead. The valuation of inventory includes determining which fixed production overhead costs should be capitalized into inventory based on the normal capacity of our manufacturing and assembly facilities. During periods when production is below our established normal capacity level, a portion of our fixed overhead costs are not included in the cost of inventory; instead, it is recognized as cost of sales as incurred.

Inventory is valued at the lower of cost or net realizable value, based on assumptions about future demand and market conditions. Valuation of inventory also requires us to establish provisions for inventory that is defective, obsolete or in excess. We use our demand forecast to develop manufacturing plans and utilize this information to compare against raw materials, work-in-progress and finished product levels to determine the amount of defective, obsolete or excess inventory.

Inventories consist of the following:

Year ended December 31 (€, in millions)	2022	2023
Raw materials	3,198.9	4,057.3
Work-in-process	2,163.9	3,388.1
Finished products	2,303.8	2,098.5
Inventories, gross	7,666.6	9,543.9
Inventory reserves	(466.9)	(693.2)
Inventories, net	7,199.7	8,850.7

The increase in inventory in 2023, compared to 2022, is driven by the continued strong demand from customers. Additionally, inventory increased in 2023 due to higher costs of our latest technologies and growing install base.

A summary of movements in the inventory reserves is as follows:

Year ended December 31 (€, in millions)	2022	2023
Balance at beginning of year	(418.0)	(466.9)
Additions for the year	(278.5)	(485.3)
Effect of changes in exchange rates	(1.1)	2.4
Utilization of the reserve	230.7	256.6
Balance at end of year	(466.9)	(693.2)

The additions for 2023, 2022 and 2021 are recorded in Cost of sales. The additions for the year mainly relate to inventory items which became obsolete due to technological developments and design changes.

Notes to the Consolidated Financial Statements (continued)

8. Other assets

Other current and non-current assets consist of the following:

Year ended December 31 (€ in millions)	2022	2023
Advance payments to Carl Zeiss SMT GmbH ¹	479.9	691.9
Prepaid expenses	678.6	472.1
Derivative financial instruments ²	17.3	19.8
VAT receivable	201.2	302.2
Other assets	266.4	92.5
Other current assets	1,643.4	1,578.5
Advance payments to Carl Zeiss SMT GmbH ¹	620.4	490.8
Prepaid expenses	32.4	40.9
Derivative financial instruments ²	—	11.3
Compensation plan assets	71.1	95.2
Other assets	15.9	13.6
Other non-current assets	739.8	651.8

1. For further details on advance payments to Carl Zeiss SMT GmbH see Note 26 Related parties and variable interest entities.

2. For further details on derivative financial instruments see Note 25 Financial risk management.

Prepaid expenses mainly include prepaid income taxes of intercompany profit on inventory that has not been realized by ASML of €324.5 million (2022: €515.3 million).

9. Equity method investments**Accounting Policy**

Equity investments over which we are able to exercise significant influence but do not control, are accounted for using the equity method and presented on our Consolidated Balance Sheets within Equity method investments. The difference between the cost of our investment and our proportionate share in the carrying value of the investee's underlying net assets as of the acquisition date is the basis difference. The basis difference is allocated to the identifiable assets and liabilities based on their fair value as of the acquisition date (i.e. the date on which we obtain significant influence), with the excess costs of the investment over our proportional fair value of the identifiable assets and liabilities being equity method goodwill.

We amortize the basis difference related to the other intangible assets over the estimated remaining useful lives of these assets that gave rise to this difference. The remaining weighted-average life of the finite-lived intangible assets acquired is 13.1 years and is amortized using a straight-line method. In-process R&D is initially capitalized at fair value as an intangible asset with an indefinite life. When the R&D project is complete, it is reclassified as an amortizable purchased intangible asset and is amortized over its estimated useful life. If the project is abandoned, we will record the full basis difference charge for the value of the related intangible asset in our Consolidated Statements of Operations in the period of abandonment. Equity method goodwill is not amortized or tested for impairment; instead the equity method investment is tested for impairment whenever events or changes in circumstances indicate that the carrying value of the investment may not be recoverable.

Under the equity method, after initial recognition at cost, our Equity method investments are adjusted for our proportionate share in the profit or loss and other comprehensive income of the investee, recognized on a one-quarter time lag to allow for the timely preparation of financial information and presented within Profit from equity method investments. Our proportionate share in the profit or loss of the investee is adjusted for any differences in accounting principles and policies, basis difference adjustments and intra-entity profits. Receipt of dividends reduces our Equity method investments, which is presented as an operating cash flow based on the nature of the distributions.

Equity method investments consists of a 24.9% equity interest acquired on June 29, 2017 in Carl Zeiss SMT Holding GmbH & Co. KG, a limited partnership that owns Carl Zeiss SMT GmbH, our single supplier of optical columns.

Notes to the Consolidated Financial Statements (continued)

For the year ended December 31, 2023, we recorded a profit from Equity method investments of €191.3 million (2022: €138.0 million) in our Consolidated Statements of Operations. This profit includes the following components:

- Profit of €212.1 million (2022: €169.1 million) related to our share of Carl Zeiss SMT Holding GmbH & Co. KG's net income after accounting policy alignment
- Cost due to basis difference amortization related to intangible assets of €26.7 million (2022: €26.7 million)
- Cost/(Gain) due to intercompany profit elimination of €(5.9) million (2022: €4.4 million)

In 2023, we received a dividend of €218.0 million (2022: €178.7 million) from Carl Zeiss SMT Holding GmbH & Co. KG.

Carl Zeiss SMT Holding GmbH & Co. KG is a privately held company; therefore, quoted market prices for its stock are not available.

10. Business combinations and divestitures

Accounting Policy

Acquisitions of subsidiaries are included on the basis of the acquisition method. The cost of acquisition is measured based on the consideration transferred at fair value, the fair value of identifiable assets distributed and the fair value of liabilities incurred or assumed at the acquisition date (i.e. the date which we obtain control). Goodwill is capitalized as the excess of the costs of an acquired subsidiary, net of the amounts assigned to identifiable assets acquired and liabilities incurred or assumed. Acquisition-related costs are expensed when incurred in the period they arise or the service is received.

Business combinations

During 2023 we concluded the acquisitions of EO Technical Solutions, LLC (PAS 5500 parts repair company) and part of the semiconductor equipment activities from Philips Engineering Solutions. The goodwill (€33.0 million) has been allocated to the ASML reporting unit.

Divestitures

During 2021, we sold the non-semiconductor businesses of the acquired Berliner Glas (ASML Berlin GmbH) group.

The proceeds from these disposals totaled €339.4 million, which primarily related to the sale of the Medical Applications and Swiss Optic business on November 30, 2021. The remaining proceeds are from the sale of the Berliner Glas Technical Glas business on April 30, 2021.

A pre-tax gain of €213.7 million was recognized on these transactions which was recorded in the line item Other income (loss) in our Consolidated Statements of Operations in 2021.

11. Goodwill

Accounting Policy

Goodwill represents the excess of the costs of an acquisition over the fair value of the amounts assigned to assets acquired and liabilities incurred or assumed of the acquired subsidiary at the date of acquisition. Goodwill on acquisition of subsidiaries is allocated to reporting units for the purpose of impairment testing. The allocation is made to those reporting units that are expected to benefit from the business combination in which the goodwill arose. Goodwill is stated at cost less accumulated impairment losses.

Goodwill is tested for impairment annually or whenever events or changes in circumstances indicate that the carrying amount of the goodwill may not be recoverable. To determine whether it is necessary to perform the quantitative goodwill impairment test, we perform a step-zero qualitative assessment, annually. If we determine that it is more likely than not that the fair value of a reporting unit exceeds its carrying amount, we do not perform a quantitative goodwill impairment test.

Goodwill mainly results from the acquisitions of Cymer and HMI. The balance as of December 31, 2023, is €4,588.6 million (2022: €4,555.6 million).

We have identified two reporting units: Reporting Unit ASML and Reporting Unit Cymer Light Sources. As of December 31, 2023, the goodwill allocated to Reporting Unit ASML amounts to €4,126.3 million (2022: €4,093.3 million) and Reporting Unit Cymer Light Sources amounts to €462.3 million (2022: €462.3 million).

Based on our assessment during the annual goodwill impairment test, we believe it is more likely than not that the fair values of the reporting units exceed their carrying amounts, and therefore goodwill was not impaired as of December 31, 2023. The accumulated impairment as of December 31, 2023 is nil (2022: nil).

Notes to the Consolidated Financial Statements (continued)

12. Intangible assets, net

Accounting Policy

Intangible assets include brands, intellectual property, developed technology, customer relationships, and other intangible assets not yet available for use. These finite-lived intangible assets are stated at cost, less accumulated amortization and accumulated impairment losses. Amortization is calculated using the straight-line method based on the estimated useful lives of the assets.

Finite-lived intangible assets are assessed for impairment, annually or whenever there is an indication that the balance sheet carrying amount may not be recoverable using cash flow projections for the useful life.

The following table shows the respective useful lives for intangible assets:

Category	Estimated useful life
Brands	20 years
Intellectual property	3–10 years
Developed technology	6–15 years
Customer relationships	8–18 years
Other	2–10 years

Notes to the Consolidated Financial Statements (continued)

As of December 31, 2023, intangible assets consist mainly of brands, intellectual property, developed technology and customer relationships obtained from the acquisitions of HMI (2016) and Cymer (2013):

€, in millions	Brands	Intellectual property	Developed technology	Customer relationships	Other	Total
Cost						
Balance at January 1, 2022	38.9	144.8	1,220.2	228.6	190.0	1,822.5
Additions	—	1.5	—	—	32.5	34.0
Disposals	—	—	—	—	(1.6)	(1.6)
Effect of changes in exchange rates	—	0.8	—	—	1.6	2.4
Balance at December 31, 2022	38.9	147.1	1,220.2	228.6	222.5	1,857.3
Additions	—	—	—	—	39.3	39.3
Disposals	—	—	—	—	(0.3)	(0.3)
Effect of changes in exchange rates	—	—	—	—	(1.4)	(1.4)
Balance at December 31, 2023	38.9	147.1	1,220.2	228.6	260.1	1,894.9
Accumulated amortization						
Balance at January 1, 2022	13.0	87.2	594.0	108.6	67.6	870.4
Amortization	1.9	8.6	83.4	12.7	28.5	135.1
Impairment charges	—	—	—	—	9.2	9.2
Disposals	—	—	—	—	(1.4)	(1.4)
Effect of changes in exchange rates	—	—	—	—	1.6	1.6
Balance at December 31, 2022	14.9	95.8	677.4	121.3	105.5	1,014.9
Amortization	1.9	8.3	76.8	12.7	27.9	127.6
Impairment charges	—	—	—	—	11.1	11.1
Disposals	—	—	—	—	(0.3)	(0.3)
Effect of changes in exchange rates	—	—	—	—	(0.1)	(0.1)
Balance at December 31, 2023	16.8	104.1	754.2	134.0	144.1	1,153.2
Carrying amount						
December 31, 2022	24.0	51.3	542.8	107.3	117.0	842.4
December 31, 2023	22.1	43.0	466.0	94.6	116.0	741.7

Notes to the Consolidated Financial Statements (continued)

The Consolidated Statements of Operations include the following amortization charges:

Year ended December 31 (€, in millions)	2021	2022	2023
Cost of Sales	107.8	105.9	102.7
R&D Costs	14.5	18.2	19.5
SG&A	10.7	11.0	5.4
Total Amortization	133.0	135.1	127.6

As of December 31, 2023, the intangible assets not yet available for use, as included in Other, amount to €37.3 million (2022: €34.0 million) and are allocated to Reporting Unit ASML.

During 2023 we recorded €11.1 million impairment charges (2022: €9.2 million; 2021: €0.0 million).

As of December 31, 2023, the estimated amortization expenses for intangible assets for the next five years and thereafter is as follows:

€, in millions	Amount
2024	124.9
2025	122.8
2026	117.5
2027	114.3
2028	93.3
Thereafter	168.9
Total	741.7

13. Property, plant and equipment, net**Accounting Policy**

Property, plant and equipment is stated at cost, less accumulated depreciation and accumulated impairment losses. Costs of assets manufactured by ASML include direct manufacturing costs, production overhead and interest costs incurred for qualifying assets during the construction period. Property, plant and equipment are depreciated on a straight-line basis in the Consolidated Statements of Operations over their estimated useful lives, except for land which is not depreciated.

Evaluation systems leased to our customers under an operating lease are capitalized as Property, plant and equipment at cost and depreciated over the respective lease term. Leased assets that are returned to ASML upon expiration of the lease term are either taken back into Property, plant and equipment as they will be used internally by D&E or transferred back to Inventories to be reworked and sold.

The carrying values of prototypes, tooling and equipment that are intended to be sold, but first internally utilized for more than one year for R&D purposes, are reclassified from Inventories to Property, plant and equipment and depreciated while being internally used. When no longer required for R&D activities, the assets' carrying value is reclassified back to Inventories and reworked to make them ready for sale to our customers. These transfers are reported as Net non-cash movements to/from Inventories in our Property, plant and equipment movement schedule.

Property, plant and equipment is assessed for impairment whenever there is an indication that the carrying amount may not be recoverable using cash flow projections for the useful life.

The following table shows the respective useful lives for Property, plant and equipment:

Category	Estimated useful life
Buildings	5–45 years
Machinery and equipment	1–7 years
Leasehold improvements	1–10 years
Furniture, fixtures and other	3–5 years

Notes to the Consolidated Financial Statements (continued)

Property, plant and equipment consists of the following:

€, in millions	Land and buildings	Machinery and equipment	Leasehold improvements	Furniture, fixtures and other	Total
Cost					
Balance at January 1, 2022	2,803.7	2,028.7	368.6	414.1	5,615.1
Additions	510.9	665.4	34.4	87.6	1,298.3
Disposals	(1.3)	(42.2)	(1.0)	(3.0)	(47.5)
Net non-cash movements to/from Inventories	—	129.2	—	—	129.2
Effect of changes in exchange rates	0.7	(3.5)	(1.2)	(1.7)	(5.7)
Balance at December 31, 2022	3,314.0	2,777.6	400.8	497.0	6,989.4
Additions	1,019.3	1,050.2	79.7	94.4	2,243.6
Disposals	(1.6)	(45.1)	(0.8)	(2.1)	(49.6)
Net non-cash movements to/from Inventories	—	(75.3)	—	—	(75.3)
Effect of changes in exchange rates	(8.3)	(17.4)	(1.2)	(1.4)	(28.3)
Balance at December 31, 2023	4,323.4	3,690.0	478.5	587.9	9,079.8
Accumulated depreciation and impairment					
Balance at January 1, 2022	947.7	1,115.6	311.0	258.1	2,632.4
Depreciation	134.8	232.6	21.9	55.9	445.2
Impairment charges	10.9	6.4	0.5	—	17.8
Disposals	(2.3)	(29.5)	(0.9)	(2.4)	(35.1)
Net non-cash movements to/from Inventories	—	(10.9)	—	—	(10.9)
Effect of changes in exchange rates	(0.5)	(1.9)	(0.6)	(1.2)	(4.2)
Balance at December 31, 2022	1,090.6	1,312.3	331.9	310.4	3,045.2
Depreciation	154.2	352.0	31.0	68.4	605.6
Impairment charges	2.9	15.0	—	—	17.9
Disposals	(0.6)	(37.7)	(0.7)	(2.0)	(41.0)
Net non-cash movements to/from Inventories	—	(29.3)	—	—	(29.3)
Effect of changes in exchange rates	(4.0)	(6.7)	(0.7)	(0.4)	(11.8)
Balance at December 31, 2023	1,243.1	1,605.6	361.5	376.4	3,586.6

Notes to the Consolidated Financial Statements (continued)

€, in millions	Land and buildings	Machinery and equipment	Leasehold improvements	Furniture, fixtures and other	Total
Carrying amount					
December 31, 2022	2,223.4	1,465.3	68.9	186.6	3,944.2
December 31, 2023	3,080.3	2,084.4	117.0	211.5	5,493.2

As of December 31, 2023, the carrying amount includes assets under construction of €1,658.0 million (2022: €869.8 million) primarily consisting of buildings, as well as Machinery and equipment.

As of December 31, 2023, the carrying amount of land amounts to €229.7 million (2022: €178.7 million).

The additions in 2023 in Land and buildings, as well as Furniture, fixtures and other mainly relate to the construction of the EUV 0.55 NA (High NA) factory and office space at our headquarters in Veldhoven, in order to support our continued growth.

The additions in 2023 in Machinery and equipment mainly relate to the upgrade and expansion of production tooling to support the growth of our business, as well as investments in prototypes of new technologies.

The additions in 2023 in Leasehold improvements mainly relate to installation of cleanrooms and office space for leased properties in both the US and Taiwan. During 2023, we entered into 8 contracts that will require further Leasehold improvement investments amounting to €53.5 million.

The Consolidated Statements of Operations include the following depreciation charges:

Year ended December 31 (€, in millions)	2021	2022	2023
Cost of Sales	188.6	248.2	330.4
R&D Costs	101.4	163.7	236.2
SG&A	31.6	33.3	39.0
Total Depreciation	321.6	445.2	605.6

Notes to the Consolidated Financial Statements (continued)

14. Right-of-use assets and lease liabilities**Accounting Policy**

We determine whether an arrangement contains a lease at inception. Leases are included in Right-of-use assets, Accrued & other current liabilities, Accrued & other non-current liabilities, current portion of Long-term debt, and Long-term debt in our Consolidated Balance Sheets.

Right-of-use assets represent our right to use an underlying asset for the lease term and lease liabilities represent our obligation to make lease payments arising from the lease. Right-of-use assets and lease liabilities are recognized at commencement date based on the present value of lease payments over the lease term. As our leases do not provide an implicit rate, we use our incremental borrowing rate based on the information available at commencement date in determining the present value of lease payments. The Right-of-use assets include any lease payments made at or before the commencement date and are reduced by lease incentives. Our Right-of-use asset and lease liability valuation may include options to extend or terminate the lease when it is reasonably certain that we will exercise that option. Lease expenses are recognized on a straight-line basis over the lease term.

We have lease agreements with lease and non-lease components. The lease components are accounted for separately from non-lease components. The allocation of the consideration between lease and non-lease components is based on the relative standalone prices of lease components included in the lease contracts.

Right-of-use assets consist of the following leases:

Year ended December 31 (€, in millions)	2022	2023
Properties	148.9	270.3
Cars	5.1	5.4
Warehouses	38.0	30.3
Other	0.7	0.6
Right-of-use assets	192.7	306.6

ASML owns the majority of real estate we utilize for manufacturing, supply chain management and general administration at our headquarters in Veldhoven, the Netherlands. At our other locations worldwide, most of the properties we occupy are leased.

Lease liabilities are split between current and non-current. The non-current portion mainly consists of properties and warehouses. For the year ended December 31, 2023, Lease liabilities under an operating lease arrangement increased by €30.5 million, mainly due to new leases of properties that commenced during 2023.

Year ended December 31 (€, in millions)	2022	2023
Current	47.6	46.7
Non-current	151.5	181.2
Lease liabilities	199.1	227.9

The Consolidated Statements of Operations include the following lease expenses:

Year ended December 31 (€, in millions)	2021	2022	2023
Properties	52.2	52.3	40.4
Cars	4.8	2.7	5.9
Warehouses	3.0	4.0	5.9
Other	2.4	1.4	0.8
Lease expenses	62.4	60.4	53.0

The total cash flows relating to the leases are as follows:

Year ended December 31 (€, in millions)	2021	2022	2023
Total cash flows	68.9	57.9	148.2

The total cash flow increased in 2023 compared to 2022 due to a prepayment of a new land lease €85 million.

The weighted average remaining lease term and weighted average discount rate related to the leases are as follows:

Year ended December 31 (€, in millions)	2021	2022	2023
Weighted average remaining lease term (months)	62	67	365
Weighted average discount rate (%)	1.9 %	2.2 %	2.5 %

The weighted average remaining lease term increased in 2023 compared to 2022 due to a new land lease which has a lease term of 70 years.

Notes to the Consolidated Financial Statements (continued)

15. Accrued and other liabilities

Accrued and other liabilities consist of the following:

Year ended December 31 (€, in millions)	2022	2023
Costs to be paid ¹	511.6	632.7
Personnel-related items	1,070.9	1,328.5
Derivative financial instruments ²	261.2	156.7
Operating lease liabilities ³	196.7	227.2
Provisions	90.5	76.7
Standard warranty reserve	143.6	142.3
Other	56.3	14.4
Accrued and other liabilities	2,330.8	2,578.5
Less: non-current portion of accrued and other liabilities	454.9	401.2
Current portion of accrued and other liabilities	1,875.9	2,177.4

1. Costs to be paid includes an amount payable to related parties. For further details see Note 26 Related parties and variable interest entities.

2. For further details on derivative financial instruments see Note 25 Financial risk management.

3. For further details on lease liabilities see Note 14 Right-of-use assets and lease liabilities.

Costs to be paid represent ASML's estimate of contractual liability as of the reporting date, to be settled in a future period, based upon the underlying terms and conditions. Costs to be paid as of December 31, 2023, include Value Added Tax (VAT) payables and accrued costs for unbilled services provided by suppliers including contracted labor, outsourced services and consultancy.

Personnel-related items mainly consist of accrued annual STI bonus plans, accrued vacation days, accrued pension premiums, accrued wage tax and accrued vacation allowance. The increase in the accrued personnel-related items compared to prior year is mainly of an increase in the number of our employees to support the continued growth of our business.

The standard warranty reserve is based on historical product performance and total expected costs to fulfill our warranty obligation. Annually, we assess and update the standard warranty reserve based on the latest actual historical warranty costs and expected future warranty costs. Total changes in standard warranty reserve for the years 2023 and 2022, are as follows:

Year ended December 31 (€, in millions)	2022	2023
Balance at beginning of year	145.3	143.6
Additions for the year	191.5	232.2
Utilization of the reserve	(193.5)	(233.3)
Effect of exchange rates	0.3	(0.2)
Balance at end of year	143.6	142.3

16. Long-term debt and interest and other costs**Accounting Policy**

Long-term debt represents debt issued privately without registration with a government authority and is payable to others under the terms of a signed agreement. Long-term debt is initially recognized at fair value and subsequently measured at amortized cost. Debt is qualified as long-term debt as long as the group has an unconditional right to defer settlement of the liability for at least 12 months after the reporting period.

Interest accruals and payments relating to long-term debt are accounted for as part of Accrued and other liabilities. Interest and other costs should be accrued and recorded with the passage of time over the agreed term, regardless of when the interest receipt or payment has taken place.

Notes to the Consolidated Financial Statements (continued)

Long-term debt consists of the following (amounts for bonds represent carrying amount, not the principle amount):

Year ended December 31 (€, in millions)	2022	2023
€750 million 3.375% senior notes issued September 2013 and principal due September 19th 2023 interest annually payable on September 19th	744.6	—
€1,000 million 1.375% senior notes issued July 2016 and principal due July 7th 2026 interest annually payable on July 7th	893.9	936.8
€750 million 1.625% senior notes issued November 2016 and principal due May 28th 2027 interest annually payable on May 28th	666.8	701.3
€750 million 0.250% senior notes issued February 2020 and principal due February 25th 2030 interest annually payable on February 25th	742.7	743.7
€750 million 0.625% senior notes issued May 2020 and principal due May 7th 2029 interest annually payable on May 7th	747.5	747.9
€500 million 2.250% senior notes issued May 2022 and principal due May 17th 2032 interest annually payable on May 17th	440.3	472.1
€1,000 million 3.500% senior notes issued June 2023 and principal due December 6th 2025 interest annually payable on December 6th	—	1,008.6
Debt acquired from Berliner Glas (ASML Berlin GmbH)	22.3	20.5
Other	2.3	0.7
Long-term debt	4,260.4	4,631.6
Less: current portion of long-term debt	746.2	0.1
Non-current portion of long-term debt	3,514.2	4,631.5

All senior notes are redeemable at the option of ASML, in whole or in part, at any time by paying a make whole premium, and unless previously redeemed, will be redeemed at 100% of their principal amount on the maturity date.

Our obligations to make principal repayments under our senior notes and other borrowing arrangements excluding interest expense as of December 31, 2023 are as follows:

€, in millions	Amount
2024	0.1
2025	1,004.2
2026	1,002.0
2027	752.0
2028	2.0
Thereafter	2,011.0
Total debt maturities	4,771.3

Eurobonds

The following table summarizes the carrying amount of our outstanding Eurobonds, including the fair value of interest rate swaps used to hedge the change in the fair value of the Eurobonds:

Year ended December 31 (€, in millions)	2022	2023
Amortized cost amount	4,479.0	4,731.7
Fair value interest rate swaps ¹	(243.2)	(121.3)
Carrying amount	4,235.8	4,610.4

1. The fair value of the interest rate swaps excludes accrued interest.

We use interest rate swaps to minimize the net interest exposure for the group by aligning the interest terms of the available cash and the interest-bearing debt. The fair value changes of these interest rate swaps are recorded on the Consolidated Balance Sheets under current and non-current accrued and other liabilities, as well as current and non-current other assets, and the carrying amount of the Eurobonds is adjusted for these fair value changes. We did not enter into interest rate swaps in connection with the Eurobonds issued in 2020.

The following table summarizes the estimated fair value of our Eurobonds:

Year ended December 31 (€, in millions)	2022	2023
Principal amount	4,500.0	4,750.0
Carrying amount	4,235.8	4,610.4
Fair value ¹	4,072.8	4,496.2

1. Source: Bloomberg Finance LP.

The fair value of our Eurobonds is estimated based on quoted market prices as of December 31, 2023. The fair value deviates from the principal amount, due to changes in market interest rates and credit spreads since the issue of our Eurobonds which carry a fixed coupon interest rate.

Debt acquired from Berliner Glas (ASML Berlin GmbH)

The loan of Berliner Glas (ASML Berlin GmbH) is a mortgage loan of €20.5 million with an annual interest rate of 0.5%, repayable in 2034. Debt decreased compared to 2022, due to repayments made in 2023.

Lines of credit

We maintain an available committed credit facility maturing in July 2026, with a group of banks, of €700.0 million as of December 31, 2023 and as of December 31, 2022. No amounts were outstanding under the committed credit facility at the end of 2023 and 2022. Outstanding amounts under this credit facility will bear an interest of Euribor plus a margin. The margin depends on our credit rating and ESG score.

Notes to the Consolidated Financial Statements (continued)

We have a non-committed guarantee facility of €85.0 million under which guarantees in the ordinary course of business, such as customs or rental guarantees, can be provided to third parties. As of December 31, 2023, an amount of €46.8 million has been provided as guarantee. In addition, ASML has a non-committed credit facility for our Chinese subsidiary of €130.0 million. This non-committed credit facility covers bank guarantees, standby letters of credit, as well as advances up to €130.0 million. No amounts were outstanding under this facility. ASML also has non-committed lines of credit available. These facilities provide ASML with the ability to request short-term unsecured loans from time to time for an aggregate amount not exceeding €1.25 billion. No amounts have been drawn under these lines of credit. Outstanding amounts under the non-committed facility will bear interest based on market conditions at the moment of draw down.

Interest and other, net

Interest and other, net consist mainly of interest income and interest expenses. In 2023, the interest income component is €193.9 million (2022: €16.2 million; 2021: €10.0 million). Income mainly relates to interest income on cash and cash equivalents. In 2023, the interest expense component is €152.7 million (2022: €60.8 million; 2021: €54.6 million). The expenses mainly relate to interest expense on our Eurobonds and interest rate swaps.

17. Commitments and contingencies

Commitments

We have various contractual obligations, some of which are required to be recorded as liabilities in our Consolidated Balance Sheets, including long- and short-term debt and lease commitments. Other contractual obligations, namely unconditional purchase obligations, are generally not required to be recognized as liabilities but are required to be disclosed.

Our contractual obligations as of December 31, 2023 can be summarized as follows:

Payments due by period (€, in billions)	Total	1 year	2 years	3 years	4 years	5 years	>5 years
Long-term debt obligations, including interest ¹	5.1	0.1	1.1	1.0	0.8	—	2.1
Lease obligations ²	0.2	0.1	—	—	—	—	0.1
Purchase obligations	14.1	10.7	1.8	0.8	0.4	0.2	0.2
Total contractual obligations	19.4	10.9	2.9	1.8	1.2	0.2	2.4

1. Long-term debt obligations mainly relate to principal amounts and interest payments of our Eurobonds. For the amounts excluding interest expenses and for further details see Note 16 Long-term debt and interest and other costs.

2. For further details see Note 14 Right-of-use assets and lease liabilities.

We have purchase obligations towards suppliers in the ordinary course of business which mainly relate to goods and services for our operations and obligations relating to further expansion and upgrade of our facilities. The general terms and conditions of the agreements relating to the major part of our purchase obligations as of December 31, 2023, contain clauses that enable us to delay or cancel delivery of ordered goods and services up to the dates specified in the purchase agreements, in line with the timing of future sales. The terms and conditions that we normally agree with our suppliers give us additional flexibility to adapt our purchase obligations to our requirements in light of the cyclical and technological developments inherent in the industry in which we operate.

Contingencies

ASML is subject to proceedings, litigation and other actual or potential claims, including those related to a potential violation of laws and regulations. ASML's customers may be subject to claims of infringement from third parties alleging that the ASML equipment used by those customers in the manufacture of semiconductor products, and/or the methods relating to use of the ASML equipment, infringes one or more patents issued to those third parties. If these claims were successful, ASML could be required to indemnify such customers for some or all of the losses incurred or damages assessed against them as a result of that infringement. As reported in the 2022 Annual Report, ASML was subject to misappropriation of data relating to proprietary technology by a (now) former employee in China. Although we do not believe that the misappropriation is material to our business, certain export control regulations may have been violated. ASML reported the incident to relevant authorities.

In connection with any proceedings and claims, our management evaluates, based on the relevant facts and legal principles, the likelihood of an unfavorable (or favorable) outcome, and whether the amount of the loss (or gain) can be reasonably estimated. Judgment is required in these evaluations, including judgments regarding the validity of asserted claims and the likely outcome of legal and administrative proceedings. The outcome of these proceedings, however, is subject to a number of factors beyond our control, most notably the uncertainty associated with predicting decisions by courts and administrative agencies. In addition, estimates of the potential costs (or gains) associated with legal and administrative proceedings frequently cannot be subjected to any sensitivity analysis, as damage estimates or settlement offers by claimants may bear little or no relation to the eventual outcome. Finally, in any particular proceeding, we may agree to settle or to terminate a claim or proceeding in which we believe that it would ultimately prevail where we believe that doing so, when taken together with other relevant commercial considerations, is more effective than engaging in an expensive and protracted litigation, the outcome of which is uncertain.

As of December 31, 2023, management has determined that ASML does not have any material contingencies which are considered probable or reasonably probable for each year presented in our Consolidated Balance Sheets.

Notes to the Consolidated Financial Statements (continued)

18. Personnel expenses and employee information

Personnel expenses for all payroll employees were as follows:

Year ended December 31 (€, in millions)	2021	2022	2023
Wages and salaries	2,842.7	3,502.5	4,447.0
Social security expenses	249.8	300.7	410.5
Pension and retirement expenses	229.2	255.9	348.9
Share-based payments	117.5	68.9	134.8
Personnel expenses	3,439.2	4,128.0	5,341.2

The continued increase in personnel expenses is mainly due to an increase in payroll employees to support the continued growth of our business.

The average number of payroll employees in FTEs was:

Average number of payroll employees in FTEs	2021	2022	2023
Netherlands	14,222	16,722	19,876
Worldwide (including Netherlands)	28,223	33,071	38,805

The total number of payroll and temporary employees as of December 31 in FTE per sector was:

Year ended December 31 (in FTE)	2021	2022	2023
Customer Support	7,485	8,901	9,851
Manufacturing and Supply Chain Management	8,237	9,953	9,954
Strategic Supply Management	707	1,541	2,033
General and Administrative	2,761	3,768	4,035
Sales and Mature Products and Services	766	742	939
Research and Development	12,060	14,181	15,604
Total	32,016	39,086	42,416
Less: Temporary employees	2,155	2,974	2,107
Payroll employees	29,861	36,112	40,309

Short-term incentive bonus plans

We have annual performance-related STI bonus plans for our employees. Under these plans, the employee bonus payout depends on the employee's job grade, the type of bonus plan and the company/individual performance. The employee bonus payout (excluding the Board of Management) ranges between 0% and 126% of their annual base gross salary. The 2023 STI bonus is accrued for as part of Accrued and other liabilities in the Consolidated Balance Sheets and will be paid in the first quarter of 2024.

The STI bonus expenses for the (former) Board of Management and other employees were as follows:

Year ended December 31 (€, in millions)	2021	2022	2023
Board of Management	4.4	3.8	6.0
Former Board of Management	0.2	—	—
Other employees	423.5	629.6	712.6
Total STI bonus expenses	428.1	633.4	718.6

Notes to the Consolidated Financial Statements (continued)

19. Employee benefits

Accounting Policy

Contributions to defined contribution retirement benefit plans are recognized as an expense when employees have rendered service entitling them to the contributions. Payments made to state-managed retirement benefit schemes are dealt with as payments to defined contribution plans where our obligations under the plans are equivalent to those arising in a defined contribution retirement benefit plan.

We maintain one multi-employer union defined benefit pension plan and various other defined contribution pension plans covering a substantial number of our employees. ASML accounts for its multi-employer defined benefit plan as if it were a defined contribution plan for the following reasons:

- ASML is affiliated to an industry-wide pension fund and uses the pension scheme in common with other participating companies
- Under the regulations of the pension plan, the only obligation these participating companies have towards the pension fund is to pay the annual premium liability. Participating companies are under no obligation whatsoever to pay off any deficits the pension plan may incur. Nor have they any claim to any potential surpluses

Our pension and retirement expenses for all employees for the years ended December 31, 2023, 2022 and 2021, were:

Year ended December 31 (€ in millions)	2021	2022	2023
Pension plan based on multi-employer union plan	161.7	181.2	244.4
Pension plans based on defined contribution and other plans	67.5	74.7	104.5
Pension and retirement expenses	229.2	255.9	348.9

The accrued pension premiums were €39.2 million as at December 31, 2023 and €53.2 million as at December 31, 2022.

Multi-employer union plan

In accordance with the collective bargaining agreements effective for the industry in which we operate, which has no expiration date, there are 21,586 eligible payroll employees in the Netherlands (53.6% of our total payroll FTEs) that participate in a multi-employer union plan. Our net periodic pension cost for this multi-employer union plan for any period is the amount of the required employer contribution for that period.

This multi-employer union plan is managed by PME (Stichting Pensioenfonds van de Metalektro) and this plan covers approximately 1,568 companies and approximately 183,685 contributing members. Every participating company contributes a premium that is based on the same contribution rate. This contribution rate can fluctuate yearly based on the coverage ratio of the multi-employer union plan. For 2023, the contribution percentage was 28.0% (2022:

28.0%, 2021: 27.6%). For 2023, our contribution to this multi-employer union plan (including the premiums paid by employees), was 18.3% (2022: 15.7%, 2021: 13.6%) of the total contribution to the plan. For 2024, we expect to contribute around €365.0 million to this plan (including the premiums paid by employees). The pension rights of each employee are based upon the employee's average salary during employment.

The PME multi-employer union plan monitors its risks on a global basis and is subject to regulation by Dutch governmental authorities. By Dutch law (the Dutch Pension Act), a multi-employer union plan must be monitored against specific criteria, including the coverage ratio of the plan's assets to its obligations. The coverage ratio is calculated by dividing the funds capital by the total sum of pension liabilities and is based on actual market interest rates. The legally required minimal coverage ratio is 104.3% (2022: 104.3%). Compared to the previous year, the coverage ratio of PME slightly decreased to 109.4% as per December 31, 2023 (December 31, 2022: 110.4%). A recovery plan is in place intended to improve this coverage ratio towards 120%. ASML has no obligation to pay any deficits the pension fund may incur, nor does it have any claim to any potential surpluses.

Other defined contribution and pension plans

We also participate in several other defined contribution pension plans (inside and outside the Netherlands), with our expenses for these plans equaling the employer contributions made in the relevant period.

Deferred compensation plans

For more senior US employees we have a non-qualified deferred compensation plan that allows them to defer a portion of their salary, bonus, and commissions. The plan allows us to credit additional amounts to the participants' account balances. The participants divide their funds among the investments available in the plan. Participants elect to receive their funds in future periods after the earlier of their employment termination or their withdrawal election, at least 3 years after deferral. Expenses were close to nil relating to this plan in 2023, 2022 and 2021. As of December 31, 2023, our liability under deferred compensation plans was €94.7 million (2022: €70.5 million). The related compensation plan assets are €95.2 million (2022: €71.1 million).

Notes to the Consolidated Financial Statements (continued)

20. Share-based compensation

ASML has the following plans in place for its employees:

- Long-term incentive bonus plans
- Option plans
- Employee purchase plan

Long-term incentive bonus plans

Our LTI plans are covered by an overarching Employee Umbrella Share Plan, which is effective as of January 1, 2014, and covers all employees. The main purpose of the grants of Equity Incentives under this Employee Umbrella Share Plan is to continue to attract, reward and retain qualified and experienced industry professionals in an international labor market. All grants under the Employee Umbrella Share Plan typically have a 2.5 to 3 year vesting period and are subject to performance and/or service criteria.

As part of our LTI bonus, employees can be granted either a service or performance share-based payment plan. For service-type plans, shares are granted at grant date and after having been in service for a set period, the participant is awarded these shares at the vesting date. For performance plans, the same conditions apply as a service-type plan. Additionally, the shares are conditionally granted and awarded based on the company specific performance criteria, which can be split between market and non-market-based elements. These shares vest after completion of the service period and the performance reached at vesting date.

The General Meeting approved the adoption of the most recent Remuneration Policy for the Board of Management and the number of shares to be issued. The most recent Remuneration Policy includes the target and maximum levels of the LTI plans, the performance measures and payout zone percentages. The policies for employees are approved by the Board of Management. The General Meeting also approved the restrictions and limits to the Board of Management for issuance/granting of ordinary shares, limits for restricting or excluding the preemption rights accruing to shareholder and the restrictions and limits to the Board of Management for repurchasing ordinary shares on behalf of the company.

The table below shows the performance criteria and the corresponding weight of the LTI performance plans granted in 2023.

LTI performance plan criteria	Market/Non-Market element	Weight
Relative TSR	Market	30 %
Strategic value drivers	Non-Market	30 %
Technology Leadership Index	Non-Market	20 %
ESG Measures	Non-Market	20 %
Total		100 %

Accounting Policy

The fair value of the market-based element is measured at the grant date incorporating the expected vesting and expected value at vesting, using a tailored Monte Carlo simulation model. The fair value of the service plans and the non-market-based elements of the performance plans is the share price at grant date less the present value of expected dividends during the vesting period, as participants are not entitled to dividends payable and voting rights during the vesting period. The likelihood of the conditions being met for service and non-market performance plans is assessed as part of the company's best estimate of the number of equity instruments that will ultimately vest.

Participants are entitled to a conditional grant of company shares upon awarding. Performance plans are subject to cliff vesting and are accounted for on a straight-line basis. Service only plans are subject to graded vesting. Each installment of the plan is therefore accounted as a separate grant with a separate fair value. This means that each installment will be separately measured and attributed to expense over the related vesting period. Expenses for the market-based element are recognized during vesting at a fixed vesting level (as the vesting expectation is incorporated in the fair value) provided that all other performance conditions are met. Expenses for the non-market-based elements and service plans are recognized during vesting at expected vesting levels, which are updated during vesting period as necessary, with a final update/adjustment at vesting date. All share-based remuneration expenses are recognized as personnel expense, with a corresponding entry in equity, during the vesting period of the award. Share-based remuneration expenses are included in the same income statement line or lines in the functional grouped Consolidated Statement of Operations as the compensation paid to the employees receiving the stock-based awards.

The most important assumptions for the calculation of the fair value of shares for the LTI performance plans, which include a market-based performance criteria, are set out in the following table:

Year ended December 31	2021	2022	2023
Share price in € at grant date	462.9	548.0	620.1
Expected volatility ASML	38.5 %	41.8 %	46.2 %
Expected volatility PHLX index	35.3 %	n/a	n/a
Average volatility of the peer group (market practice)	n/a	47.8 %	50.0 %
Vesting period	2.9 years	2.7 years	2.9 years
Dividend yield	0.6 %	1.0 %	0.9 %
Risk free interest rate (Eurozone)	(0.8)%	0.5 %	2.4 %
Risk free interest rate (US)	0.2 %	2.8 %	3.9 %

Notes to the Consolidated Financial Statements (continued)

Expenses for LTI plans, including the Board of Management, were as follows:

Year ended December 31 (€, in millions)	2021	2022	2023
Total incurred expenses	117.5	68.9	134.8
Recognized income tax benefit (excluding excess income tax benefits)	8.2	10.2	16.3
Total expected expenses in future periods	125.4	113.0	187.2
Weighted average period in which these expected expenses are to be recognized	1.7 years	1.4 years	1.6 years

Details with respect to shares granted and vested during the year are set out in the following table:

Year ended December 31	EUR-denominated			USD-denominated		
	2021	2022	2023	2021	2022	2023
Total fair value at vesting date of shares vested during the year (in millions)	156.9	120.6	175.5	164.0	149.6	127.0
Weighted average fair value of shares granted	547.79	578.65	587.42	498.64	553.61	624.10

A summary of the status of conditionally outstanding shares as of December 31, 2023, and changes during the year ended December 31, 2023, is presented below:

	EUR-denominated		USD-denominated	
	Number of shares	Weighted average fair value at grant date	Number of shares	Weighted average fair value at grant date
Conditional shares outstanding at January 1, 2023	292,765	434.10	238,394	542.22
Granted	244,069	587.42	295,235	624.10
Vested	(257,451)	425.34	(167,746)	515.96
Forfeited	(3,812)	557.77	(2,764)	622.98
Conditional shares outstanding at December 31, 2023	275,571	576.37	363,119	620.31

Option plans

Since 2017, we no longer grant any options, but there are still outstanding options which may be exercised by employees.

Accounting Policy

The grant-date fair value of stock options was estimated using a Black-Scholes option valuation model. This Black-Scholes model required the use of assumptions, including expected share price volatility, the estimated life of each award and the estimated dividend yield. The risk-free interest rate used in the model is determined, based on an

index populated with euro-denominated European government agency bonds with high credit ratings and with a life equal to the expected life of the equity-settled share-based payments. Our option plans typically vest over a 3-year service period with any unexercised stock options expiring 10 years after the grant date. Options granted have fixed exercise prices equal to the closing price of our shares listed at Euronext Amsterdam on grant date. The purchase of shares against the exercise price is settled with the employees involved through deductions on their salary and the issuance of shares upon exercising the stock options is deducted from our treasury shares.

Details with respect to stock options exercised and outstanding are set out in the following table:

Year ended December 31	EUR-denominated			USD-denominated		
	2021	2022	2023	2021	2022	2023
Weighted average share price at the exercise date of stock options	583.33	494.14	613.03	658.16	565.39	678.41
Aggregate intrinsic value of stock options exercised (in millions)	5.7	4.4	8.1	4.1	1.6	4.8
Weighted average remaining contractual term of currently exercisable options (in years)	2.81	2.08	1.48	2.93	2.09	1.43
Aggregate intrinsic value of exercisable stock options (in millions)	36.7	20.3	19.7	24.9	14.6	15.9
Aggregate intrinsic value of outstanding stock options (in millions)	36.7	20.3	19.7	24.9	14.6	15.9

The number and weighted average exercise prices of stock options as of December 31, 2023, and changes during the year then ended are presented below:

	EUR-denominated		USD-denominated	
	Number of options	Weighted average exercise price per ordinary share (EUR)	Number of options	Weighted average exercise price per ordinary share (USD)
Outstanding, January 1, 2023	47,607	77.95	32,138	92.84
Granted ¹	—	—	—	—
Exercised	(14,768)	67.80	(8,175)	89.40
Forfeited	—	—	—	—
Expired	—	—	(1)	92.23
Outstanding, December 31, 2023	32,839	82.52	23,962	94.01
Exercisable, December 31, 2023	32,839	82.52	23,962	94.01

1. Since 2017, we no longer grant options to our employees.

Notes to the Consolidated Financial Statements (continued)

Details with respect to stock options exercised in the relevant year and outstanding stock options as of December 31, 2023, are set out in the following table:

EUR-denominated			USD-denominated		
Range of exercise prices (€)	Number of outstanding options	Weighted average remaining contractual life of outstanding (years)	Range of exercise prices (USD)	Number of outstanding options	Weighted average remaining contractual life of outstanding (years)
50–60	1,936	0.30	50–60	—	0.00
60–70	2,457	0.31	60–70	—	0.00
70–80	8,444	1.34	70–80	—	0.00
80–90	9,966	1.84	80–90	7,569	0.97
90–100	10,036	1.75	90–100	10,087	1.59
100–110	—	0.00	100–110	6,306	1.73
Total	32,839	1.48	Total	23,962	1.43

Employee Purchase Plan

Additionally, we offer an Employee Purchase Plan to our payroll employees, except the Board of Management who is excluded from participation in this plan. Through this plan, payroll employees are given the opportunity to buy our shares through their monthly paycheck. The maximum amount for which employees can participate in the plan amounts to 10.0% of their annual gross base salary. When employees retain the shares for a minimum of 12 months, ASML will pay out a 20.0% gross cash bonus on the initial participation amount.

Accounting Policy

Employee purchase plans are accounted on an accrual basis. The shares for employee purchase plans are issued on a quarterly basis and the share purchase price is based on the closing share price of our listed shares on grant date, which is the date after our quarterly filings. The purchased shares by employees are issued from our treasury shares.

In 2023, ASML received €99.4 million (2022: €81.8 million and 2021: €49.0 million) from issuance of shares for our employee purchase plan.

21. Income taxes

Accounting Policy

The asset and liability method is used in accounting for income taxes. Under this method, deferred tax assets and liabilities are recognized for the tax effect of operating loss and tax credit carry forwards as well as for tax consequences attributable to differences between the balance sheets carrying amounts of existing assets and liabilities and their respective tax bases. If it is more likely than not that the carrying amounts of deferred tax assets will not be realized, a valuation allowance is recorded for the difference. Income tax expense includes current and deferred taxes on profit, related interest and penalties and non-recoverable withholding taxes that qualify as income tax, as well as actual or potential withholding taxes on current and expected dividend income from group companies.

Deferred tax assets and liabilities are measured using enacted tax rates expected to apply to taxable income in the years in which temporary differences, operating loss carry forwards and tax credit carry forwards are expected to be recovered or settled. The effect on deferred tax assets and liabilities of a change in tax rates is recognized in the Consolidated Statements of Operations in the period that includes the enactment date. Deferred income taxes originally recognized through OCI are recycled through earnings in future periods upon release of the connected item from OCI to the statement of income.

We assess unrecognized tax benefits based on a two-step process. The first step is to evaluate the tax position for recognition by determining if the weight of available evidence indicates that it is more likely than not that the position will be sustained on audit, including resolution of related appeals or litigation processes, if any. The second step is to measure the tax benefit as the largest amount that is more than 50% likely of being realized upon settlement. While we believe we have appropriate support for the positions taken on our tax returns, we regularly assess the potential outcomes of examinations by tax authorities in determining the adequacy of our income tax expense, and adjust the income tax expense, income taxes payable and deferred taxes in the period in which the facts that give rise to a revision become known.

Income taxes are affecting our Consolidated Statements of Operations, Consolidated Statements of Comprehensive Income and Consolidated Balance Sheets. The disclosure of the income taxes is therefore split into:

- Income tax expense
- Liability for unrecognized tax benefits
- Deferred taxes

Income tax expense

The components of income tax expense are as follows, whereby 'Income tax expense Netherlands' represents the total tax expense on taxable income generated by our entities in the Netherlands and 'Income tax expense Foreign' represents the total tax expense on taxable income generated by our non-Dutch group entities. Hereby 'Total income tax expense Netherlands' includes withholding tax expense withheld at source on income paid by non-Dutch entities to the Netherlands.

Notes to the Consolidated Financial Statements (continued)

Year ended December 31 (€ in millions)	2021	2022	2023
Netherlands	5,982.8	5,881.0	8,453.5
Foreign	722.7	575.1	630.0
Income before income taxes	6,705.5	6,456.1	9,083.5
Income tax (expense) / benefit current	(865.0)	(818.4)	(1,211.7)
Income tax (expense) / benefit deferred	(28.6)	(44.4)	(58.4)
Income tax (expense) / benefit Netherlands	(893.6)	(862.8)	(1,270.1)
Income tax (expense) / benefit current	(523.5)	(678.3)	(441.3)
Income tax (expense) / benefit deferred	395.7	571.2	275.6
Income tax (expense) / benefit Foreign	(127.8)	(107.1)	(165.7)
Total income tax (expense) / benefit current	(1,388.5)	(1,496.7)	(1,653.0)
Total income tax (expense) / benefit deferred	367.1	526.8	217.2
Total income tax (expense) / benefit	(1,021.4)	(969.9)	(1,435.8)

Current and deferred tax (expense) / benefit can be further broken down into:

Year ended December 31 (€ in millions)	2021	2022	2023
Current year tax (expense) / benefit	(1,367.2)	(1,440.9)	(1,766.1)
Prior year tax (expense) / benefit	(21.3)	(55.8)	113.1
Total current tax (expense) / benefit	(1,388.5)	(1,496.7)	(1,653.0)

Year ended December 31 (€ in millions)	2021	2022	2023
Changes to recognition of operating losses and tax credits	(37.2)	(41.2)	3.0
Prior year tax (expense) / benefit	(2.4)	79.2	(85.2)
Tax rate changes	1.5	(1.1)	13.5
Origination and reversal of temporary differences, operating losses and tax credits	405.2	489.9	285.9
Total deferred tax (expense) / benefit	367.1	526.8	217.2

The Dutch statutory tax rate was 25.8% in 2023 (25.8% for 2022 and 25.0% for 2021). Tax amounts in other jurisdictions are calculated at the rates prevailing in the relevant jurisdictions.

The effective tax rate (ETR) increased to 15.8% in 2023, compared with 15.0% in 2022. The higher rate is mainly caused by an increase in our liability for unrecognized tax benefits and a reduction in US Foreign Derived Intangible Income (FDII) deduction.

The reconciliation of the income tax expense from the Dutch statutory rate to the effective income tax rate is as follows:

Year ended December 31 (€ in millions)	2021	% ¹	2022	% ¹	2023	% ¹
Income before income taxes	6,705.5	100.0 %	6,456.1	100.0 %	9,083.5	100.0 %
Income tax expense based on ASML's domestic rate	(1,676.4)	25.0 %	(1,665.7)	25.8 %	(2,343.5)	25.8 %
Effects of tax rates in foreign jurisdictions	(4.6)	0.1 %	13.0	(0.2)%	14.7	(0.2)%
Adjustments in respect of tax-exempt income	—	— %	—	— %	1.4	— %
Adjustments in respect of tax incentives	727.3	(10.8)%	741.2	(11.5)%	941.9	(10.4)%
Adjustments in respect of prior years' current taxes	(21.3)	0.3 %	(55.8)	0.9 %	113.1	(1.2)%
Adjustments in respect of prior years' deferred taxes	(2.4)	— %	79.2	(1.2)%	(85.2)	0.9 %
Movements in the liability for unrecognized tax benefits	(21.6)	0.3 %	(9.9)	0.2 %	(55.0)	0.6 %
Tax effects in respect of acquisition/restructuring related items	35.9	(0.5)%	—	— %	—	— %
Change in valuation allowance	(37.2)	0.6 %	(41.2)	0.6 %	3.0	— %
Equity method investments	(46.7)	0.7 %	(38.3)	0.6 %	(42.6)	0.5 %
Effect of change in tax rates	1.5	— %	(1.1)	— %	13.5	(0.1)%
Other (credits) and non-tax deductible items	24.1	(0.4)%	8.7	(0.1)%	2.9	— %
Income tax expense	(1,021.4)	15.2 %	(969.9)	15.0 %	(1,435.8)	15.8 %

1. As a percentage of income before income taxes.

The individual line items in the table above are explained in more detail below.

Notes to the Consolidated Financial Statements (continued)

Income tax expense based on ASML's domestic rate

The income tax expense based on ASML's domestic rate is based on the Dutch statutory income tax rate. It reflects the income tax expense that would have been applicable assuming that all of our income is taxable against the Dutch statutory tax rate and there are no differences between taxable base and financial results and no tax incentives are applied.

Effects of tax rates in foreign jurisdictions

A portion of our results is realized in countries other than the Netherlands where different tax rates are applicable. The effect can differ from year to year depending on the profit before tax in respective foreign jurisdictions.

Adjustments in respect of tax-exempt income

Some interest income earned is exempt for tax purposes. The increase in 2023 as compared to prior years is driven by an increase in interest rates.

Adjustments in respect of tax incentives

Adjustments in respect of tax incentives mainly relate to a reduced tax rate as a result of application of the Dutch Innovation Box, which is a facility under Dutch corporate tax law pursuant to which qualified income associated with R&D is subject to an effective tax rate of 9.0%. The innovation box benefit is determined according to Dutch laws and published tax policy, whereby the application has been confirmed in an agreement between ASML and the Dutch tax authorities. This agreement has recently been renewed for the years 2024 through 2028 assuming facts and circumstances do not change.

Furthermore, this category includes the benefit of the FDII deduction applicable at the level of our US group companies. The FDII deduction is a facility under US corporate tax law which reduces the effective tax rate on income derived from tangible and intangible products and services in foreign markets. Based on new guidance issued by the US Internal Revenue Service (IRS) in 2023 on funded R&D, FDII deduction for 2023 has significantly reduced.

Increase in absolute number of this line item in 2023 as compared to 2021 and 2022 is driven by increase of our innovation box benefit commensurate with the increase in profit before tax at the level of our Dutch group companies. Decrease in relative impact is caused by a reduction in FDII deduction.

The increase in relative weight of this item in the effective tax rate reconciliation for 2022 as compared to 2021 is mainly caused by an increase in the general Dutch corporate income tax (CIT) rate to 25.8% as of 2022 (2021: 25.0%).

Adjustments in respect of prior years' current taxes

The adjustments in respect of prior years' current taxes relate to differences between the initially estimated income taxes and final CIT returns filed or arrangements agreed upon with tax authorities. These are mainly caused by modifications in temporary differences on contract liabilities and are offset by similar movements in prior year deferred tax balances.

Adjustments in respect of prior years' deferred taxes

The movements in the adjustments in respect of prior years' deferred taxes mainly relate to differences between the initially estimated income taxes and final CIT returns filed. This is mainly caused by modifications in temporary differences on contract liabilities.

Movements in the liability for unrecognized tax benefits

In 2023, similar to prior years, the effective tax rate was impacted by movements in the liability for unrecognized tax benefits. The movement for 2023 is mainly driven by continued dialogues with Dutch and foreign tax authorities in the area of transfer pricing. Additionally, some prior year positions have been released as a result of the lapse of statute.

Tax effects in respect to acquisition/restructuring-related items

The 2021 effect relates to divestment of part of the Berliner Glas (ASML Berlin GmbH) entities, whereby the commercial transaction result was, to a large extent, exempt for income tax purposes. No such transaction has taken place in 2022 or 2023.

Change in valuation allowance

Changes in valuation allowance mainly relate to R&D and withholding tax credits for the respective year at the level of our group companies in the Netherlands and the US for which it is considered not more likely than not that these can be realized in future years. Additionally, in 2023 a reduction in valuation allowance is recorded for a refund of withholding taxes in Taiwan.

Equity method investments

This line includes the income tax expense relating to our investment in Carl Zeiss SMT Holding GmbH & Co. KG, whereby the expense for 2021 as compared to 2022 and 2023 was also negatively influenced by the tax accounting consequences following from an adjustment in the outside basis difference for the equity investment.

Effect of change in tax rates

In 2023 there was a small tax rate change impact relating to revaluation of deferred tax positions of our Dutch fiscal unity following from the renewed innovation box agreement with the Dutch tax authorities, which slightly changed the effective tax rate of the Dutch fiscal unity against which temporary differences reverse. Additionally in 2023 a rate change effect is included following an internal group restructuring in the US.

The 2021 and 2022 tax rate changes related to adjustments enacted in respective years in the general CIT rates applying in South Korea and the Netherlands.

Other credits and non-tax deductible items

Other credits and non-tax deductible items reflect the impact on our statutory rates of permanent non-tax deductible items such as non-deductible withholding taxes, non-deductible shared-based payment expenses and non-deductible meals and entertainment expenses, as well as the impact of various tax credits (e.g. US R&D credits) on our income tax expense.

Notes to the Consolidated Financial Statements (continued)

US Tax Reform

The year-end tax positions also reflect the regulations of 2017 US Tax Reform, thereby taking into account the guidance issued by the US government. Hereby the most recent guidance for the final FDII regulations has been applied as of 2021 onward, not retrospectively as permitted by aforementioned regulations. With regard to the Global Intangible Low Taxed Income (GILTI) and Base Erosion and Anti-Abuse Tax (BEAT) regulations, the decision has been taken to treat these as a period permanent item.

In 2022, the US enacted the CHIPS and Science Act which, among other things, implemented a 25% investment tax credit on semiconductor and semiconductor equipment manufacturing assets. Pending the release of further guidance, it is currently uncertain whether the company will claim the investment tax credit to which we may be entitled as of 2023.

Additionally, in 2022 the US enacted the Inflation Reduction Act (IRA), which, among other things, implements a 15% minimum tax on book income of certain large corporations, a 1% excise tax on share buybacks, several clean energy provisions, and additional funding for the IRS. Relevant tax aspects of the IRA have been assessed and included in our tax positions reported for 2023. Based on our current analysis, we do not believe the IRA will have a material impact on our Consolidated Financial Statements for years 2023 and onward.

Global minimum tax

In 2023, the Netherlands enacted new legislation to implement the global minimum tax, which will come into effect from January 1, 2024. Since the rules were not yet effective at the reporting date, the group has no related current tax exposure for 2023.

In conformity with the FASB staff comments of February 1, 2023, we have treated the global minimum tax as an alternative minimum tax and did not recognize deferred tax impacts or remeasure existing deferred taxes under local regular income tax systems. Any incremental effect of the global minimum tax is recognized as current tax as it is incurred.

The group monitors its impact to the global minimum tax rules for when it comes into effect on a regular basis. An assessment of the impact has been performed as if the global minimum tax had been applied in 2023. The assessment shows that the tax might have applied to profits relating to the group's operations in the Netherlands, Ireland, Hong Kong and the US.

However, although for 2023 the effective tax rate for global minimum tax purposes for the respective countries is below 15%, we don't expect to be subject to paying global minimum taxes in relation to Ireland and the Netherlands. This is due to the expected increase in Irish effective tax rate to 15% as of 2024. For the Netherlands the main driver is the impact of the renewed innovation box agreement concluded with the Dutch tax authorities applicable as of 2024.

With regard to Hong Kong we also expect the potential exposure to be remote given the cease of (the already limited) activities.

With regard to the US, the quantitative impact is yet still difficult to estimate as the ETR for global minimum tax purposes is highly impacted by the movement in temporary differences on contract assets/liabilities and corresponding recalculation of deferred tax. As such movements in contract assets/liabilities balances are not yet known for coming years and highly dependent on future business transactions to take place, a reliable estimate can not yet be made. Overall impact on group ETR however, is currently expected to be limited.

Liability for unrecognized tax benefits and deferred taxes

The liability for unrecognized tax benefits and related accrued interest and penalties and total deferred tax position recorded on the Consolidated Balance Sheets is as follows:

Year ended December 31 (€, in millions)	2021	2022	2023
Liability for unrecognized tax benefits	(205.9)	(215.5)	(249.7)
Deferred tax assets	1,098.7	1,672.8	1,872.3
Deferred tax liabilities	(34.7)	(51.5)	(122.6)
Deferred and other tax assets (liabilities)	858.1	1,405.8	1,500.0

Liability for unrecognized tax benefits

We have operations in multiple jurisdictions, where we are subject to the application of complex tax laws. Application of these complex tax laws may lead to uncertainties on tax positions. We aim to resolve these uncertainties in discussions with the tax authorities. We record unrecognized tax benefits in line with the requirements of ASC 740, which requires us to estimate the potential outcome of any tax position. Our estimate for the potential outcome of any uncertain tax position is highly judgmental. We believe that we have adequately provided for uncertain tax positions. However, settlement of these uncertain tax positions in a manner inconsistent with our expectations could have a material impact on our Consolidated Financial Statements.

Consistent with the requirements of ASC 740, as of December 31, 2023, the liability for unrecognized tax benefits (excluding interest and penalties) amounts to €193.6 million (2022: €160.0 million) which is classified as Deferred and other income tax liabilities. If recognized, these unrecognized tax benefits would affect our effective tax rate for approximately €176.7 million benefit (2022: €139.2 million benefit).

Interest and penalties related to the liability for unrecognized tax benefits amount to €56.1 million (2022: €55.5 million) and are included in the total liability position as specified below. The impact on the Consolidated Statements of Operations of accrued interest and penalties in 2023 amount to an expense of €3.4 million (2022: €5.0 million benefit; 2021: €9.7 million benefit).

Notes to the Consolidated Financial Statements (continued)

A reconciliation of the beginning and ending balance of the liability for unrecognized tax benefits (excluding interest and penalties) is as follows:

Year ended December 31 (€, in millions)	2021	2022	2023
Balance as at January 1	(138.0)	(144.3)	(160.0)
Gross increases – tax positions in prior period	(21.6)	(11.7)	(44.1)
Gross decreases – tax positions in prior period	8.9	2.0	12.6
Gross increases – tax positions in current period	(18.8)	(23.1)	(27.7)
Settlements	2.5	6.8	2.2
Lapse of statute of limitations	32.0	13.2	17.9
Effect of changes in exchange rates	(9.3)	(2.9)	5.5
Total liability for unrecognized tax benefits	(144.3)	(160.0)	(193.6)
Balance of accrued interest and penalties	(61.6)	(55.5)	(56.1)
Total liabilities for unrecognized tax benefits including interest and penalties	(205.9)	(215.5)	(249.7)

We conclude our liability for unrecognized tax benefits to be appropriate. Based on the information currently available, we estimate that the liability for unrecognized tax benefits will decrease by €8.5 million (excluding interest and penalties) within the next 12 months, mainly as a result of expiration of statute of limitations.

Settlements reported in 2023 mainly relate to adjustment of the 2021 CIT return of our Dutch fiscal unity. Settlements in 2022 mainly relate to final settlement of 2018 and 2019 Dutch CIT returns.

We file income tax returns in all countries where we operate, with the Netherlands, US, Taiwan, South Korea and China being the major jurisdictions. The years for which tax returns are still open for examination for respective jurisdictions are as follows:

Country	Years
Netherlands	2020-2023
US	2017-2023
Taiwan	2018-2023
South Korea	2019-2023
China	2013-2023

We are routinely subject to examinations and audits from tax and other authorities in the various jurisdictions in which we operate. We believe that adequate amounts of taxes and related interest and penalties have been provided for, and any adjustments as a result of examinations are not expected to have a material adverse effect.

Notes to the Consolidated Financial Statements (continued)

Deferred taxes

The composition of total deferred tax assets and liabilities reconciled to the classification in the Consolidated Balance Sheets is:

Deferred taxes (€, in millions)	January 1, 2023	Credits and other	Consolidated Statements of Operations	Effect of changes in exchange rates	December 31, 2023
Deferred tax assets:					
Capitalized R&D expenditures	592.1	—	(54.5)	(23.5)	514.1
Goodwill	—	—	65.0	—	65.0
R&D & other tax credit carry forwards	213.4	(28.1)	39.5	(7.0)	217.8
Inventories	45.2	—	17.6	(1.4)	61.4
Contract liabilities	820.8	—	174.4	(35.4)	959.8
Accrued and other liabilities ¹	113.9	—	30.5	(4.9)	139.5
Operating loss carry forwards	4.5	—	0.2	(0.8)	3.9
Property, plant and equipment	18.9	—	10.7	(0.4)	29.2
Lease liabilities	27.4	—	2.3	(1.0)	28.7
Other intangible assets	124.8	—	(5.5)	—	119.3
Share-based payments	11.4	—	5.9	(0.5)	16.8
Other temporary differences	23.3	—	(6.6)	5.8	22.5
Total deferred tax assets, gross	1,995.7	(28.1)	279.5	(69.1)	2,178.0
Valuation allowance ²	(215.4)	—	3.0	5.7	(206.7)
Total deferred tax assets, net	1,780.3	(28.1)	282.5	(63.4)	1,971.3
Deferred tax liabilities:					
Other intangible assets	(65.4)	—	10.9	2.5	(52.0)
Goodwill	(28.8)	—	(9.7)	—	(38.5)
Inventories	—	—	(4.1)	0.3	(3.8)
Right-of-use assets	(27.4)	—	(2.3)	1.0	(28.7)
Property, plant and equipment	(9.8)	—	(5.1)	1.3	(13.6)
Accrued and other liabilities	—	—	(0.5)	—	(0.5)
Contract liabilities	(16.3)	—	(64.2)	0.5	(80.0)
Long-term debt	(1.5)	—	(0.1)	—	(1.6)
Other temporary differences	(9.8)	—	9.8	(2.9)	(2.9)
Total deferred tax liabilities	(159.0)	—	(65.3)	2.7	(221.6)
Net deferred tax assets (liabilities)	1,621.3	(28.1)	217.2	(60.7)	1,749.7
Classified as:					
Deferred tax assets – non-current	1,672.8				1,872.3
Deferred tax liabilities – non-current	(51.5)				(122.6)
Net deferred tax assets (liabilities)	1,621.3				1,749.7

1. For presentation purposes the 'standard warranty reserve' under the deferred tax assets has been classified as part of the 'Accrued and other liabilities' as of 2023. Comparative figures have been updated accordingly.

2. The valuation allowance disclosed above relates to R&D and other tax credit carry forwards and operating loss carry forwards that may not be realized.

Notes to the Consolidated Financial Statements (continued)

Deferred taxes (€ in millions)	January 1, 2022	Credits and other	Consolidated Statements of Operations	Income tax recognized in Other Comprehensive Income	Effect of changes in exchange rates	December 31, 2022
Deferred tax assets:						
Capitalized R&D expenditures	420.4	—	151.2	—	20.5	592.1
R&D & other tax credit carry forwards	162.7	23.7	20.6	—	6.4	213.4
Inventories	31.5	—	12.5	—	1.2	45.2
Contract liabilities	423.2	—	400.8	—	(3.2)	820.8
Accrued and other liabilities ¹	109.4	—	0.3	—	4.2	113.9
Operating loss carry forwards	7.4	—	(2.8)	—	(0.1)	4.5
Property, plant and equipment	18.6	—	1.7	—	(1.4)	18.9
Lease liabilities	23.2	—	3.1	—	1.1	27.4
Other intangible assets	143.5	—	(18.7)	—	—	124.8
Share-based payments	9.6	—	1.2	—	0.6	11.4
Other temporary differences	27.5	—	3.7	(6.5)	(1.4)	23.3
Total deferred tax assets, gross	1,377.0	23.7	573.6	(6.5)	27.9	1,995.7
Valuation allowance ²	(167.6)	—	(41.2)	—	(6.6)	(215.4)
Total deferred tax assets, net	1,209.4	23.7	532.4	(6.5)	21.3	1,780.3
Deferred tax liabilities:						
Other intangible assets	(79.9)	—	19.8	—	(5.3)	(65.4)
Goodwill	(20.9)	—	(7.9)	—	—	(28.8)
Right-of-use assets	(23.2)	—	(3.1)	—	(1.1)	(27.4)
Property, plant and equipment	(10.9)	—	1.5	—	(0.4)	(9.8)
Contract liabilities	(7.9)	—	(8.4)	—	—	(16.3)
Long-term debt	(1.5)	—	—	—	—	(1.5)
Other temporary differences	(1.1)	—	(7.5)	(2.1)	0.9	(9.8)
Total deferred tax liabilities	(145.4)	—	(5.6)	(2.1)	(5.9)	(159.0)
Net deferred tax assets (liabilities)	1,064.0	23.7	526.8	(8.6)	15.4	1,621.3
Classified as:						
Deferred tax assets – non-current	1,098.7					1,672.8
Deferred tax liabilities – non-current	(34.7)					(51.5)
Net deferred tax assets (liabilities)	1,064.0					1,621.3

1. For presentation purposes the 'standard warranty reserve' under the deferred tax assets has been classified as part of the 'Accrued and other liabilities' as of 2023. Comparative figures have been updated accordingly.

2. The valuation allowance disclosed above relates to R&D and other tax credit carry forwards and operating loss carry forwards that may not be realized.

Notes to the Consolidated Financial Statements (continued)

Operating loss carry forwards and Tax credit carry forwards

The deferred tax assets from operating loss carry forwards and R&D and other tax credit carry forwards recognized as per December 31, 2023, are almost fully reserved. R&D and other tax credit carry forwards for the amount of €174.7 million have no expiration date. The remaining R&D and other tax credit carry forwards of €43.1 million have an expiration date between 2024 and 2044. For an amount of €13.4 million the operating loss carry forwards have an expiration date between 2024 and 2033. The remaining operating loss carry forwards of €13.8 million have no expiration date.

Unrecognized Deferred Tax Liability Related to Investments in Foreign Subsidiaries

ASML periodically reviews the capital structure of each group entity and may distribute retained earnings, repay capital or inject fresh capital in case the projected cash flows, freely available funds of the respective entity and the capital adequacy requirements in the respective country allow/require for this. At December 31, 2023 the undistributed retained earnings of our non-Dutch subsidiaries are indefinitely reinvested. As such no deferred tax liability has been recognized in respect of undistributed retained earnings of our non-Dutch subsidiaries. As the tax implications of such distributions are dependent on local tax and accounting regulations applying at the moment of distribution, these can also not practically be determined. As per December 31, 2023, the aggregate amount of unrecognized temporary differences approximately amounts to €673.9 million (2022: €451.3 million).

22. Shareholders' equity

Share capital

ASML's authorized share capital amounts to €126.0 million and is divided into:

Type of shares	Number of shares	Nominal value	Votes per share
Cumulative preference shares	700,000,000	€0.09 per share	1
Ordinary shares	700,000,000	€0.09 per share	1

The issued and fully paid-up ordinary shares with a nominal value of €0.09 each were as follows:

Year ended December 31	2021	2022	2023
Issued ordinary shares with nominal value of €0.09	402,601,613	394,589,411	393,421,721
Issued ordinary treasury shares with nominal value of €0.09	3,873,663	8,548,631	6,162,857
Total issued ordinary shares with nominal value of €0.09	406,475,276	403,138,042	399,584,578

As of December 31, 2023, 86,366,821 ordinary shares were held by 268 registered holders with a registered address in the US. Since certain of our ordinary shares were held by brokers and nominees, the number of record holders in the US may not be representative of the number of beneficial holders, or of where the beneficial holders are resident.

Each ordinary share consists of 900 fractional shares. Fractional shares entitle the holder thereof to a fractional dividend, but do not give entitlement to voting rights. Only those persons who hold shares directly in the share register in the Netherlands, held by us at our address at 5504 DR Veldhoven, de Run 6501, the Netherlands, or in the New York share register, held by JP Morgan Chase Bank, N.A., P.O. Box 64506, St. Paul, MN 55164-0506, United States, can hold fractional shares. Shareholders who hold ordinary shares through the deposit system under the Dutch Securities Bank Giro Transfer Act maintained by the Dutch central securities depository Euroclear Nederland or through the Depository Trust Company cannot hold fractional shares.

No cumulative preference shares have been issued. Each share carries one vote.

There are no special voting rights on the issued shares in our share capital.

In 2012, we issued shares to three key customers – Intel, TSMC and Samsung – as part of the customer co-investment program (CCIP) to accelerate ASML's development of EUV. Under this program, the participating customers funded certain development programs and invested in ASML's ordinary shares. The shares issued in the CCIP were held by foundations which issued depository receipts to participants in the CCIP. In 2023, the remaining participating customer cancelled its depository receipts in accordance with the terms and conditions of the agreement between ASML and the relevant customer.

There are currently no limitations, either under Dutch law or in ASML's Articles of Association, on the transfer of ordinary shares in the share capital of ASML. Pursuant to ASML's Articles of Association, the Supervisory Board's approval shall be required for every transfer of cumulative preference shares.

Issue and repurchase of (rights to) shares

Our Board of Management has the power to issue ordinary shares and cumulative preference shares insofar as it has been authorized to do so by the General Meeting. The Board of Management requires approval of the Supervisory Board for such an issue. The authorization by the General Meeting can only be granted for a certain period not exceeding five years and may be extended for no longer than five years on each occasion. If the General Meeting has not authorized the Board of Management to issue shares, the General Meeting will be authorized to issue shares on the Board of Management's proposal, provided that the Supervisory Board has approved such a proposal.

Holders of ASML's ordinary shares have a preemptive right, in proportion to the aggregate nominal amount of the ordinary shares held by them. This preemptive right may be restricted or excluded. Holders of ordinary shares do not have preemptive right with respect to any ordinary shares issued for consideration other than cash or ordinary shares issued to employees. If authorized for this purpose by the General Meeting, the Board of Management has the power, subject to approval of the Supervisory Board, to restrict or exclude the preemptive rights of holders of ordinary shares.

Notes to the Consolidated Financial Statements (continued)

At our 2023 AGM, the Board of Management was authorized from April 26, 2023 through October 26, 2024, subject to the approval of the Supervisory Board, to issue shares and/or rights thereto representing up to a maximum of 5% of our issued share capital at April 26, 2023, plus an additional 5% of our issued share capital at April 26, 2023, that may be issued in connection with mergers, acquisitions and/or (strategic) alliances. Our shareholders also authorized the Board of Management through October 26, 2024, subject to approval of the Supervisory Board, to restrict or exclude preemptive rights with respect to holders of ordinary shares up to a maximum of 5% of our issued share capital in connection with the general authorization to issue shares and/or rights to shares, plus an additional 5% in connection with the authorization to issue shares and/or rights to shares in connection with mergers, acquisitions and/or (strategic) alliances.

We may repurchase our issued ordinary shares at any time, subject to compliance with the requirements of Dutch law and our Articles of Association. Any such repurchases are subject to the approval of the Supervisory Board and the authorization by the General Meeting, which authorization may not be for more than 18 months.

At the 2023 AGM, the Board of Management was authorized, subject to Supervisory Board approval, to repurchase through October 26, 2024, up to a maximum of 10% of our issued share capital at April 26, 2023, at a price between the nominal value of the ordinary shares purchased and 110% of the market price of these securities on Euronext Amsterdam or Nasdaq.

ASML Preference Shares Foundation

The ASML Preference Shares Foundation (Stichting Preferente Aandelen ASML), a foundation organized under Dutch law, has been granted an option right to acquire preference shares in the share capital of ASML. The Foundation may exercise the Preference Share Option in situations where, in the opinion of the Foundation's Board of Directors, ASML's interests, ASML's business or the interests of ASML's stakeholders are at stake. This may be the case if:

- A public bid for ASML's shares is announced or made, or there is a justified expectation that such a bid will be made without any agreement having been reached with ASML in relation to such a bid; or
- In the opinion of the Foundation's Board of Directors, the (attempted) exercise of the voting rights by one shareholder or more shareholders, acting in concert, is materially in conflict with ASML's interests, ASML's business or ASML's stakeholders.

The Foundation's objectives are to look after the interests of ASML and the enterprises maintained by and/or affiliated in a group with ASML, in such a way that the interests of ASML, of those enterprises and of all parties concerned are safeguarded in the best possible way, and that influences in conflict with these interests, which might affect the independence or the identity of ASML and those companies, are deterred to the best of the Foundation's ability, and everything related to the above or possibly conducive thereto. The Foundation aims to realize its objects by acquiring and holding cumulative preference shares in the capital of ASML and by exercising the rights attached to these shares, particularly the voting rights.

The Preference Share Option gives the Foundation the right to acquire such number of cumulative preference shares as the Foundation will require, provided that the aggregate nominal value of such number of cumulative preference shares shall not exceed the aggregate nominal value of the ordinary shares issued at the time of exercise of the Preference Share Option. The subscription price will be equal to their nominal value. Only one-fourth of the subscription price would be payable at the time of initial issuance of the cumulative preference shares, with the other three-fourths of the nominal value only being payable when ASML calls up this amount. Exercise of the preference Share Option could effectively dilute the voting-power of the outstanding ordinary shares by one-half.

Cancellation and repayment of the issued cumulative preference shares by ASML requires authorization by the General Meeting, on a proposal to this effect made by the Board of Management and approved by the Supervisory Board. If the Preference Share Option is exercised and as a result cumulative preference shares are issued, ASML will initiate the repurchase or cancellation of all cumulative preference shares held by the Foundation on the Foundation's request. In that case, ASML is obliged to effect the repurchase and respective cancellation as soon as possible. A cancellation will result in a repayment of the amount paid and exemption from the obligation to pay up on the cumulative preference shares. A repurchase of the cumulative preference shares can only take place when such shares are fully paid up.

If the Foundation does not request ASML to repurchase or cancel all cumulative preference shares held by the Foundation within 20 months of issuance of these shares, we will be required to convene a General Meeting for the purpose of deciding on a repurchase or cancellation of these shares.

The Foundation is independent of ASML. The Board of Directors of the Foundation is composed of four independent members from the Netherlands' business and academic communities. The Foundation's Board of Directors is composed per December 31, 2023, of the following members: Mr. A.P.M. van der Poel, Mr. S. Perrick, Mr. S.S. Vollebregt and Mr. J. Streppel.

Other than the arrangements made with the Foundation as described above, ASML has not established any other anti-takeover devices.

Dividend Policy

ASML aims to distribute a dividend that will be growing over time, paid quarterly. On an annual basis, the Board of Management, upon prior approval from the Supervisory Board, submits a proposal to the AGM with respect to the amount of dividend to be declared with respect to the prior year, taking into account any interim dividend distributions. The dividend proposal in any given year will be subject to availability of distributable profits, retained earnings and cash, and may be affected by, among other things, our view of potential future liquidity requirements including for investments in production capacity, working capital requirements, the funding of our R&D programs and acquisition opportunities that may arise from time to time and by future changes in applicable tax and corporate laws (for example plans of Dutch government to tax share buybacks).

Notes to the Consolidated Financial Statements (continued)

ASML intends to declare a total dividend in respect of 2023 of €6.10 per ordinary share. Recognizing the interim dividends of €1.45 per ordinary share paid in August 2023, November 2023 and February 2024, this leads to a final dividend proposal to the General Meeting of €1.75 per ordinary share. The total 2023 dividend is a 5.2% increase compared to the 2022 total dividend of €5.80 per ordinary share.

Dividends on ordinary shares are payable out of net income or retained earnings as shown in our Financial Statements as adopted by our AGM, after payment first of (accumulated) dividends out of net income on any issued cumulative preference shares.

Purchase of equity securities

In addition to dividend payments, we intend to return cash to our shareholders on a regular basis through share buybacks or capital repayment, subject to our actual and anticipated level of liquidity requirements and other relevant factors.

On November 10, 2022, we announced a new share buyback program to be executed by December 31, 2025. As part of this program, ASML intends to repurchase shares up to an amount of €12 billion, of which we expect a total of up to 2 million shares will be used to cover employee share plans. ASML intends to cancel the remainder of the shares repurchased. The new program has replaced the previous €9 billion share buyback program 2021-2023 which was completed on October 18, 2022. The share buyback program may be suspended, modified or discontinued at any time.

In 2023, we repurchased 1,620,128 shares (2022: 8,538,787 shares) for a total consideration of €1,000.0 million (2022: €4,639.7 million), all of which were purchased under the new program. In 2023, we canceled 3,553,815 shares (2022: 3,337,825 shares canceled), all of which were purchased under the 2021-2023 program.

The following table provides a summary of shares repurchased by ASML in 2023:

Period	Total number of shares purchased	Average price paid per Share (€)	Total number of shares purchased under programs	Maximum value of shares that may yet be purchased (€ millions)
January 1 - 31, 2023	57,478	609.46	57,478	11,765.0
February 1 - 28, 2023	294,059	611.28	351,537	11,585.2
March 1 - 31, 2023	337,136	589.74	688,673	11,386.4
April 1 - 30, 2023	239,865	589.92	928,538	11,244.9
May 1 - 31, 2023	283,210	617.07	1,211,748	11,070.1
June 1 - 30, 2023	263,635	663.39	1,475,383	10,895.2
July 1 - 31, 2023	144,745	657.99	1,620,128	10,800.0
August 1 - 31, 2023	—	—	1,620,128	10,800.0
September 1 - 30, 2023	—	—	1,620,128	10,800.0
October 1 - 31, 2023	—	—	1,620,128	10,800.0
November 1 - 30, 2023	—	—	1,620,128	10,800.0
December 1 - 31, 2023	—	—	1,620,128	10,800.0
Total	1,620,128	617.23		

Notes to the Consolidated Financial Statements (continued)

23. Net income per ordinary share

Basic net income per ordinary share is calculated by dividing net income by the weighted average number of ordinary shares outstanding for that period.

The dilutive effect is calculated using the treasury stock method by dividing net income by the weighted average number of ordinary shares outstanding for that period plus shares applicable to options and conditional shares (dilutive potential ordinary shares). The calculation of diluted net income per ordinary share does not assume exercise of options when exercise would be anti-dilutive. Excluded from the diluted weighted average number of shares outstanding calculation are cumulative preference shares contingently issuable to the preference share foundation, since they represent a different class of stock than the ordinary shares.

The basic and diluted net income per ordinary share has been calculated as follows:

Year ended December 31 (€ in millions, except per share data)	2021	2022	2023
Net income	5,883.2	5,624.2	7,839.0
Weighted average number of shares outstanding	409.8	397.7	393.8
Basic net income per ordinary share	14.36	14.14	19.91
Weighted average number of shares outstanding	409.8	397.7	393.8
Plus shares applicable to options and conditional shares	0.6	0.3	0.3
Diluted weighted average number of shares	410.4	398.0	394.1
Diluted net income per ordinary share	14.34	14.13	19.89

24. Vulnerability due to certain concentrations

We rely on outside vendors for components and subassemblies used in our systems including the design thereof, each of which is obtained from a single supplier or a limited number of suppliers. Our reliance on a limited group of suppliers involves several risks, including a potential inability to obtain an adequate supply of required components, reduced control over pricing and the risk of untimely delivery of these components and subassemblies.

25. Financial risk management

We are exposed to certain financial risks such as foreign currency risk, interest rate risk, credit risk, liquidity risk and capital risk. Our overall risk management program focuses on the unpredictability of financial markets and seeks to minimize potentially adverse effects on our financial performance. Our risk management program focuses appropriately on the current environment of uncertainty in the financial markets.

A key element within our risk management program is our long held prudent financing policy, which is based on three foundational elements:

- Liquidity: Maintain sufficient liquidity to ensure continued business growth and to provide buffer for cash flow volatility
- Capital structure: Maintain a capital structure that targets a solid investment-grade credit rating
- Cash return: Provide a sustainable dividend per share that will grow over time, paid quarterly, while returning excess cash to shareholders through share buybacks or capital repayment

We use derivative financial instruments to hedge certain risk exposures. None of these transactions are entered into for trading or speculative purposes. We use market information to determine the fair value of our derivative financial instruments.

Foreign currency risk management

Our Consolidated Financial Statements are expressed in euros. Accordingly, our results of operations are exposed to fluctuations in exchange rates between the euro and other currencies. Changes in currency exchange rates can result in losses in our Consolidated Financial Statements. We are particularly exposed to fluctuations in the exchange rates between the US dollar and the euro, and to a lesser extent to the Japanese yen, the South Korean won, the Taiwanese dollar and Chinese yuan, in relation to the euro. We incur costs of sales predominantly in euros with portions also denominated in US and Taiwanese dollars. A small portion of our operating results are driven by movements in currencies other than the euro, US dollar, Japanese yen, South Korean won, Taiwanese dollar or Chinese yuan.

Notes to the Consolidated Financial Statements (continued)

Foreign currency sensitivity

The following table details our sensitivity to a 10.0% strengthening of foreign currencies against the euro. The sensitivity analysis includes foreign currency denominated monetary items outstanding and adjusts their translation at the period end for a 10.0% strengthening in foreign currency rates. A positive amount indicates an increase in net income or equity.

Year ended December 31 (€, in millions)	2022		2023	
	Impact on net income	Impact on equity	Impact on net income	Impact on equity
US dollar	(7.2)	65.3	4.2	78.3
Japanese yen	(0.1)	(16.6)	(2.6)	(3.8)
Taiwanese dollar	(12.8)	—	0.4	—
Other currencies	(1.3)	—	(10.0)	—
Total	(21.4)	48.7	(8.0)	74.5

It is our policy to limit the effects of currency exchange rate fluctuations on our Consolidated Statements of Operations. The impact on net income reflects our net exposure to currencies other than the euro at year-end 2023. The negative effect on net income as presented in the table above for 2023 is mainly attributable to timing differences between the arising and hedging of exposures.

The effects of the fair value movements of cash flow hedges entered into for US dollar and Japanese yen transactions are recognized in equity. The effect on 2023 compared to 2022 for both US dollar and Japanese yen is mainly the result of the change in outstanding cash flow hedges.

For a 10.0% weakening of the foreign currencies against the euro, there would be approximately an equal but opposite effect on net income and equity.

Foreign currency risk policy

It is our policy to hedge material transaction exposures, such as forecasted sales and purchase transactions. We hedge these exposures through the use of forward foreign exchange contracts.

Foreign exchange contracts

The notional principal amounts of the outstanding forward foreign exchange contracts are mainly denominated in US dollar, Japanese yen, Taiwanese dollar, South Korean won and Chinese yuan at December 31, 2023 are respectively USD 0.8 billion, JPY 8.5 billion, TWD 26.4 billion, KRW 61.8 billion and CNY 1.1 billion (2022: USD 1.0 billion, JPY 43.9 billion, TWD 18.5 billion, KRW 99.0 billion and CNY 1.0 billion).

The hedged highly probable forecasted transactions denominated in foreign currency are expected to occur at various dates during the coming 12 months. Gains and losses recognized in OCI on forward foreign exchange contracts included in a hedge relationship will be recognized in the Consolidated Statements of Operations in the period during which the hedged forecasted transactions affect the Consolidated Statements of Operations.

In 2023, we recognized a transfer to net income of €0.6 million loss (2022: €66.5 million gain; 2021: €22.2 million loss) in the Consolidated Statements of Operations resulting from effective cash flow hedges for forecasted sales and purchase transactions that occurred in the year. Furthermore, we recognized a net amount of €52.4 million loss in the Consolidated Statements of Operations resulting from derivative financial instruments measured at fair value through profit or loss (2022: €3.6 million gain; 2021: €7.9 million loss), which is mainly offset by the revaluation of the hedged monetary items.

OCI balance unrealized gains and losses on financial instruments from foreign exchange contracts

Outstanding accumulated OCI balances unrealized gains and losses on financial instruments consist of:

- Outstanding anticipated gains and losses of foreign currency denominated forecasted purchase transactions. As of December 31, 2023, outstanding accumulated OCI includes €8.9 million representing the total anticipated loss to be charged to cost of sales (2022: gain €5.5 million and 2021: gain €20.8 million), (net of taxes: 2023: loss €7.6 million; 2022: gain €4.7 million; 2021: gain €17.7 million), which will offset the euro equivalent of foreign currency denominated forecasted purchase transactions. All amounts are expected to be released over the next 12 months.
- Outstanding anticipated loss to be realized to sales. As of December 31, 2023, the total anticipated accumulated OCI to be released to sales is nil (2022: gain €3.4 million; 2021: loss €1.2 million), (net of taxes: 2023: nil, 2022: gain €2.9 million; 2021: loss €1.0 million).

The effectiveness of all contracts for which we apply hedge accounting is monitored on a quarterly basis throughout the life of the hedges. During 2023, 2022 and 2021, no ineffective hedge relationships were recognized.

Notes to the Consolidated Financial Statements (continued)

Interest rate risk management

We have interest-bearing assets and liabilities that expose us to fluctuations in market interest rates, managed through interest rate swaps.

Interest rate sensitivity

The sensitivity analysis below has been determined based on the exposure to interest rates for both derivative financial and non-derivative financial instruments at the balance sheet date with the stipulated change taking place at the beginning of the financial year and held constant throughout the reporting period. The table below shows the effect of a 1.0% increase in interest rates on our net income and equity. A positive amount indicates an increase in net income and equity.

Year ended December 31 (€ in millions)	2022		2023	
	Impact on net income	Impact on equity	Impact on net income	Impact on equity
Effect of a 1.0% increase in interest rates	43.8	—	37.6	—

The positive effect on net income mainly relates to our total amount of cash and cash equivalents and short-term investments being higher than our total floating debt position, which is excluding the Eurobonds issued in 2020.

For a 1.0% decrease in interest rates there would be approximately an equal but opposite effect on net income and equity.

Hedging policy interest rates

We use interest rate swaps to minimize the net interest exposure for the group by aligning the interest terms of the available cash and the interest-bearing debt. There may be residual interest rate risk to the extent the asset and liability positions do not fully offset.

Interest rate swaps

The notional principal amount of the outstanding interest rate swap contracts as of December 31, 2023 was €3.3 billion (2022: €3.0 billion). During 2023, these outstanding hedges were highly effective in hedging the fair value exposure to interest rate movements. The changes in fair value of the Eurobonds were included in the Consolidated Statements of Operations in the same period as the changes in the fair value of the interest rate swaps. We did not enter into interest rate swaps in connection with the Eurobonds issued in 2020.

Credit risk management

Financial instruments that potentially subject us to significant concentration of credit risk consist principally of Cash and cash equivalents, Short-term investments, Derivative financial instruments used for hedging activities, Accounts receivable and Finance receivables and prepayments to suppliers.

Cash and cash equivalents, Short-term investments and Derivative financial instruments contain an element of risk of the counterparties being unable to meet their obligations. Our risk management program focuses appropriately on the current environment of uncertainty in the financial markets. We invest our Cash and cash equivalents and Short-term investments in short-term deposits with financial institutions that have investment-grade credit ratings and in government and or government-related bodies that have investment grade credit ratings and in money market and other investment funds that invest in high-rated debt securities. To mitigate the risk that our counterparties in hedging transactions are unable to meet their obligations, we enter into transactions with a limited number of major financial institutions that have investment-grade credit ratings and closely monitor their creditworthiness. All credit ratings are rated by credit rating institutions like Standard & Poor's, Moody's or Fitch. Concentration risk is mitigated by limiting the exposure to each of the individual counterparties.

Our customers consist of integrated circuit manufacturers located throughout the world. We perform ongoing credit evaluations of our customers' financial condition. We mitigate credit risk through additional measures, including the use of down payments, letters of credit, and contractual ownership retention provisions. Retention of ownership enables us to recover the systems in the event a customer defaults on payment.

Liquidity risk management

Our principal sources of liquidity consist of Cash and cash equivalents, Short-term investments and available credit facilities with the objective to maintain sufficient liquidity to ensure continued business growth and to provide buffer for cash flow volatility. In addition, we may from time to time raise additional funding in debt and equity markets. We seek to ensure that our principal sources of liquidity will be sufficient to satisfy our liquidity requirements at all times.

Our liquidity needs are affected by many factors, some of which are based on the normal ongoing operations of the business, and others relate to uncertainties of the global economy and the semiconductor industry. Although our cash requirements fluctuate based on the timing and extent of these factors, we believe that cash generated from operations, together with our other sources of liquidity are sufficient to satisfy our requirements, including our expected capital expenditures, R&D expenses and debt servicing.

We intend to return cash to our shareholders on a regular basis in the form of dividend payments and, subject to our actual and anticipated liquidity requirements and other relevant factors, share buybacks or capital repayment.

Notes to the Consolidated Financial Statements (continued)

Capital risk management

Our objectives when managing our capital structure are to safeguard our ability to satisfy our capital providers by maintaining a capital structure that ensures liquidity and supports a solid investment-grade credit rating. The capital structure includes both debt and the components of equity, in accordance with both US GAAP and EU-IFRS. The capital structure is mainly altered by, among other things, our financial results, adjusting the amount of dividends paid to shareholders, the amount of share buybacks or capital repayment, and any changes in the level of debt. Our capital structure is formally reviewed with the Supervisory Board each year in connection with our updated long-term financial plan and relevant scenarios. The outcome of this year's review confirmed to maintain our existing financing policy in relation to our capital structure.

Our current credit rating from Moody's is A2 (Stable) and from Fitch is A (Stable), which is consistent with the ratings on December 31, 2022.

Supplier finance program

We have a supplier finance program in place. We pay the full invoice amount on the original maturity date (for the vast majority 60 days after end of month) to a third party. Suppliers can choose to request early payment from the third party. The program can be terminated by the third party or by us with a 30 business days' notice period.

The amount of the obligations outstanding that we have confirmed as valid to the third party as of December 31, 2023 was €0.4 billion (2022: €0.4 billion) and are included in Accounts payable.

Financial instruments

Accounting Policy – Derivative financial instruments and hedging activities

We measure all derivative financial instruments based on fair values derived from level 2 input criteria. We adopt hedge accounting for hedges that are highly effective in offsetting the identified hedged risks taking into account required effectiveness criteria.

Derivatives are initially recognized at fair value on the date a derivative contract is entered into and subsequently remeasured. The method of recognizing the resulting gain or loss depends on whether the derivative is designated as a hedging instrument, and if so, the nature of the item being hedged. We designate derivatives as one of the following:

- A hedge of an exposure relating to changes in the fair value of a recognized asset or liability, that is attributable to a particular risk (fair value hedge);*
- A hedge of an exposure relating to the variability in the cash flows of a recognized asset or liability, or of a forecasted transaction, that is attributable to a particular risk (cash flow hedge);*
- A hedge of the foreign currency exposure relating to a net investment in a foreign operation (net investment hedge).*

We assess at the inception of the transaction the relationship between hedging instruments and hedged items, as well as our risk management objectives and strategy for undertaking various hedging transactions. We also assess, both at hedge inception and on an ongoing basis, whether derivatives that are used in hedging transactions are highly effective in offsetting changes in fair values or cash flows of hedged items. The cash flows resulting from the derivative financial instruments are classified in the Consolidated Statements of Cash Flows according to the nature of the hedged item.

Fair value hedge

Changes in the fair value of a derivative financial instrument, that is designated and qualified as a fair value hedge, along with the gain or loss on the hedged asset or liability that is attributable to the hedged risk, are recorded in the Consolidated Statements of Operations.

Hedge accounting is discontinued when we revoke the hedging relationship, the hedging instrument expires or is sold, terminated or exercised, or no longer qualifies for hedge accounting. The adjustment to the carrying amount of the hedged item arising from the hedged risk is amortized to the Consolidated Statements of Operations from that date.

Interest rate swaps that are being used to hedge the fair value of fixed loan coupons payable are designated as fair value hedges. The change in fair value is intended to offset the change in the fair value of the underlying fixed loan coupons, which is recorded accordingly. The gain or loss relating to the ineffective portion of interest rate swaps hedging fixed loan coupons payable is recognized in the Consolidated Statements of Operations as Interest and other, net.

Cash flow hedge

Changes in the fair value of a derivative that is designated and qualified as a cash flow hedge are recorded in OCI, net of taxes, until the underlying hedged transaction is recognized in the Consolidated Statements of Operations. In the event that the underlying hedge transaction will not occur within the specified time period, the gain or loss on the related cash flow hedge is released from OCI and included in the Consolidated Statements of Operations, unless extenuating circumstances exist that are related to the nature of the forecasted transaction and are outside our control or influence and which cause the forecasted transaction to be probable of occurring on a date that is beyond the specified time period.

Foreign currency hedging instruments that are being used to hedge cash flows related to forecasted sales or purchase transactions in non-functional currencies are designated as cash flow hedges. The gain or loss relating to the ineffective portion of the foreign currency hedging instruments is recognized in the Consolidated Statements of Operations in Net sales or Cost of sales.

Notes to the Consolidated Financial Statements (continued)

Fair values of the derivatives

The following table summarizes the notional amounts and estimated fair values of our derivative financial instruments:

Year ended December 31 (€, in millions)	2022		2023	
	Notional amount	Fair Value	Notional amount	Fair Value
Forward foreign exchange contracts	158.5	(18.8)	281.1	(6.8)
Interest rate swaps	3,000.0	(225.1)	3,250.0	(118.8)

The following table summarizes our derivative financial instruments per category:

Year ended December 31 (€, in millions)	2022		2023	
	Assets	Liabilities	Assets	Liabilities
Interest rate swaps — fair value hedges	1.7	226.8	11.3	130.1
Forward foreign exchange contracts — cash flow hedges	3.0	18.1	2.9	10.4
Forward foreign exchange contracts — no hedge accounting	12.6	16.3	16.9	16.2
Total	17.3	261.2	31.1	156.7
Less non-current portion:				
Interest rate swaps — fair value hedges	—	179.0	11.3	62.7
Total non-current portion	—	179.0	11.3	62.7
Total current portion	17.3	82.2	19.8	94.0

The fair value part of a hedging derivative financial instrument that has a remaining term of 12 months or less after balance sheet date is classified as current asset or liability. When the fair value part of a hedging derivative has a term of more than 12 months after balance sheet date, it is classified as non-current asset or liability. Derivative financial instruments are included in Other assets and Accrued and other liabilities in the Consolidated Balance Sheets, split between current and non-current.

Fair value measurements

Fair value is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. The fair value measurement hierarchy prioritizes the inputs to valuation techniques used to measure fair value as follows:

- Level 1: Valuations based on inputs such as quoted prices for identical assets or liabilities in active markets that the entity has the ability to access.

- Level 2: Valuations based on inputs other than level 1 inputs such as quoted prices for similar assets or liabilities, quoted prices in markets that are not active, or other inputs that are observable or can be corroborated by observable data for substantially the full term of the assets or liabilities.
- Level 3: Valuations based on inputs that are supported by little or no market activity and that are significant to the fair value of the assets or liabilities.

The fair value hierarchy gives the highest priority to quoted prices (unadjusted) in active markets for identical assets or liabilities (Level 1) and the lowest priority to unobservable inputs (Level 3). A financial instrument's fair value classification is based on the lowest level of any input that is significant in the fair value measurement hierarchy.

Financial assets and financial liabilities measured at fair value on a recurring basis

Investments in money market funds (included in our Cash and cash equivalents) have fair value measurements which are all based on quoted prices for identical assets or liabilities.

Our Short-term investments consist of deposits with original maturities to the entity holding the investments longer than three months and one year or less at the date of acquisition with financial institutions that have investment-grade credit ratings. The fair value of the deposits is determined with reference to quoted market prices in an active market for similar assets or discounted cash flow analysis.

The principal market in which we execute our derivative contracts is the institutional market in an over-the-counter environment with a high level of price transparency. The market participants usually are large commercial banks. The valuation inputs for our derivative contracts are based on quoted prices and quoting pricing intervals from public data sources; they do not involve management judgment.

The valuation technique used to determine the fair value of forward foreign exchange contracts (used for hedging purposes) approximates the net present value technique which is the estimated amount that a bank would receive or pay to terminate the forward foreign exchange contracts at the reporting date, taking into account current interest rates and current exchange rates.

The valuation technique used to determine the fair value of interest rate swaps (used for hedging purposes) is the net present value technique, which is the estimated amount that a bank would receive or pay to terminate the swap agreements at the reporting date, taking into account current interest rates.

Four out of six of our outstanding Eurobonds, with a combined principal amount of €3.25 billion, serve as hedged items in fair value hedge relationships in which we hedge the variability of changes in the fair value of our Eurobonds due to changes in market interest rates with interest rate swaps. For two out of six of our outstanding Eurobonds, with a combined principal amount of €1.5 billion, no hedging is applied. The fair value changes of the interest rate swaps are recorded on the Consolidated Balance Sheets under derivative financial instruments and the carrying amounts of the Eurobonds are adjusted for the effective portion of these fair value changes only. For the actual aggregate carrying amount and the fair value of our Eurobonds, see Note 16 Long-term debt and interest and other costs.

Notes to the Consolidated Financial Statements (continued)

The following tables present our financial assets and financial liabilities that are measured at fair value on a recurring basis:

Year ended December 31, 2023 (€, in millions)	Level 1	Level 2	Level 3	Total
Assets measured at fair value				
Derivative financial instruments ¹	—	31.1	—	31.1
Money market funds ²	3,167.4	—	—	3,167.4
Short-term investments ³	—	5.4	—	5.4
Total	3,167.4	36.5	—	3,203.9
Liabilities measured at fair value				
Derivative financial instruments ¹	—	156.7	—	156.7
Assets and Liabilities for which fair values are disclosed				
Loan receivable	—	—	776.1	776.1
Long-term debt ⁴	4,496.2	—	—	4,496.2
Year ended December 31, 2022 (€, in millions)				
	Level 1	Level 2	Level 3	Total
Assets measured at fair value				
Derivative financial instruments ¹	—	17.3	—	17.3
Money market funds ²	3,196.7	—	—	3,196.7
Short-term investments ³	—	107.7	—	107.7
Total	3,196.7	125.0	—	3,321.7
Liabilities measured at fair value				
Derivative financial instruments ¹	—	261.2	—	261.2
Assets and Liabilities for which fair values are disclosed				
Loan receivable	—	—	307.9	307.9
Long-term debt ⁴	4,072.8	—	—	4,072.8

1. Derivative financial instruments consist of forward foreign exchange contracts and interest rate swaps.

2. Money market funds are part of our cash and cash equivalents.

3. Short-term investments consist of deposits with original maturities to the entity holding the investments longer than three months, but one year or less at the date of acquisition. These deposits are valued at amortized costs which is close to their fair value. Their fair value is determined with reference to quoted market prices in an active market for similar assets or discounted cash flow analysis.

4. Long-term debt mainly relates to Eurobonds.

There were no transfers between levels during the years ended December 31, 2023 and December 31, 2022.

Financial assets and financial liabilities that are not measured at fair value

The carrying amount of Cash and cash equivalents, Accounts payable, and Other current financial assets and liabilities approximate their fair value because of the short-term nature of these instruments.

Money market and investment funds measurement

Money market and investment funds qualify as available for sale securities. Due to the short-term nature and investment-grade credit ratings, the fair value is close to the carrying value. These money market funds can be called on a daily basis. Investments and redemptions in money market funds are managed on a daily basis based triggered through actual cash balances. ASML does not have trading securities as of December 31, 2023.

Deposits measurement

The deposits as part of the Cash and cash equivalents and Short-term investments qualify as securities held to maturity. The amortized cost value is close to the fair value and carrying value due to short-term nature and since related to investment with investment-grade credit ratings. Maturities are one year or less. No held to maturity securities were sold before expiration date.

Assets and liabilities measured at fair value on a non-recurring basis

In 2022 and 2023, we had no significant fair value measurements on a non-recurring basis from regular business activities. We did not recognize any impairment charges for goodwill and other intangible assets during 2022 and 2023.

Notes to the Consolidated Financial Statements (continued)

26. Related parties and variable interest entities

Carl Zeiss SMT GmbH is our single supplier, and we are their single customer, of optical columns for lithography systems. Carl Zeiss SMT GmbH is capable of developing and producing these items only in limited numbers and only through the use of manufacturing and testing facilities in Oberkochen and Wetzlar, Germany. Our relationship with Carl Zeiss SMT GmbH is structured as a strategic alliance that is run under the principle of 'two companies, one business' and is focused on continuous innovation and improvement of operational excellence in the lithography business.

We have a 24.9% interest in Carl Zeiss SMT Holding GmbH & Co. KG (ultimate parent is Carl Zeiss AG), which owns 100% of the shares in Carl Zeiss SMT GmbH. Based on the 24.9% investment, Carl Zeiss SMT Holding GmbH & Co. KG and its subsidiaries are considered related parties. Additionally, we have determined that Carl Zeiss SMT Holding GmbH & Co. KG is a variable interest entity because the entity was established without substantive voting rights since there is disparity between our voting rights and our economics, as well as substantially all of Carl Zeiss SMT Holding GmbH & Co. KG's activities involve us or are conducted on our behalf. However, we are not the primary beneficiary of the variable interest entity, because we lack the power to direct the activities that most significantly impact Carl Zeiss SMT Holding GmbH & Co. KG's economic performance.

We have had several framework agreements in place with Carl Zeiss SMT GmbH since 1997.

2021 Framework Agreement

We entered into a new framework agreement in September 2021 with Carl Zeiss SMT GmbH, with effect as of the beginning of 2021. This agreement, which we refer to as the 2021 framework agreement, replaced our key existing framework agreements and continues our strategic alliance to meet end customer demand. The key components to the framework agreement are:

- A behavior and interaction model that fosters mutual respect and understanding
- A governance model that enables both companies to become more effective and aligned in their decision-making and the execution of the strategy in the business via mutual approval on (i) certain investment decisions affecting the lithography business, and (ii) the requirements of all products supplied by Carl Zeiss SMT GmbH
- New variable pricing model for purchases of products and services determined by the relevant annual financial performance of both ASML and Carl Zeiss SMT GmbH in the lithography business
- Cash support via additional prepayments on product deliveries to ensure Carl Zeiss SMT GmbH a minimum adjusted free cash flow floor in an annual period, if certain criteria are met
- A commitment from ASML to finance the capital expenditures of Carl Zeiss SMT GmbH up to €1 billion if Carl Zeiss SMT GmbH's investments required to execute on the lithography business roadmap exceed certain thresholds, measured annually

The financing takes place through loan agreements, with the key terms being:

- Ten years term loans with linear annual repayment after a three-year grace period
- Interest rate subject to a floor of 0.01% and a cap of 1%
- Voluntary repayment option without penalty
- The loan is secured by a parental guarantee from Zeiss AG

As of December 31, 2023, we have financed a total amount of €912.4 million (December 31, 2022: €364.4 million) through this loan agreement. This loan to Carl Zeiss SMT GmbH is valued at amortized cost and presented within the Consolidated Balance Sheets as Loan receivable.

Transition from previous agreements

In 2016, we agreed with Carl Zeiss SMT GmbH to support their R&D costs, capital expenditures and supply chain investments, in respect of EUV 0.55 NA (High NA). With our new framework agreement, these payments will no longer be made starting in 2021. We paid €969.1 million prior to the effective amendment date of the new framework agreement, of which €305.5 million relating to R&D costs, which was not to be repaid, and €663.6 million relating to capital expenditures and supply chain investments. The method of repayment for the capital expenditure and supply chain investment support has been converted to be repaid annually to ASML between 2021 and 2032. This amount is presented within Other assets as Advanced payments to Carl Zeiss SMT GmbH. The new framework agreement does not change the risk associated with these assets.

The cash outflows from ASML in the new variable pricing model for purchases of products and services was determined to currently have two elements. The first is cash outflows for purchasing products and services reflected in our inventory valuation and cost of sales. The second consists of R&D funding for High NA to Carl Zeiss SMT GmbH, for which these costs are presented within Research and development costs. For 2023, the related R&D funding amounted to €67.6 million (2022: €76.6 million; 2021: €61.2 million).

In addition to the High NA support, we make non-interest bearing advance payments to support Carl Zeiss SMT GmbH's work-in-process. These payments are made to secure optical column deliveries and these advance payments are settled through future lens or optical column deliveries, and are also presented in Other Assets. The new framework agreement does not change our right to settle the previously paid amounts and does not change the risk associated with these assets. We will continue to support Carl Zeiss SMT GmbH's work-in-process under the new framework agreement through prepayments on product deliveries.

Notes to the Consolidated Financial Statements (continued)

The below table shows the outstanding balances with Carl Zeiss SMT Holding GmbH & Co. KG and its subsidiaries in our Consolidated Balance Sheets, as well as our maximum exposure to losses:

Year ended December 31 (€, in millions)	2022	2023	Maximum exposure to loss
Advance payments included in Other assets	1,100.3	1,182.7	1,182.7
Advance payments included in Property, plant and equipment	70.0	—	—
Loan receivable	364.4	912.4	912.4
Investment agreement for 24.9% equity	923.6	919.6	919.6
Accounts receivable	—	7.8	7.8
Accounts payable	269.2	4.0	—
Cost to be paid included in Accrued and other liabilities	111.2	199.9	—

Our maximum exposure to loss related to our involvement in Carl Zeiss SMT Holding GmbH & Co. KG as a variable interest entity includes the carrying value of each of the assets, as well as the risk of any future operating losses of Carl Zeiss SMT Holding GmbH & Co. KG, which cannot be quantified.

The total purchases from Carl Zeiss SMT Holding GmbH & Co. KG and its subsidiaries are as follows:

Year ended December 31 (€, in millions)	2021	2022	2023
Total purchases	2,070.3	2,693.6	3,325.9

Other related party considerations

Except as described above, there have been no transactions between ASML or any of its subsidiaries, any other significant shareholder, any director or officer, or any relative or spouse thereof, other than arrangements in the ordinary course of business. During our most recent fiscal year, there has been no, and at present there is no, outstanding indebtedness to ASML owed by or owing to any director or officer of ASML or any associate thereof. Furthermore, ASML has not granted any personal loans, guarantees, or the like to members of the Board of Management or Supervisory Board.

Notes to the Consolidated Financial Statements (continued)

27. Subsequent events

Subsequent events were evaluated up to February 14, 2024, which is the date the Consolidated Financial Statements included in this Annual Report were approved.

On January 24, 2024 a total dividend for the year 2023 of €6.10 per ordinary share was announced. Subsequently, an interim dividend of €1.45 per ordinary share will be made payable on February 14, 2024. Recognizing this interim dividend and the two interim dividends of €1.45 per ordinary share paid in 2023, this leads to a final dividend proposal to the General Meeting of €1.75 per ordinary share.

Veldhoven, the Netherlands
February 14, 2024

/s/ Peter T.F.M. Wennink
Peter T.F.M. Wennink
President, CEO and member of the Board of Management

/s/ Roger J.M. Dassen
Roger J.M. Dassen
Executive Vice President, CFO and member of the Board of Management

Non-financial statements

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Assurance Report of the Independent Auditor

To: the General Meeting of Shareholders and the Supervisory Board of ASML Holding NV

Our conclusion

We have reviewed the non-financial information of ASML Holding NV (hereafter: 'the Company') for the year ended 31 December 2023 (hereafter: the non-financial information) included in the Annual Report 2023 of ASML Holding NV (hereafter: the Annual Report). A review is aimed at obtaining a limited level of assurance.

Based on the procedures performed and the assurance information obtained nothing has come to our attention that causes us to believe that the non-financial information included in the Annual Report does not present fairly, in all material respects:

- the policy with regard to sustainability matters; and
- the business operations, events and achievements in that area in 2023

in accordance with the reporting criteria as described in the 'Reporting criteria' section of our report.

The non-financial information is included in the Strategic Report section (pages 4-176) as well as the Non-financial statements (pages 297-326) of the Annual Report. The following specific paragraphs are out of scope for the assurance engagement: Forward-looking statements (page 4), Q&A with the CTO (pages 20-21), Q&A with the CFO (pages 40-42), Financial performance (pages 43-49), Risk (pages 50-67), Q&A with the CBO (pages 68-69), Our stories (pages 9,10,18,19,35,36,89,90,105,106,124,125,135,136,144,145).

Basis for our conclusion

We performed our review of the non-financial information in accordance with Dutch law, including Dutch Standard 3810N: "Assurance engagements relating to sustainability reports", which is a specified Dutch standard that is based on the International Standard on Assurance Engagements (ISAE) 3000: "Assurance Engagements other than audits or reviews of historical financial information (Attestation engagements)". This engagement is aimed to obtain limited assurance.

Our responsibilities in this regard are further described in the 'Auditor's responsibilities' section of our report.

We are independent of ASML Holding NV in accordance with the 'Verordening inzake de onafhankelijkheid van accountants bij assurance-opdrachten' (ViO, Code of Ethics for Professional Accountants, a regulation with respect to independence). This includes that we do not perform any activities that could result in a conflict of interest with our independent assurance engagement. Furthermore, we have complied with the 'Verordening gedrags- en beroepsregels accountants' (VGBA, Dutch Code of Ethics).

We believe the assurance evidence we have obtained is sufficient and appropriate to provide a basis for our conclusion.

Reporting Criteria

The non-financial information needs to be read and understood together with the reporting criteria. ASML Holding NV is solely responsible for selecting and applying these reporting criteria, taking into account applicable law and regulations related to reporting.

The reporting criteria used for the preparation of the non-financial information are the Universal Standards of the Global Reporting Initiative (GRI) and the applied supplemental reporting criteria as disclosed in section 'About the non-financial information' of the Annual Report.

The sustainability information is prepared in accordance with the GRI Standards. The GRI Standards used are listed in the GRI Content Index which is available on the ASML website (page 300).

The comparability of sustainability information between entities and over time may be affected by the absence of a uniform practice on which to draw, to evaluate and measure this information. This allows for the application of different, but acceptable, measurement techniques.

Materiality

Based on our professional judgement, we determined materiality levels for each relevant part of the non-financial information and for the non-financial information as a whole. When evaluating our materiality levels, we have taken into account quantitative and qualitative considerations as well as the relevance of information for both stakeholders and the Company.

We agreed with the Supervisory Board that misstatements which are identified during the review and which in our view must be reported on quantitative or qualitative grounds, would be reported to them.

Scope of the group review

ASML Holding NV is the parent company of a group of entities. The non-financial information incorporates the consolidated information of this group of entities to the extent as specified in 'About the non-financial information' of the Annual Report.

Our group review procedures consisted of both review procedures at corporate (consolidated) level and at group component level.

We have determined the scope of our assurance procedures in such a way that we perform sufficient procedures enabling us to provide a conclusion on the non-financial information. We considered, among other things, the management structure of the group, the nature of the activities of the group components, the business processes and controls and the industry in which the entity operates.

Assurance Report of the Independent Auditor (continued)

Limitations to the scope of our review

The non-financial information includes prospective information such as ambitions, strategy, plans, expectations and estimates. Prospective information relates to events and actions that have not yet occurred and may never occur. We do not provide any assurance on the assumptions and achievability of prospective information in the non-financial information.

References to external sources or websites in the non-financial information are not part of the non-financial information itself as reviewed by us. Therefore, we do not provide assurance on this information.

Board of Management and Supervisory Board's responsibilities

The Board of Management is responsible for the preparation of the non-financial information in accordance with the applicable criteria as described in the 'Reporting criteria' section of our report, including the identification of stakeholders and the definition of material matters. The Board of Management is also responsible for selecting and applying the criteria and for determining that these criteria are suitable for the legitimate information needs of stakeholders, considering applicable law and regulations related to reporting. The choices made by the Board of Management regarding the scope of the non-financial information and the reporting methodology are summarized within the section "About the non-financial information" (pages 300-306) of the Annual Report.

Furthermore, the Board of Management is responsible for such internal control as it determines is necessary to enable the preparation of the non-financial information that is free from material misstatement, whether due to fraud or error.

The Supervisory Board is, among other things, responsible for overseeing the Company's reporting process.

Auditor's responsibilities

Our responsibility is to plan and perform our review in a manner that allows us to obtain sufficient and appropriate assurance evidence for our conclusion.

Procedures performed to obtain a limited level of assurance are aimed to determine the plausibility of information and vary in nature and timing, and are less in extent, compared to a reasonable assurance engagement. The level of assurance obtained in a limited assurance engagement is substantially lower than the assurance that would have been obtained had a reasonable assurance engagement been performed.

We apply the 'Nadere Voorschriften Kwaliteitssystemen' (NVKS, Regulations for Quality management systems) and accordingly maintain a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

We have exercised professional judgement and have maintained professional scepticism throughout the review, in accordance with the Dutch Standard 3810N, ethical requirements and independence requirements.

Our review included among others:

- Performing an analysis of the external environment and obtaining an understanding of relevant societal themes and issues, and the characteristics of the Company;
- Evaluating the appropriateness of the reporting criteria used, their consistent application and related disclosures in the non-financial information. This includes the evaluation of the results of stakeholder dialogue and the reasonableness of estimates made by the Board of Management;
- Obtaining an understanding of the reporting processes for the non-financial information, including obtaining a general understanding of internal control relevant to our review;
- Obtaining through inquiries a general understanding of the internal control environment, the reporting processes, the information systems and the entity's risk assessment process relevant to the preparation of the sustainability information, without testing the operating effectiveness of controls;
- Identifying areas of the non-financial information where misleading or unbalanced information or a material misstatement, whether due to fraud or error, is most likely to occur. Designing and performing further assurance procedures aimed at determining the plausibility of the sustainability information responsive to this risk analysis. Our procedures included, among others:
 - Interviewing management and relevant staff responsible for the strategy, policy and results;
 - Interviewing relevant staff responsible for providing the information for, carrying out internal control procedures over, and consolidating the data in the non-financial information;
 - Obtaining assurance information that the non-financial information reconciles with underlying records of the Company;
 - Reviewing, on a limited test basis, relevant internal and external documentation;
 - Performing an analytical review of the data and trends;
- Evaluating the consistency of the non-financial information with the information in the report which is not included in the scope of our review;
- Evaluating the presentation, structure and content of the non-financial information;
- Considering whether the non-financial information as a whole, including sustainability matters and disclosures, is clearly and adequately disclosed in accordance with the applicable reporting criteria;
- Reconciling the relevant financial information with the financial statements;
- Considering the overall presentation and balanced content of the sustainability information.

We have communicated with the Board of Management and the Supervisory Board regarding, among other matters, the planned scope and timing of the review and significant findings that we identified during our review.

Amstelveen, 14 February 2024
 KPMG Accountants N.V.
 P.J. Groenland - van der Linden RA

About the non-financial information

Reporting scope

The content disclosed in this Annual Report¹ is based on the material topics identified for both ASML and our stakeholders through the 2023 materiality assessment. As part of the materiality assessment, we asked internal and external stakeholders to identify where in the value chain the theme has an impact. This process was conducted within the boundaries required by the 2021 GRI Universal Standards.

[Read more in Our material ESG sustainability topics](#)

The scope of the information and indicators reported for each material topic is consistent with the financial reporting scope. Relevant exceptions and specifications can be found in the reporting scope table at the end of this section.

This Annual Report generally covers the performance of ASML from January 1, 2023, to December 31, 2023, and will be published on February 14, 2024.

The financial information in this report is derived from our Financial Statements that are in conformity with US GAAP. The reporting basis for the information in this report on the performance of our ESG sustainability strategy is prepared in accordance with the 2021 GRI Universal Standards.

The 2021 GRI Universal Standards became effective as of FY22. The revised approach to materiality and the use of topic standards resulted in a significant increase in GRI indicators considered to be relevant to be reported by ASML.

Details of our compliance with the 2021 GRI Universal Standards (GRI content index) can be found in a separate reporting supplement available in the annual report section of the website (www.asml.com/en/investors/annual-report).

¹ We publish two annual reports. One version of the annual report is prepared in conformity with SEC regulations (Form 20-F) and includes financial information prepared in accordance with US GAAP. The other version of the annual report is prepared in conformity with article 362.9 of Book 2 of the Dutch Civil Code and includes financial information prepared in accordance with EU-IFRS. For internal and external reporting purposes, we use US GAAP. US GAAP is our primary accounting standard for setting financial and operational performance targets.

Annual reporting process

Each theme has an owner who is responsible for the theme ambition, strategy and relevant performance indicators (PIs), as well as the timely delivery of content and relevant data for reporting and monitoring the execution of the strategy. The data is reviewed and consolidated by the Finance department. The Annual & ESG reporting team is in charge of tracking compliance with relevant standards.

Reporting methodology

The non-financial data disclosed in this report is derived from various sources, and the way data is processed differs across our operating subsidiaries and departments. This causes a degree of uncertainty, because of limitations in measuring and estimating data. We continue to work on improving our ESG sustainability data control environment and data collection processes. Please refer to the next sections where we elaborate on the methodology and assumptions used in the reporting of our indicators.

Emissions

General remarks on methodology

The CO₂e emissions reported are in line with the greenhouse gas (GHG) Protocol. The base year for calculating scope 1 and 2 emissions (including GHG reductions from energy savings in projects) is 2021, when a new master plan was started. For scope 1 and scope 2 emissions, an operational control consolidation approach is applied to determine the locations included in the calculation. ASML manufacturing locations considered include Veldhoven (including Oirschot), Wilton, San Diego and Linkou, ASML Tainan and Silicon Valley. Other locations include China (Beijing and Shanghai), South Korea (Hwasung, Icheon and Pyeongtaek), Taiwan (Hsinchu, Tainan office), US (Chandler and Hillsboro) and the Netherlands (Delft). This scope encompassed 95% of company GHG emissions from manufacturing locations as well as office locations with more than 250 FTEs.

The base year for calculating GHG emissions related to scope 3 is 2019 (based on 2018 data), as this was the first year in the 2019-2025 sustainability strategy planning period.

During 2023, no significant changes in emissions occurred that triggered recalculations of base year emissions. The DEFRA (UK Department for Environment, Food & Rural Affairs) 2022 emission factors are applied to convert the specified amount of energy or activity factor to kg CO₂. For scope 3, additional sources are used for conversion, with details provided in the section on scope 3.

Direct (scope 1) GHG emissions

Scope 1 emissions are expressed in kt. The CO₂ footprint consists mainly of the combustion of fossil fuels (of which only natural gas is relevant for ASML) and a small portion of CO₂ process gas from immersion systems. The natural gas part is calculated by multiplying the specific consumption by local conversion factors (x kg CO₂ per m³ natural gas). In our previous annual reports, we reported on gross and net emissions, but as ASML does not compensate any emissions, there is no difference between gross and net emissions.

About the non-financial information (continued)

Energy indirect (scope 2) GHG emissions

Scope 2 emissions are also expressed in kt and the CO₂ footprint is calculated by multiplying electricity consumption by the market or local emission factors (x kg CO₂ per kWh). Market-based emission factors are based on supplier emission rates. Location-based emission factors are based on information from the national, sub-national and grid level. All emission factors are stored and checked annually by the Corporate Real Estate team within the Sustainability Performance Indicator system (in myEHS) and calculations are done automatically in this system. Market-based and location-based emission factors are updated annually, where applicable.

In our previous annual reports (prior to 2022), we reported as 'gross' our emissions before purchase of energy attribute certificates (EACs) via the market-based method. We also included the market-based emissions (after purchase of EACs) as 'net'. As ASML currently does not compensate any emissions, there is no difference between our gross and net emissions and we only report the market-based emissions (after purchase of EACs). We started reporting location-based emission factors from the 2022 financial year.

Other indirect (scope 3) GHG emissions

We measure and report the indirect emissions from our activities in the value chain – scope 3 emissions. This category includes emissions resulting from our operations as well as the emissions from upstream supply chain and downstream use of our products by customers. According to the GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard, scope 3 emissions include 15 categories, of which nine are material for ASML. The CO₂ emissions for each category are calculated by multiplying the energy consumption of activities or activity factors by specific emission factors (e.g. x kg CO₂ per kWh or per euro spend).

When using the reported information, the following methodology, assumptions and data reliability need to be considered:

- Due to its nature, the scope 3 emissions data includes a time lag. As a result, the emissions reported in the reporting year are calculated by use of the actual data sources for nine months with three months' estimate. In prior years (before 2022), emissions reported were calculated by use of the actual data sources from one year earlier.
- Cat.1 Purchased goods and services, Cat.2 Capital goods: Using the spend-based method, we estimate emissions for goods, services and capital goods by collecting data on the economic value of goods and services purchased and multiplying it by relevant secondary (e.g. industry average) emission factors (e.g. average emissions per monetary value of goods). The DEFRA emission database is used.
- Cat.3 Fuel- and energy-related activities: Using the average-data method, we estimate emissions by using secondary emission factors. The International Energy Agency (IEA) and the National Renewable Energy Laboratory emission databases are used.
- Cat.4 Upstream transportation and distribution: In general, around 90% of the emissions are calculated with the distance-based method, for which we directly receive emissions reports from major logistics suppliers. The

remaining emissions are from smaller logistics suppliers and are estimated by taking the average ASML road freight emission factor.

- Cat.5 Waste generated in operations: Using the waste-type-specific method, we use emission factors per waste type and treatment method. The emission factors of Ecoinvent are used.
- Cat.6 Business travel: The DEFRA emission database is used and the following methods are applied:
 - Air travel: Gross emissions are estimated by using two calculation methods. Around 50% of our flights' emissions are report directly from our suppliers. The rest are estimated using the distance-based method, which involves determining the distance and travel class of the flight, and then applying the appropriate emission factor considering direct climate change effects only.

Final level of air travel emissions are calculated by subtracting the emissions saved due to the use of sustainable aviation fuel (SAF) from the gross emissions. Indirect climate change effects (non-CO₂ emissions – radiative forcing) are reported separately using the distance-based method from all our flights and the corresponding travel class.

- Hotel stay: Using the fuel-based method, we take hotel nights stayed and apply emission factors for the average energy use per night in different countries.
- Car rental: We use the fuel-based and distance-based method, for which we directly receive emissions reports from car rental companies.
- Taxi and public transportation: We apply the spend-based method, which involves determining the amount of money spent on transport and applying secondary (environmentally-extended input-output or EEIO) emission factors.
- Cat.7 Employee commuting: We take the badge swipe numbers to count the average number of employees that come to the office. We use the distance-based method, which involves collecting data on commuting patterns from employees in the Netherlands (distance traveled and mode of transportation) and applying the appropriate emission factors for the modes used. For employees outside of the Netherlands, mode of transportation data is not yet available, so we assume they all drive by car with the same driving distances as in the Netherlands. The DEFRA emission database is used.
- Cat.11 Use of sold products: We count the direct use-phase emissions by measuring the energy use of our products. We estimate common production and idle time percentages by discussing customer survey data with Development and Engineering and the Marketing team. On this basis, we calculate the annual energy consumption of each product and multiply this by the products sold in the reporting year. The figure obtained is then multiplied by a lifetime of 20 years. Lastly, we apply the country-based emission factors from the IEA database to convert energy consumption into emissions.

About the non-financial information (continued)

- Cat.12 End-of-life treatment of sold products: We apply the waste-type-specific method. On the basis of a high-level estimation of the material composition of our products, we apply emission factors for specific waste types and waste treatment methods. The Ecoinvent database is used.

GHG emissions intensity

GHG emission intensity is calculated as the total of net scope 1, 2 and 3 emissions in CO₂ equivalent divided by total ASML revenue. The only gas included is CO₂, since direct emissions of other GHGs are negligible.

Reduction of GHG emissions

We measure and report on reductions in GHG emissions resulting from energy savings. For details of the process used to estimate energy savings, see the section Energy savings worldwide through projects in this section. In order to calculate the CO₂ reduction, the estimated energy savings are multiplied by local emission factors for electricity and by gas emission factors for gas usage.

Nitrogen oxides (NOX), sulfur oxides (SOX) and other significant air emissions

We currently measure and report on volatile organic compounds (VOCs) for the Netherlands and Wilton. The data is reported in myEHS. For VOCs we calculate the air emissions to be the difference between what we have purchased and what we have disposed of to the waste vendor. For Veldhoven, the purchase value comes from our SAP system and the disposal figures are confirmed by the waste vendor. For Wilton, the usage is monitored manually. We have performed a materiality assessment in 2023 to reassess the relevance of significant air emissions for all of our locations and concluded that only NOx, H₂ and VOC are relevant. We will begin to report from 2024.

Energy

Energy savings worldwide through projects

We report on the cumulative savings for ASML manufacturing locations through improved technical installations over the five-year energy savings master plan period. The current master plan runs from 2021 to 2025. The energy savings presented in the report represent the measured or estimated savings. We measure our energy savings compared to the energy we estimate we would have used in a business-as-usual scenario without the efficiency improvements realized through dedicated energy-saving projects. Energy savings include reductions in the consumption of natural gas and electricity. The reported energy savings are annualized savings from projects finalized in the reporting year and earlier in the master plan period and are reported in TJ.

Energy consumption within the organization

Energy consumption inside the organization is expressed in TJ and includes fossil fuel and electricity consumption, for energy purposes in the reporting period. The scope encompasses 95% of company GHG emissions from manufacturing locations as well as office locations with more than 250 FTEs. The unit in which the energy consumed is expressed is then converted to TJ using standard conversion factors.

Energy consumption outside of the organization

Energy consumption outside the organization is expressed in TJ and is defined as the energy use throughout ASML's upstream and downstream activities associated with its operations. The scope is aligned with the categories reported in our scope 3 emissions according to the GHG Protocol.

The calculations will be according to the categories reported in the scope 3 emissions. For each category the following methodology is applied:

- Cat.1 Purchased goods and services, Cat.2 Capital goods: Using the spend-based method, we estimate emissions for goods and services, and capital goods, by collecting data on the economic value of goods and services purchased and multiplying its economic value by relevant secondary (e.g. industry average) emission factors (e.g. average emissions per monetary value of goods [gCO₂/euro]). The emission factors from the DEFRA database are used. Total emissions are divided by the average world emission factor for electricity and heat generation from the IEA [gCO₂/kWh] to obtain the total energy. This amount is then adjusted to the correct unit [TJ] using energy conversion factors.
- Cat.3 Fuel- and energy-related activities: Activities in this category are reported in MWh and TJ. In the case of electricity, the energy consumption is adjusted by 5% due to the transmission and distribution losses (World Bank), and the total energy is calculated based on the average energy needed to produce electricity from natural gas from EIA. Then the value is converted to TJ using the corresponding energy conversion factor. In the case of natural gas, transmission and distribution losses are assumed to be minimal and are disregarded. Then the energy calculated is based on the cumulative energy demand, i.e. the sum of the primary energy demand to obtain the natural gas. Finally the value is converted to TJ using the corresponding energy conversion factor.
- Cat.4 Upstream transportation and distribution: Emissions are reported in five categories: air, other, rail, road and sea. These emissions are then divided by the corresponding fuel emission factor [kg CO₂e/ kWh (Net CV)] from DEFRA. For air, it is assumed that all planes consume aviation spirit from fossil fuels. For sea, it is assumed that the ships consume marine gas oil (MGO) due to the restrictions in the emission control areas (ECA) zones. For rail, it is assumed that electricity is used to power the trains. For road and others, it is assumed that transportation is done using diesel. Finally, the value is converted to TJ using the corresponding energy conversion factor.
- Cat.5 Waste generated in operations: The emissions are reported according to the method of processing. The methods are incineration without energy recovery and landfill. The emissions are divided by the average waste factor emissions per tonne from DEFRA, and then multiplied by the energy consumed for the method of processing used (factor for landfill is obtained from DEFRA and for incineration from the Minnesota Pollution Control Agency). Recycling and incineration with energy recovery are disregarded. Finally, the value is converted to TJ using the corresponding energy conversion factor.

About the non-financial information (continued)

- Cat.6 Business travel: The DEFRA emission database is used and the following methods are applied:
 - Air travel: The gross emissions reported from direct climate change effects for air travel are divided by the emissions per kWh of the fuel used, assuming that all planes consume aviation spirit from fossil fuels. The value obtained is then adjusted to the correct unit [TJ].
 - Hotel stay: The hotel nights stayed are multiplied by the average hotel energy consumption per night by hotels around the world (source: Cornell hotel sustainability benchmarking index). Then the value is adjusted to the correct unit [TJ].
 - Car rental, taxi and public transport: A similar approach to air travel is used, but instead of aviation spirit it is considered that the fuel is gasoline (DEFRA, petrol 100% mineral).
- Cat.7 Employee commuting: The emissions are reported based on the mode of transportation used. It is assumed that transportation by car causes 100% of these emissions; other modes are disregarded due to their low contribution. These emissions are divided by the emissions per kWh of the fuel, assuming that all cars consume gasoline (DEFRA, petrol 100% mineral). Finally, the value obtained is adjusted to the correct unit [TJ].
- Cat.11 Use of sold products: The energy use of our products is known. This energy usage is multiplied by the number of systems sold, and a lifetime of 20 years (following the GHG Protocol). The value is then adjusted to the correct unit [TJ].
- Cat.12 End-of-life treatment of sold products: Only landfill activities are considered; others are disregarded. The total amount of waste is calculated from the emissions over the emission per tonne of metal waste from DEFRA and then the energy consumed is estimated per tonne of waste treated.

Some of the conversion factors used may have low accuracy or represent a particular case, instead of an average. The energy conversion factors will need to be reassessed each year to improve the accuracy and reduce estimation uncertainty.

Energy intensity

Energy intensity is the total energy consumption within the organization normalized to revenue (TJ/million EUR). Total energy consumption includes fossil fuels (natural gas) consumed for energy purposes and total purchased electricity. Diesel is considered immaterial and not included in this calculation.

Reductions in energy requirements of products and services

We measure and report on our machines' energy efficiency. To do so, we measure power consumption based on SEMI S23 standards for our latest system generations, during full production. For NXE, we include source, scanner, laser, PVAC and abatement, and relevant cabinets. For NXT, we include scanner, laser, and all gas and water supplies. Energy is reflected in kWh per wafer pass.

To calculate our machines' energy efficiency (i.e. energy consumption per wafer pass), we divide Annual TEE (Total Energy Equivalent) consumption by wafers used per year (assuming 100% availability of the system).

We report on the percentage reduction of energy consumption from a 2018 baseline, which is the year we started to work on energy savings for EUV systems.

Circular economy

Percentage of systems sold in the past 30 years still active in the field

We monitor the number of active systems in our installed base. This includes our EUV, DUV and PAS5500 systems. We have calculated the percentage of all systems ever sold that are still in use. Some systems in the field may not be serviced by ASML, but are operational. For the indicator '% of active systems' we apply assumptions for the portion of systems active but not serviced by ASML. Based on historical information and experience, we determine that 33% of non-ASML-serviced systems are still active in the field.

Attractive workplace for all

Ratio of base salary and total cash female/male

We report on the ratio of base salary and total cash between female and male employees. For this indicator, significant locations of operations are Asia, the US and Europe. With some exceptions, this mirrors most of our other Human resources (HR) reporting in this report.

Since the 2022 reporting year, we have reported this indicator more comprehensively. We report per employee category per region, as opposed to reporting per employee category and per region separately.

Occupational health and safety

Workers covered by an occupational health and safety management system

The indicator is calculated by summing the number of employees and contractors who are covered by the reporting system and dividing the total of this sum by the total number of employees and contractors, including those not covered in the system. No workers have been excluded. The number of total visitors is out of scope. The definition of workers covered includes:

- Employees, permanent and temporary
- Contractors: Workers who are not employees but whose work and/or workplace is controlled by the organization, including consultants, interns and outsourcing

About the non-financial information (continued)

The environment, health and safety (EHS) reporting system is assessed against the ISO 14001 standard as part of the internal audit program. It is not certified by an external party. The outsourced contractors that work offsite are out of the scope of the ASML EHS management system according to the GRI definition, since ASML doesn't control their work or workplace.

Work-related injuries

We measure and report on the recordable incident rate and the number and rate of recordable injuries and high-consequence injuries. The indicators relate to all employees and contractors working under supervision of ASML and are split by worker type (with no workers excluded).

Definitions

- A recordable incident is a work-related incident of personal injury and/or illness from events or exposures occurring in the work environment in the reporting period for all ASML locations worldwide, which require medical treatment beyond first aid, or cause death, or days away from work, restricted work or transfer to another job. A recordable injury has the same definition as a work-related incident but excludes illness.
- High-consequence work-related injuries are the number of work-related incidents of personal injury from events or exposures occurring in the work environment in the reporting period for all ASML locations worldwide, which result in days away from work or job transfer equal to or longer than 180 days.
- An injury or illness is considered work-related if an event or exposure in the work environment caused or contributed to the condition or significantly aggravated a pre-existing condition. Work-relatedness is presumed for injuries and illnesses resulting from events or exposures occurring in the workplace, unless an exception specifically applies. The work environment includes the establishment and other locations where one or more employees are working or are present as a condition of their employment.
- For incidents, injuries and high-consequence work-related injuries, the rate is calculated following OSHA guidelines:
 - The number of recordable incidents or injuries or high-consequence work-related injuries is multiplied by 200,000 and divided by the number of employee labor hours worked. The result is then multiplied by 100%.
- Rate indicators are calculated for employees only. For contractors, no incident rate can be calculated because of a lack of baseline HR data regarding the number of hours worked. For this category, only the absolute value is reported.

Work-related ill health

This indicator is defined as the number of work-related ill health events reported within reporting period, split by worker types (employees and contractors), with no workers excluded.

Work-related ill health encompasses acute, recurring and chronic health problems caused or aggravated by work conditions or practices. These include musculoskeletal disorders, skin and respiratory diseases, malignant cancers and diseases caused by physical agents. This disclosure covers, but is not limited to, the diseases included in the ILO List of Occupational Diseases.

Cases of ill health are reported as the:

- Number of cases of recordable work-related ill health
- Main types (hazard groups) of work-related ill health

We apply the following definitions of worker types:

- Employees, permanent and temporary
- Contractors: Workers who are not employees but whose work and/or workplace is controlled by the organization

MyEHS incident data is used to extract ill health related incidents. Mental illnesses are out of the scope of the EHS management system.

Local communities

Operations with local community engagement, impact assessments and development programs

We measure and report on the percentage of operations with implemented local community engagement, impact assessments and development programs. In order to determine the percentage of total operations that each of our locations represents, we look at the employee headcount in that location divided by the total employee headcount. The employee headcount was chosen because it is assumed that the number of employees in a location is a strong determinant of the impact on the local community. The calculation for this indicator entails summing the employee counts for applicable locations and then dividing this sum by the total employee count. Currently, we have five applicable locations with community engagement initiatives (Veldhoven (NL); Wilton, Connecticut (USA); Silicon Valley, California (USA); San Diego, California (USA); Hsinchu (TW)). Other ASML locations with smaller community engagement initiatives but no dedicated community engagement FTEs and programs are excluded.

About the non-financial information (continued)

Reporting scope table

The below table clarifies the scope of the data reported per theme and explains where the scope of the data provided differs from the scope of the report's content. Companies excluded in the scope below do not have data available for certain subsections.

(Sub)section Annual Report	Scope
Supporting our customers	ASML worldwide, excluding Cymer and Berliner Glas (ASML Berlin GmbH) NOTE: Techinsights ASML only
How we innovate	ASML worldwide
Financial performance	
Financial Pls	ASML worldwide
Energy efficiency and climate action	
Scope 1 and 2 emissions from our own operations – Manufacturing and buildings	ASML locations above 250 FTE (based on assessment 2019/2020)
Scope 3 emissions from our own operations – Business travel and commuting and supply chain (including logistics)	ASML worldwide: except categories 8, 9, 10, 13, 14 and 15
Scope 3 emissions from product use at our customers	ASML products that reached a certain stage of maturity and have been measured (excluding Cymer lasers sold with non-ASML lithography systems)
Circular economy	
Prevent waste	ASML locations above 250 FTE (based on assessment 2019/2020)
Extend the lifetime of our products	ASML products, excluding YieldStar and SBI/MBI metrology tools
Reuse parts	ASML worldwide, excluding Cymer, HMI and Berliner Glas (ASML Berlin GmbH)
Recycle materials	ASML locations above 250 FTE (based on assessment 2019/2020)
Water management	ASML locations above 250 FTE (based on assessment 2019/2020), except for Total ultrapure water consumption and Total water recycled and reused, which is Veldhoven (NL), Linkou (TW) and HMI Tainan (TW) only

Attractive workplace for all	
Inspiring a unified culture	ASML worldwide, excluding Berliner Glas (ASML Berlin GmbH), except for we@ASML results, which include ASML Berlin GmbH
Providing the best employee experience	ASML worldwide, excluding Berliner Glas (ASML Berlin GmbH) NOTE: The scope for indicator Open positions filled by internal candidates (in %) includes only open positions for which a formal vacancy has been created. The scope for we@ASML survey results includes ASML Berlin GmbH, except for male/female split
Enabling strong leadership	ASML worldwide, excluding Berliner Glas (ASML Berlin GmbH) except for the we@ASML survey results, which includes ASML Berlin GmbH
Ensuring employee health and safety	ASML worldwide, excluding Berliner Glas (ASML Berlin GmbH)
Responsible supply chain	
Responsible supply chain	ASML worldwide, excluding Berliner Glas (ASML Berlin GmbH) except for Responsible Business Alliance (RBA) risk assessment, where Cymer and HMI is also excluded
Innovation ecosystem	
Public-private partnerships	ASML worldwide
Partnerships with academia and research institutes	ASML worldwide
Supporting startups and scaleups	ASML Netherlands
Valued partner in our communities	
Community engagement program	ASML worldwide -Volunteering hours for technology promotion (ASML Netherlands only) -Volunteering hours for community engagement (excludes Berliner Glas (ASML Berlin GmbH) and HMI)
ESG integrated governance	
Business ethics and Code of Conduct	ASML worldwide
Product safety	ASML worldwide, excluding HMI
Rest	ASML worldwide

About the non-financial information (continued)

Scope changes and restatements

Compared to the 2022 Annual Report, the following changes have occurred:

- Since 2023, a new weighting methodology has been applied in our overall loyalty score (customer feedback survey). If we applied the same methodology for the 2022 survey, the score would have been 78.8%.
- As of 2022, our scope 3 emissions and the 'energy consumption outside the organization' indicator consist of nine months of actual data and three months of estimated data. In the 2023 reporting year, we have adjusted the 2022 reported figure with full-year actual 2022 data. The 2021 scope 3 emissions figure has been adjusted to report the exact figure instead of a rounded figure.
- As of 2023, we report indirect climate change effects of air travel (radiative forcing, non-CO₂ emissions) separately, and not as part of our scope 3 emissions. This is to align with current reporting practices of airlines and in line with recommendations of SBTi. This has resulted in comparative figures being updated, and our reported total scope 3 emissions have reduced by 9.4 kt in 2021, 46.3 kt in 2022 and 52.0 kt in 2023.
- In 2023, we updated the 'energy consumption outside the organization' indicator to only include direct climate change effects of air travel. Therefore, indirect climate change effects of air travel (radiative forcing, non-CO₂ emissions) are excluded, resulting in an updated comparative figure. This leads to a reduction in our reported numbers of 641 TJ in 2022 and 720 TJ in 2023.
- As of 2023, when we measure the energy efficiency of our DUV immersion and DUV dry systems, the laser is included within the measurement. The comparative figures have been revised.
- The baseline figure of the NXE:3400B energy use per exposed wafer pass has been corrected, from 13.08 kWh to 12.8 kWh, due to an incorrect rounding being used in the past.
- The indicator 'Value of scrapped parts' does not include packaging, whereas in 2022 annual report we disclosed parts and packaging. This is now aligned with the other two related KPIs. The 2022 comparative figure has been restated from €232 million to €146 million.
- From 2023 onward, the indicator 'Savings from re-used parts' includes factory parts which explains the significant increase compared to prior years.
- From 2023 onwards, Berliner Glas (ASML Berlin GmbH) is included in the we@ASML survey results except for the male/female split related to the engagement score.
- In our 2022 Annual Report, we reported for our we@ASML survey a delta of (4.3)% instead of (2.9)% in comparison to our benchmark. This was due to the fact that the latest update of the benchmark numbers of our external vendor were not yet loaded into our systems when reporting on our employee engagement scores. This led to a restatement of the external benchmark of the top 25% performing companies score in 2022 from 82.2% (reported last year) to 80.8%.
- In 2023, a new categorization of learning hours took place to divide between technical training hours and non-product-related training hours. The categorization is now based on the academy structure instead of the audience structure, and therefore the fluctuation between 2022 and 2023 reflects this change, as comparative numbers have not been updated for this new categorization.

- In 2023, the scope of the learning hours is increased by adding additional training methods. In previous years, only online lessons and sessions were taken into account. For 2023, external training, material, tests and videos have also been taken into account.
- For our indicator 'Male/female split by sector (in FTE)', we have changed our mapping rationale to be a more accurate reflection of the FTE split by sector.

Review of this report

The Consolidated Financial Statements included in this report are audited.

[Read more in Consolidated Financial Statements - Report of Independent Registered Public Accounting Firm](#)

As requested by our Board of Management, our non-financial information has been independently reviewed. Our external auditor (KPMG) was asked to review this non-financial information.

[Read more about KPMG's assurance report, including details of the work they carried out, in Non-financial statements - Assurance Report of the Independent Auditor](#)

Non-financial indicators

The non-financial Key Performance Indicators (KPIs) are reported in the different sections of our sustainability reporting within ESG. The other non-financial PIs are reported in the tables below.

Supporting customers

Description	2021	2022	2023	Comments
Overall loyalty score (customer feedback survey)	n/a	78.3%	86.0%	The survey takes place every year since 2023. A new weighting methodology has been applied in 2023. If we apply the same methodology for the 2022 survey, the score would have been 78.8%.
TechInsights				The yearly overall customer satisfaction rate compared to competitors and industry peers.
Large suppliers of chipmaking equipment – score (scale 0 to 10)	9.2	9.4	9.4	
Suppliers of fab equipment – score (scale 0 to 10)	9.2	9.4	9.4	
Technical leadership for lithography equipment – score (scale 0 to 10)	9.5	9.8	9.7	

Non-financial indicators (continued)

Energy efficiency and climate action – Energy

Description	2021	2022	2023	Comments
Energy consumption (in TJ)	1,689	1,633	1,729	
Energy savings worldwide through projects (in TJ)	13	32	47	We started a new master plan period for 2021-2025 with a target to achieve 100 TJ annual energy savings by the end of 2025. The savings are realized by projects resulting in improved technical installation or by projects resulting in an improved production process. Types of energy included in savings: fuel and electricity. The savings reported are cumulated compared with the base year; therefore, they are not comparable between years.
Energy intensity (TJ per €m revenue)	n/a	0.08	0.06	The denominator is revenue and the numerator represents total energy consumption within the organization made up of total electricity consumption (in TJ) and fossil fuels (natural gas) consumption (in TJ).
Energy consumption outside of the organization (in TJ)	n/a	94,053	115,420	The 2023 figure includes nine months of actual data and three months of estimates. The 2022 figure has been adjusted with data for the entire year (93,962 TJ best estimate in the 2022 Annual Report) and excludes indirect climate change effects of air travel (radiative forcing).
Electricity purchased per location (in TJ)				
Veldhoven	881	837	899	
Wilton	120	130	140	
Linkou	34	34	35	
San Diego	176	188	187	
San Jose	28	25	27	
Tainan	36	43	44	
Other	47	50	53	Other includes the locations with more than 250 FTE combined (based on assessment 2019/2020).
Total	1,322	1,307	1,385	
Fossil fuels consumed from non-renewable sources (in TJ)¹				
Veldhoven	184	149	160	Fossil fuels consumed consists of only natural gas.
Wilton	127	121	125	
Linkou	—	—	—	No natural gas is used by this manufacturing location.
San Diego	43	43	44	
San Jose	5	6	8	
Tainan	—	—	—	No natural gas is used by this manufacturing location.
Other	8	7	7	Other includes the locations with more than 250 FTE combined (based on assessment 2019/2020).
Total	367	326	344	
Fuels consumed from renewable sources (in TJ)				
	—	—	—	

1. The sources of the conversion factors used are the Dutch Emissions Authority and the US Energy Information Administration.

Non-financial indicators (continued)

Energy efficiency and climate action – CO₂e emissions

Description	2021	2022	2023	Comments
Scope 1 CO₂ emissions (in kt)	19.3	17.3	19.2	
Scope 2 CO₂ emissions (in kt) – Market-based	20.1	20.8	15.9	
Scope 3 - Category 1 Purchased goods and services	3,305.0	3,928.0	4,459.9	
Scope 3 - Category 2 Capital goods	463.0	482.0	621.1	
Scope 3 - Category 3 Fuel- and energy related activities	8.0	8.0	8.8	
Scope 3 - Category 4 Upstream transportation and distribution	254.0	354.0	367.3	
Scope 3 - Category 5 Waste generated in operations	1.0	1.0	1.3	
Scope 3 - Category 6 Business travel	20.0	69.0	69.8	Excluding indirect climate change effects of air travel (radiative forcing) and taking into account purchases of SAF.
Scope 3 - Category 7 Employee commuting	20.0	41.0	54.4	
Scope 3 - Category 11 Use of sold products	7,355.0	7,053.1	9,442.4	
Scope 3 - Category 12 End-of-life treatment of sold products	0.2	0.2	0.2	
Scope 3 CO₂ emissions (in kt)	11,426.2	11,936.3	15,025.2	The 2023 figure includes nine months of actual data and three months of estimates. The 2022 figure has been adjusted with data for the entire year (11,900 kt best estimate in the 2022 Annual Report).

Non-financial indicators (continued)

Energy efficiency and climate action – CO₂e emissions

Description	2021	2022	2023	Comments
Indirect climate change effects of air travel (radiative forcing)	9.4	46.3	52.0	In previous years, this was reported as part of our scope 3 emissions.
Reduction due to purchase of SAF (kt CO ₂ e)	0.0	0.0	10.2	SAF purchases reduce our total scope 3 emissions (from business travel).
Emission intensity net scope 1+2+3 (in kt/€m revenue)	0.62	0.57	0.55	The 2023 figure includes nine months of actual data and three months of estimates. Gases included is only CO ₂ , as the other gases are negligible. The 2022 figure has been adjusted with data for the entire year.
Net emission footprint change in % (scope 1+2) – Market-based	156%	(3)%	(8)%	
Scope 2 CO ₂ e emissions (in kt) – Location-based	n/a	192.9	168.1	
Type of energy attribute certificates (in TJ)				
Guarantees of Origin (GOs)	883	840	901	
Renewable energy certificates (RECs)	331	351	361	
International renewable energy certificates (I-RECs)	—	3	3	
Total	1,214	1,194	1,265	
Reduction in GHG emissions split by (in kt)				
Scope 1 - Savings worldwide through projects	n/a	0.16	0.39	
Scope 2 - Savings worldwide through projects	n/a	2.41	3.79	
Total	n/a	2.57	4.18	The savings reported are cumulated compared with the base year; therefore, they are not comparable between years.
Significant air emissions - VOC (kg)	n/a	13,289	16,299	
Number of significant fines and non-monetary sanctions	—	—	—	
The monetary value of significant fines for non-compliance with environmental laws and regulations (in € thousands)	—	—	—	

Non-financial indicators (continued)

Circular economy – Waste management

Description	2021	2022	2023	Comments
Total waste generated (in 1,000 kg)^{1 & 2}				
Total non-hazardous waste	5,284	6,295	7,821	
Total hazardous waste	395	380	458	
Total construction waste	199	238	653	
Total	5,878	6,913	8,932	Total waste is treated offsite, no waste treatment onsite.
Total waste by disposal (in 1,000 kg)¹				
Waste diverted from disposal	4,544	5,186	5,125	
Waste directed to disposal				Total waste has grown as the company has grown. This bucket has increased due to lower recycling rates reported by our waste treatment suppliers who have used different definitions in the past, and due to the improved quality of data shared with ASML. We are working with vendors and suppliers to improve the recycling rate.
	1,334	1,727	3,807	
Total	5,878	6,913	8,932	
Waste diverted from disposal: Recycling (in 1,000 kg)¹				We apply recycling of waste. Other categories like preparation for reuse and composting are not applicable to ASML.
Total non-hazardous waste	4,028	4,719	4,171	
Total hazardous waste	346	309	381	
Total construction waste	170	158	573	
Total	4,544	5,186	5,125	
Waste directed to disposal: Incineration (with energy recovery) (in 1,000 kg)¹				
Total non-hazardous waste	938	1,246	2,542	Total waste has grown as the company has grown. This bucket has increased due to lower recycling rates reported by our waste treatment suppliers who have used different definitions in the past, and due to the improved quality of data shared with ASML. We are working with vendors and suppliers to improve the recycling rate.
Total hazardous waste	16	37	33	
Total construction waste	17	74	1	
Total	971	1,357	2,576	
Waste directed to disposal: Incineration (without energy recovery) (in 1,000 kg)¹				
Total non-hazardous waste	51	66	316	
Total hazardous waste	27	24	32	
Total construction waste	0	0	0	
Total	78	90	348	

Non-financial indicators (continued)

Circular economy – Waste management

Description	2021	2022	2023	Comments
Waste directed to disposal: Landfill (in 1,000 kg)¹				
Total non-hazardous waste	267	264	792	
Total hazardous waste	6	10	12	
Total construction waste	12	6	79	
Total	285	280	883	
Total waste disposed of (% of total waste from operations)¹				
Incineration (with energy recovery)	17%	19%	31%	
Incineration (without energy recovery)	1%	2%	4%	
Landfill	5%	4%	10%	
Total	23%	25%	45%	

1. The waste disposal methods are determined by information provided by the waste disposal contractor. We split total waste into waste directed to disposal and waste diverted from disposal, as required by the GRI.

2. During the dismantling of the Combined Heat and Power (CHP) system in Wilton, a spill of glycol onto the soil surface occurred in 2022. Because of this spill, we disposed of 12.7 tonnes of glycol-impacted soil and 3.6 tonnes of glycol-impacted water to ensure minimum impact to the environment. This soil and water removal is included in our waste figures of 2022.

Non-financial indicators (continued)

Water management

Description	2021	2022	2023	Comments
Water consumption (in 1000 m³), split by:				
Veldhoven	728	834	856	
San Diego	105	115	90	
Wilton	95	90	101	
Linkou	26	22	23	
San Jose	21	32	28	
Tainan	30	33	34	
Other	36	36	42	Other includes the locations with more than 250 FTE combined (based on assessment 2019/2020).
Total	1,041	1,162	1,174	Municipal water supply.
Total ultrapure water consumption (in 1000 m ³)	84	86	99	Only Veldhoven, Linkou and HMI Tainan are in scope for this indicator. The other locations are excluded from the scope because the data to report on the indicator is not yet available.
Total water recycled and reused (in %)	1.2%	1.6%	1.5%	Only Veldhoven, Linkou and HMI Tainan are in scope for this indicator. The other locations are excluded from the scope because the data to report on the indicator is not yet available.
Water intensity (in 1000m ³ /€m revenue)	56	55	43	Water intensity is calculated as total water consumption (in m ³) divided by total revenue (in millions).

Non-financial indicators (continued)

Attractive workplace for all – Workforce indicators¹

Number of FTEs (payroll and temporary)	Total ASML			Asia			EMEA			US		
	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023
Payroll employees (in FTE)	28,747	34,719	38,656	7,404	8,840	9,083	15,444	18,660	21,512	5,899	7,219	8,061
Female (in %)	18	19	20	17	18	18	18	20	21	17	19	19
Male (in %)	82	81	80	83	82	82	82	80	79	83	81	81
Unknown (in %)	n/a	—	—	n/a	—	—	n/a	—	—	n/a	—	—
Temporary employees (in FTE)	2,095	2,924	2,091	26	31	28	1,786	2,607	1,901	283	286	162
Female (in %)	18	19	20	19	23	14	20	20	22	8	2	2
Male (in %)	82	73	73	81	71	86	80	80	78	92	18	8
Unknown (in %)	n/a	8	7	n/a	6	—	n/a	—	—	n/a	80	90
Total	30,842	37,643	40,747	7,430	8,871	9,111	17,230	21,267	23,413	6,182	7,505	8,223
Total number of FTEs (by age group)												
<30	6,344	8,837	8,669	2,191	2,736	2,367	3,041	4,449	4,531	1,112	1,652	1,771
30-50	19,058	22,736	25,488	4,933	5,778	6,316	11,007	13,170	14,801	3,118	3,788	4,371
>50	5,158	5,792	6,430	305	355	425	3,182	3,647	4,074	1,671	1,790	1,931
Unknown	282	278	160	1	2	3	—	1	7	281	275	150
Total	30,842	37,643	40,747	7,430	8,871	9,111	17,230	21,267	23,413	6,182	7,505	8,223
Total number of FTEs (payroll and temporary)												
Female (in %)	18	19	20	n/a	18	18	n/a	20	21	n/a	18	19
Male (in %)	82	80	80	n/a	82	82	n/a	80	79	n/a	79	79
Unknown (in %)	n/a	1	—	n/a	—	—	n/a	—	—	n/a	3	2

Non-financial indicators (continued)

Attractive workplace for all – Workforce indicators¹

Number of payroll FTEs (split into full-time and part-time)	Total ASML			Asia			EMEA			US		
	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023
Full-time payroll FTEs												
Female (in %)	16	18	19	17	18	18	15	17	18	17	19	19
Male (in %)	84	82	81	83	82	82	85	83	82	83	81	81
Unknown (in %)	n/a	—	—	n/a	—	—	n/a	—	—	n/a	—	—
Total	26,847	32,635	36,292	7,401	8,835	9,078	13,560	16,594	19,166	5,886	7,206	8,048
Number of payroll FTEs (split into full-time and part-time)												
Part-time payroll FTEs												
Female (in %)	37	38	39	—	28	12	37	38	39	27	30	28
Male (in %)	63	62	61	100	72	88	63	62	61	73	70	72
Unknown (in %)	n/a	—	—	n/a	—	—	n/a	—	—	n/a	—	—
Total	1,900	2,084	2,364	3	5	5	1,884	2,066	2,346	13	13	13

1. There are no non-guaranteed hour employees. FTEs are reported at the end of the reporting period and excludes Berliner Glas (ASML Berlin GmbH).

Attractive workplace for all – Workforce indicators

Number of new hires payroll employees (in FTE)	Total ASML			Asia			EMEA			US		
	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023
Number of new hires	4,373	7,130	4,129	1,848	2,057	648	1,737	3,306	2,556	788	1,767	925
New hires as a % of the total payroll employees	15	21	11	25	23	7	11	18	12	13	25	12
Gender												
Female	896	1,724	1,105	313	415	179	432	903	711	151	406	215
Male	3,477	5,400	3,023	1,535	1,641	469	1,305	2,402	1,844	637	1,357	710
Unknown	n/a	6	1	n/a	1	—	n/a	1	1	n/a	4	—
Total	4,373	7,130	4,129	1,848	2,057	648	1,737	3,306	2,556	788	1,767	925
Age group												
<30	2,392	3,581	1,684	1,213	1,321	308	783	1,457	995	396	803	381
30-50	1,789	3,241	2,185	627	730	333	848	1,708	1,395	314	803	457
>50	190	308	260	6	6	7	106	141	166	78	161	87
Unknown	2	—	—	2	—	—	—	—	—	—	—	—
Total	4,373	7,130	4,129	1,848	2,057	648	1,737	3,306	2,556	788	1,767	925

Non-financial indicators (continued)

Attractive workplace for all – Workforce indicators

Employee attrition (in FTE)	Total ASML			Asia			EMEA			US		
	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023
Number of involuntary employee attrition ¹	199	226	352	41	34	59	101	119	202	57	73	91
Number of voluntary employee attrition	1,234	1,678	981	421	530	249	341	503	429	472	645	303
Total	1,433	1,904	1,333	462	564	308	442	622	631	529	718	394
Gender												
Female	258	372	320	78	107	87	89	129	159	91	136	74
Male	1,175	1,532	1,013	384	457	221	353	493	472	438	582	320
Unknown	n/a	—	—	n/a	—	—	n/a	—	—	n/a	—	—
Total	1,433	1,904	1,333	462	564	308	442	622	631	529	718	394
Age group												
<30	337	516	343	143	220	98	69	121	141	125	175	104
30-50	806	1,063	718	292	326	193	257	383	353	257	354	172
>50	290	325	272	27	18	17	116	118	137	147	189	118
Total	1,433	1,904	1,333	462	564	308	442	622	631	529	718	394

1. The number of payroll employees (in FTE) that involuntarily left ASML during the reporting period. Involuntary employee attrition cases are immigration, failure to return from leave, reduction in force, dismissal and deceased.

Attractive workplace for all – Workforce indicators

Description	2021	2022	2023	Comments
Workers who are not employees (in FTE) ¹	n/a	1,682	1,591	

1. Included in this category are consultants that are hired to perform a specific time-bound assignment based on a specific area of expertise needed, students who follow a work/learning program within ASML and students doing an internship at ASML. FTEs are reported at the end of the reporting period.

Attractive workplace for all – Employee engagement

Engagement score we@ASML by gender	2021	2022	2023	Comments
Female	78.0%	77.3%	79.5%	This figure excludes Berliner Glas (ASML Berlin GmbH)
Male	78.0%	78.1%	80.7%	This figure excludes Berliner Glas (ASML Berlin GmbH)
Benchmark	76.0%	74.0%	75.2%	

Non-financial indicators (continued)

Attractive workplace for all – Employee engagement

Description	2021	2022	2023	Comments
Employee attrition (in %)	5.4	6.0	3.6	
Open positions filled by internal candidates (in %)	29	27	29	

Attractive workplace for all – Employee engagement

Description	2021	2022	2023	Comments
Total training expenses (in € millions)	27	47	64	Out-of-pocket expenses for technical and non-product-related classroom trainings as recorded in MyLearning (learning management system).
Average spend on training and development per FTE (€)	1,020	1,491	1,724	
Total number of training hours per FTE				Includes technical and non-product-related training hours (including nomination courses).
Female	25	41	53	
Male	30	52	62	
Unknown	n/a	304	455	
Weighted average	29	50	60	
Number of technical training hours per technical FTE				The number of technical training hours per FTE is calculated as the total technical training hours divided by the total payroll FTEs working in technical departments within Operations and R&D. In 2023, a new categorization took place based on the academy structure, causing a shift between technical training hours and non-product-related training hours.
Female	22	41	34	
Male	29	50	44	
Unknown	n/a	347	343	
Weighted average	28	49	43	
Number of non-product-related training hours per FTE				Excluding nomination courses (leadership development programs). In 2023, a new categorization took place based on the academy structure, causing a shift between technical training hours and non-product-related training hours.
Female	8	11	25	
Male	5	8	20	
Unknown	n/a	27	198	
Weighted average	5	8	21	
Nomination courses: Leadership development programs				
Number of training hours	6,264	47,454	143,960	In 2023, we saw an increase in the number of types of leadership development training.
Number of employees attending (unique)	48	322	2,517	

Non-financial indicators (continued)

Attractive workplace for all – Diversity and inclusion

Description	Gender			Total	Gender ratio			Age group				Comments
	Female	Male	Unknown		Female	Male	Unknown	<30	30-50	>50	Unknown	
Male/female in managerial positions and on Supervisory Board (in headcount)¹												
Supervisory Board	4	5	—	9	44%	56%	—%	—	—	9	—	9
Board of Management	—	6	—	6	—%	100%	—%	—	1	5	—	6
Senior management	96	712	—	808	12%	88%	—%	—	332	476	—	808
Middle management	607	3,318	—	3,925	15%	85%	—%	3	2,328	1,594	—	3,925
Junior management	387	1,785	—	2,172	18%	82%	—%	71	1,770	331	—	2,172
Other	6,781	25,489	3	32,273	21%	79%	—%	8,024	20,344	3,905	—	32,273
Total	7,875	31,315	3	39,193	20%	80%	—%	8,098	24,775	6,320	—	39,193

Description	Gender			Total	Gender ratio		
	Female	Male	Unknown		Female	Male	Unknown
Male/female split by sector (in FTE)							
Customer support	1,434	8,304	8	9,746	15%	85%	—%
Manufacturing and supply chain management	1,602	7,140	58	8,800	18%	81%	1%
Research and development	2,544	12,682	74	15,300	17%	83%	—%
General and administrative	1,686	2,332	9	4,027	42%	58%	—%
Sales and mature product services	166	675	—	841	20%	80%	—%
Strategic supply management	640	1,390	3	2,033	31%	68%	—%
Total	8,072	32,523	152	40,747	20%	80%	—%

1. Temporary employees are not included in the headcount numbers.

Non-financial indicators (continued)

Attractive workplace for all – Diversity and inclusion

Description	2021	2022	2023	Comments
Number of nationalities working for ASML				
Asia	33	40	40	
EMEA	108	124	126	
US	90	101	103	
Worldwide total	122	143	144	
Foreign nationals working for ASML (in %)				Foreign nationals working for ASML (in %) is the percentage of payroll and temporary employees with a nationality other than the country in which the employee is working.
Asia	5	5	4	
EMEA	33	38	39	
US	28	25	29	
Worldwide total	26	28	29	

Attractive workplace for all – Labor relations

Description	2021	2022	2023	Comments
Percentage of employees covered by collective bargaining agreements	52%	53%	60%	Korea was added to the collective bargaining agreements in 2023, resulting in an increase in the %.

Non-financial indicators (continued)

Attractive workplace for all – Fair remuneration²

Description	2021	2022	2023	Comments
Ratio of base salary of women to men total¹				
Senior management	99%	100%	100%	
Middle management	99%	99%	98%	
Non-management	98%	98%	97%	
Ratio of base salary of women to men Asia¹				
Senior management	n/a	102%	95%	
Middle management	n/a	98%	96%	
Non-management	n/a	95%	95%	
Ratio of base salary of women to men EMEA¹				
Senior management	n/a	99%	100%	
Middle management	n/a	98%	98%	
Non-management	n/a	98%	98%	
Ratio of base salary of women to men US¹				
Senior management	n/a	100%	102%	
Middle management	n/a	100%	98%	
Non-management	n/a	100%	99%	
Ratio of total cash of women to men total¹				
Senior management	99%	102%	100%	
Middle management	99%	98%	98%	
Non-management	98%	97%	98%	
Ratio of total cash of women to men Asia¹				
Senior management	n/a	110%	100%	
Middle management	n/a	92%	98%	
Non-management	n/a	96%	97%	
Ratio of total cash of women to men EMEA¹				
Senior management	n/a	101%	100%	
Middle management	n/a	98%	98%	
Non-management	n/a	98%	98%	

Non-financial indicators (continued)

Attractive workplace for all – Fair remuneration²

Description	2021	2022	2023	Comments
Ratio of total cash of women to men US¹				
Senior management	n/a	96%	100%	
Middle management	n/a	100%	98%	
Non-management	n/a	100%	99%	
Internal pay ratio (CEO versus employee remuneration)³	40	34	43	For more information, see Remuneration Report.

1. The base salary and total cash used for the calculation in the reporting year consists of the actual base salaries and total cash paid in the previous reporting year. Total cash is base salary plus short-term incentive.

2. From 2022, we disclose the fair remuneration per employee group split by region.

3. The calculation approach of the internal pay ratio is disclosed in the section Relationship between CEO and average remuneration (pay ratio). In the calculation, we have taken into account the payroll employees only, since this ensures consistency with the figures disclosed in the Consolidated Financial Statements. The ratio would be lower if we were to incorporate the temporary employees, as they earn on average a higher remuneration.

Attractive workplace for all – Benefits which are standard for full-time and part-time employees of the organization but are not provided to temporary employees¹

Type of employee benefit	Type of employee		
	Full-time employees	Part-time employees	Temporary employees ²
i. Life insurance ³	yes	yes	no
ii. Healthcare ³	yes	yes	no
iii. Disability and invalidity coverage ³	yes	yes	no
iv. Parental leave ³	yes	yes	no
v. Retirement provision	yes	yes	no
vi. Stock ownership	yes	yes	no

1. This table includes the significant locations of operations: Taiwan, Netherlands, China, South Korea and the US. There are no part-time employees in Taiwan.

2. Generally temporary employees are not entitled to the same benefits as full-time and part-time employees because their benefits are covered by the benefit plans of their formal employer.

3. In the US, part-time employees are not entitled to life insurance, healthcare, disability and invalidity coverage, or parental leave benefits.

Non-financial indicators (continued)

Attractive workplace for all – Employee health and safety

Description	2021	2022	2023	Comments
ASML recordable incident rate ¹	0.17	0.18	0.21	Includes illness and injuries.
Number of recordable incidents (employees)	48	63	83	
Number of recordable incidents (contractors)	n/a	9	6	
Number of fatalities	—	—	—	This relates to both employees and workers who are not employees.
Employees with work-related injuries split by:				
Rate of fatalities	n/a	—	—	
Number of recordable injuries	n/a	48	70	
Rate of recordable injuries	n/a	0.14	0.18	
Number of high-consequence injuries	n/a	2	4	
Rate of high-consequence injuries	n/a	0.006	0.010	
Main types of work-related injuries by employees (split by hazard group)				
Electrical	n/a	1	3	
Ergonomics	n/a	17	25	
Facilities	n/a	88	107	
Hazardous gases	n/a	—	11	
Hazardous substances & materials	n/a	9	21	
Hoisting & lifting	n/a	10	10	
Mechanical	n/a	147	189	
Pressure systems	n/a	1	3	
Radiation	n/a	—	2	
Thermal	n/a	2	10	
Travel	n/a	10	15	
Working at height	n/a	n/a	1	
# hours worked	n/a	68,746,820	79,658,141	
Workers who are not employees with work-related injuries split by:				
Number of recordable injuries	n/a	8	6	

Non-financial indicators (continued)

Attractive workplace for all – Employee health and safety

Description	2021	2022	2023	Comments
Number of high-consequence injuries	n/a	—	—	
Main types of work-related injuries by workers who are not employees (split by hazard group)				
Electrical	n/a	1	1	
Ergonomics	n/a	3	1	
Facilities	n/a	18	19	
Hazardous gases	n/a	—	2	
Hazardous substances & materials	n/a	1	4	
Hoisting & lifting	n/a	5	1	
Mechanical	n/a	29	41	
Pressure systems	n/a	2	—	
Thermal	n/a	—	3	
Travel	n/a	1	2	
Working at height	n/a	n/a	1	
Employees with work-related ill health split by:				
Number of fatalities	n/a	—	—	
Number of recordable ill-health	n/a	15	13	
Main types of work-related ill health by employees (split by hazard group)				
Electrical	n/a	—	—	
Ergonomics	n/a	22	33	
Facilities	n/a	4	6	
Hazardous substances & materials	n/a	4	—	
Hoisting & lifting	n/a	2	—	
Mechanical	n/a	1	—	
Pressure systems	n/a	1	—	
Radiation	n/a	—	1	
Workers who are not employees with work-related ill health split by:				
Number of fatalities	n/a	—	—	
Number of recordable ill-health	n/a	1	—	

Non-financial indicators (continued)

Attractive workplace for all – Employee health and safety

Description	2021	2022	2023	Comments
Main types of work-related ill health by workers who are not employees (split by hazard group)				
Ergonomics	n/a	2	3	
Facilities	n/a	—	1	
Hazardous gases	n/a	1	—	
Hoisting & lifting	n/a	—	1	
Mechanical	n/a	1	—	
Travel	n/a	—	1	
Working at height	n/a	n/a	1	

1. The 2021 recordable incident rates include recordable incidents related to workers who are not employees. From 2022, and in line with the GRI 403 standard, we separate incidents related to employees and workers who are not employees, so the 2022 and 2023 recordable incident rate only includes recordable incidents related to employees.

Non-financial indicators (continued)

Responsible supply chain

Description	2021	2022	2023	Comments
Suppliers assessed on sustainability (in #), split by:				
Audits	—	2	16	In 2021, the audits were put on hold due to the COVID-19 restrictions. Since October 2023, sustainability has become a full mature section in the supplier audits.
RBA self-assessment questionnaire (SAQ)	56	59	128	
Total number of suppliers	4,657	4,984	5,126	
Number of suppliers per region				
Asia	1,319	1,348	1,375	
EMEA (excl. Netherlands)	702	745	758	
Netherlands	1,459	1,584	1,638	
North America	1,177	1,307	1,355	
Total	4,657	4,984	5,126	
Number of suppliers, split by:				
Product-related	772	789	813	
Non-product-related	3,885	4,195	4,313	
Total	4,657	4,984	5,126	The majority are Tier 1 suppliers.
Number of suppliers, split by:				
Critical	229	245	278	Critical suppliers are Tier 1 suppliers of strategic importance.
Non-critical	4,428	4,739	4,848	
Total	4,657	4,984	5,126	
Number of critical suppliers, split by:				
Product-related	197	216	249	
Non-product-related	32	29	29	
Total	229	245	278	
Number of suppliers in scope for risk management	243	264	278	This includes 26 critical Tier 2 suppliers.
Total sourcing spend (in million EUR)	9,045	12,402	15,461	
Sourcing spend per supplier group (in %)				
Product-related	70%	69%	69%	
Non-product-related	30%	31%	31%	

Non-financial indicators (continued)

Responsible supply chain

Description	2021	2022	2023	Comments
Proportion of spending on local suppliers (in %)				We define 'local' as the country in which a significant location of operation is located. The significant locations of operations are the main manufacturing sites of ASML, which are located in Veldhoven, the Netherlands; Linkou, Taiwan; San Diego and Wilton, both in the US. The manufacturing location in Tainan is immaterial for this indicator.
Veldhoven	45%	45%	47%	A relatively large amount of the total supplier spend for Veldhoven relates to Carl Zeiss (non-local).
Linkou	50%	53%	64%	
San Diego	92%	92%	94%	
Wilton	64%	71%	70%	

ESG integrated governance – Business ethics

Description	2021	2022	2023	Comments
Total number of Speak Up messages, split by:	396	414	631	
Anti-bribery & Anti-corruption Speak Up messages	37	31	121	One of the Speak Up messages indicated led to an indication of violation of anti-corruption laws. The matter was reviewed and appropriate actions taken.
Human rights Speak Up messages	187	165	244	The 244 reports include all the following topics: (i) discrimination (ii) harassment (iii) diversity (iv) freedom of association (v) privacy (vi) work life balance (vii) forced and bonded labor (viii) health and safety (ix) other human rights.
- of which discrimination and harassment	n/a	106	117	This covers different categories, including religious discrimination, age, gender, pregnancy and sexual orientation.

ESG integrated governance – Product safety

Description	2021	2022	2023	Comments
Number of (significant) fines for non-compliance with product design related laws and regulations	—	—	—	
Monetary value of significant fines for non-compliance with product design related laws and regulations	—	—	—	

Other appendices

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Appendix - Principal accountant fees and services

KPMG has served as our independent registered public accounting firm for the years ended December 31, 2023 and 2022. The following table sets out the aggregate fees for professional audit services and other services rendered by KPMG and their member firms and affiliates in 2023 and 2022:

Year ended December 31	2022			2023		
	KPMG Accountants NV	KPMG Network	Total	KPMG Accountants NV	KPMG Network	Total
(€, in thousands)						
Audit fees	3,203	1,064	4,267	3,509	1,152	4,661
Audit-related fees	150	—	150	196	—	196
Tax fees	—	—	—	—	—	—
All other fees	47	9	56	28	11	39
Principal accountant fees	3,400	1,073	4,473	3,733	1,163	4,896

Audit fees and audit-related fees

Our independent registered public accounting firm is KPMG Accountants NV (KPMG), Amstelveen, The Netherlands, Auditor Firm ID: 1012. Audit fees relate to the audit of the Financial Statements as set out in this Annual Report, certain quarterly procedures, services related to offering memoranda, as well as our statutory and regulatory filings of our subsidiaries. These fees relate to the audit of the respective Financial Statements, regardless of whether the work was performed during the financial year. Other audit-related fees are related to assurance services on non-financial information.

All other fees relate to certain agreed-upon procedures that are requested by the Supervisory Board or external parties.

All audit fees, audit-related fees and permitted services that the independent auditor provides are subject to pre-approval by the Audit Committee. The Audit Committee pre-approved all audit and non-audit services and 100% of the external audit plan and audit fees for the years 2023 and 2022.

The Audit Committee monitors compliance with the Dutch, EU regulation and SEC rules on non-audit services provided by an independent registered public accounting firm, which outlines strict separation of audit and advisory services for Dutch public interest entities.

Appendix - Property, plant and equipment

We lease a number of our facilities under operating leases. We also own a number of buildings, mainly consisting of production facilities in Veldhoven, the Netherlands, in Wilton, Connecticut, and San Diego, California, both in the US, in Linkou and Tainan, both in Taiwan and in Pyeongtaek, South Korea. The book value of land and buildings owned amounts to €3,080.3 million as of December 31, 2023, compared with €2,223.4 million as of December 31, 2022. See Consolidated Financial Statements - Notes to the Consolidated Financial Statements - Note 13 Property, plant and equipment, net.

Our capital expenditures (purchases of property, plant and equipment, see the Consolidated Statements of Cash Flows as recorded in the Consolidated Financial Statements) for 2023, 2022 and 2021, amounted to €2,155.6 million, €1,281.8 million and €900.7 million, respectively. Capital expenditures in 2023 increased compared to 2022 and relates to the expansion and upgrades of facilities, prototypes, evaluation and training systems.

We expect that our capital expenditures (purchases of property, plant and equipment) in 2024, will be approximately €2.1 billion. These expenditures are expected to mainly consist of further expansion and upgrades of facilities. We expect to finance these capital expenditures through cash generated by operations and existing cash and cash equivalents.

Facilities in EMEA

Our headquarters, mainly manufacturing and R&D facilities are located in Veldhoven, the Netherlands. This state-of-the-art campus includes 204 thousand square meters of office space, 59 thousand square meters of clean room used for manufacturing and R&D activities, 12 thousand square meters of labs, and 63 thousand square meters of warehouse/storage space. Our main facilities in Veldhoven (and other buildings in the greater Eindhoven area) in the Netherlands are partly owned and partly leased office and industrial buildings. From 2021, we have added a manufacturing site in Berlin to our portfolio. Our Berlin campus consists of 10 buildings and are mainly owned properties with a total floor area of 53 thousand square meters. We also lease several sales and service/field offices across Europe consisting of 4 thousand square meters.

Facilities in the US

Our US head office is located in a 3 thousand square meters office building in Chandler, Arizona. We maintain R&D and manufacturing operations in a 57 thousand square meters campus which consists of 5 buildings in Wilton, Connecticut. In December 2022, we acquired an additional building of 31 thousand square meters to be utilized as office and lab space in Wilton. Our campus in San Jose, California consists of 2 buildings totaling 18 thousand square meters mainly for office and R&D activities. Furthermore, our campus in San Diego, California comprises 45 thousand square meters for office, R&D, manufacturing and warehouse purposes. We also lease several sales and service/field offices across the US consisting of 19 thousand square meters.

Facilities in Asia

Our key locations in Asia are Taiwan, South Korea, and China, where we have local service, sales, training centers, and manufacturing activities. Our facility in Linkou, Taiwan is comprised of a manufacturing area that is approximately 3 thousand square meters and office space that is approximately 6 thousand square meters. Our facility in Tainan, Taiwan consists of 20 thousand square meters utilized for manufacturing and office space. Our campus in Hwasung, South Korea is comprised of 11 thousand square meters spread over 6 buildings for mainly office use and a small portion of clean room and lab space. Our Cymer facility in Pyeongtaek, South Korea is a manufacturing site mainly used for refurbishment activities of light sources. In Beijing, China, we have an HMI facility and a local repair center with a combined floor area of 4 thousand square meters for manufacturing and office space. We also lease several sales and service/field offices across Taiwan, South Korea, China, Japan, Singapore, and Malaysia consisting of 49 thousand square meters.

Appendix - Dutch and US taxation

The statements below represent a summary of current Dutch tax laws, regulations and judicial interpretations thereof. The description is limited to the material tax implications for a holder of ordinary shares who is not, and/or is not deemed to be, a resident of the Netherlands for Dutch tax purposes ('Non-Resident Holder'). This summary does not address special rules that may apply to special classes of holders of ordinary shares and should not be read as extending by implication to matters not specifically referred to herein. Moreover, this summary does not discuss the Dutch tax treatment of individual Non-Resident Holders who receive income or derive capital gains from the ordinary shares and the income received or capital gains derived are attributable to the past, present or future employment activities of such holder. As to individual tax consequences, each investor in our ordinary shares should consult his or her tax counsel.

General

The acquisition of ordinary shares by a non-resident of the Netherlands should in itself not be treated as a taxable event for Dutch tax purposes. The material tax consequences in connection with owning and disposing of our ordinary shares are discussed below.

Substantial interest

A person that, (inter alia) directly or indirectly, and either independently or jointly with his or her partner (as defined in the Dutch Personal Income Tax Act 2001), owns 5.0% or more of our subscribed share capital, owns profit participating rights that correspond to at least 5.0% of the annual profits of a Dutch company or to at least 5.0% of the liquidation proceeds of such company or holds options to purchase 5.0% or more of our subscribed share capital, is deemed to have a substantial interest in our shares, or our options, as applicable. In addition, a shareholder has a substantial shareholding if he or she directly or indirectly owns at least 5% of the voting rights in the General Meeting of shareholders. Specific rules apply in case certain family members of the Non-Resident Holder hold a substantial interest. A deemed substantial interest also exists if (part of) a substantial interest has been disposed of, or is deemed to be disposed of, in a transaction where no taxable gain has been recognized. Specific attribution rules exist in determining the presence of a substantial interest.

Please note, substantial shareholders who emigrate, and non-residents who inherit a substantial shareholding are provisionally subject to an exit tax on capital gains on a deemed alienation of the shareholding. The exit tax is imposed on the difference between the fair market value at the time of emigration and the acquisition price of the substantial shareholding. The tax is levied by imposing a preservative tax assessment. If certain conditions are met, interest-free deferral of the payment of the taxable amount applies. No immediate tax has to be paid, but the tax will be due on the moment of the actual disposal of the shares at any point following the emigration.

Income tax consequences for individual non-resident holders on owning and disposing of the ordinary shares

Capital gains on shares are only taxable in the Netherlands if the shareholding constitutes a substantial shareholding. An individual who is a Non-Resident Holder will therefore not be subject to Dutch income tax on received income in respect of our ordinary shares or capital gains derived from the sale, exchange or other disposition of our ordinary shares, provided that such holder:

- Does not hold and has not held a (deemed) substantial interest in our share capital or, in the event the Non-Resident Holder holds or has held a (deemed) substantial interest in our share capital, such interest is, or was, a business asset in the hands of the holder;
- Does not carry on and has not carried on a business in the Netherlands through a (deemed) permanent establishment or a permanent representative to which the ordinary shares are attributable;
- Does not share and has not shared directly (through the beneficial ownership of ordinary shares or similar securities) in the profits of an enterprise managed and controlled in the Netherlands which (is deemed to) own(s), or (is deemed to have) has owned, our ordinary shares; and
- Does not carry out and has not carried out any activities which generate taxable profit in the Netherlands or taxable income in the Netherlands to which the holding of our ordinary shares was connected.

Corporate income tax consequences for corporate non-resident holders

Income derived from ordinary shares or capital gains derived from the sale, exchange or disposition of ordinary shares by a corporate Non-Resident Holder is taxable if:

- The holder carries on a business in the Netherlands through a permanent establishment or a permanent representative in the Netherlands (Dutch enterprise) and the ordinary shares are attributable to this permanent establishment or permanent representative, unless the participation exemption (discussed below) applies; or
- The holder has a substantial interest in our share capital, which is held with the primary aim or one of the primary aims to avoid the levy of income tax at the level of another person and which is not put into place with valid commercial reasons that reflect economic reality; or
- The holder is a resident of Aruba, Curacao or Saint Martin with a permanent establishment or permanent representative in Bonaire, Eustatius or Saba to which our ordinary shares are attributable and certain conditions are met; or
- Certain assets of the holder are deemed to be treated as a Dutch enterprise under Dutch tax law and the ordinary shares are attributable to this Dutch enterprise.

To qualify for the Dutch participation exemption, the holder must generally hold at least 5.0% of our nominal paid-in capital and meet certain other requirements.

Appendix - Dutch and US taxation (continued)

Dividend withholding tax

In general, a dividend distributed by us in respect of our ordinary shares will be subject to a withholding tax imposed by the Netherlands at the statutory rate of 15.0%.

Dividends include:

- Dividends in cash and in kind;
- Deemed and constructive dividends;
- Consideration for the repurchase or redemption of ordinary shares (including a purchase by a direct or indirect ASML subsidiary) in excess of qualifying average paid-in capital unless such repurchase is made for temporary investment purposes or is exempt by law;
- Stock dividends up to their nominal value (unless distributed out of qualifying paid-in capital);
- Any (partial) repayment of paid-in capital not qualifying as capital for Dutch dividend withholding tax purposes; and
- Liquidation proceeds in excess of qualifying average paid-in capital for Dutch dividend withholding tax purposes.

Under certain circumstances, a reduction of Dutch dividend withholding tax can be obtained:

- In case the shareholder is considered a tax resident in the Netherlands, an exemption at source is available if (i) the participation exemption applies (or participation settlement is applicable) or (ii) the distributing entity and recipient are included in a Dutch fiscal unity for CIT purposes, both under the condition that the ordinary shares are attributable to a business carried out in the Netherlands and the shareholder is considered the beneficial owner of the distributed dividend;
- An exemption at source is available for dividend distributions to certain qualifying EU/EEA tax resident corporate holders, that own an interest that would qualify for the Dutch participation exemption (i.e. interest of > 5%), unless such holder holds our ordinary shares with the primary aim or one of the primary aims to avoid the levy of Dutch dividend withholding tax at the level of another person and our ordinary shares are not held for valid commercial reasons that reflect economic reality. This is under the condition that the shareholder is considered the beneficial owner of the distributed dividend;
- An exemption at source is available for dividend distributions to certain qualifying corporate holders that are tax resident in a non-EU/EEA jurisdiction with which the Netherlands has concluded a tax treaty that includes a qualifying dividend article and that own an interest that would qualify for the Dutch participation exemption (i.e. interest of >5%), unless such holder holds our ordinary shares with the primary aim or one of the primary aims to avoid the levy of Dutch dividend withholding tax at the level of another person and our ordinary shares are not held for valid commercial reasons that reflect economic reality; This under the condition that the shareholder is considered the beneficial owner of the distributed dividend.
- Certain tax exempt organizations (e.g. pension funds and excluding collective investment vehicles) resident in EU/EEA member states or in qualifying non-EU/EEA states may be eligible for a refund of Dutch dividend withholding tax upon their request. Based on domestic law not yet entered into force, in those circumstances, an exemption at source may also become available upon request; and

- Upon request and under certain conditions, certain qualifying Non-Resident Individual and Corporate Holders of ordinary shares resident in EU/EEA member states or in a qualifying non-EU/EEA state may be eligible for a refund of Dutch dividend withholding tax insofar the withholding tax levied is higher than the personal and CIT which would have been due if they were resident of the Netherlands.

If the Dutch dividend withholding tax exemption is not applicable, a Non-Resident Holder of ordinary shares can still be eligible for a partial or complete exemption or refund of all or a portion of the above withholding tax under a tax treaty that is in effect between the Netherlands and the Non-Resident Holder's country of residence. The Netherlands has concluded such treaties with the US, Canada, Switzerland, Japan, most EU member states, as well as many other countries.

In case an anti-abuse rule (amongst which a limitation of benefits rule) is included in the relevant tax treaty or opted in by both the Netherlands and the Non-Resident Holder's country of residence via the OECD Multilateral instrument, benefits under a tax treaty will only be granted if it can be demonstrated that the Non-Resident Holder complies with the anti-abuse rule requirements. In general, the decisive criterion is the principle purpose test (although the anti-abuse rule could vary per tax treaty), based on which it should be determined whether obtaining a treaty benefit is not one of the principal purposes of the arrangement or transaction.

Under the treaty between the US and the Netherlands for the Avoidance of Double Taxation and the Prevention of Fiscal Evasion with Respect to Taxes on Income (the 'US Tax Treaty'), dividends paid by us to a Non-Resident Holder that is a resident of the US as defined in the US Tax Treaty (other than an exempt organization or exempt pension trust, as discussed below) are generally liable to 15.0% Dutch withholding tax or, in the case of certain US corporate shareholders owning directly at least 10.0% of our voting power, a reduction to 5.0% Dutch withholding tax, provided that the Holder is the beneficial owner of the dividends received and does not have an enterprise or an interest in an enterprise that is, in whole or in part, carried on through a permanent establishment or permanent representative in the Netherlands to which the dividends are attributable. The US Tax Treaty also provides for a dividend withholding tax exemption on dividends, but only for a shareholder owning directly at least 80.0% of our voting power and meeting all other requirements. The US Tax Treaty provides for a complete exemption from tax on dividends received by exempt pension trusts and exempt organizations, as defined therein. Except in the case of exempt organizations, the reduced dividend withholding tax rate (or exemption from withholding) can be applied at the source upon payment of the dividends, provided that the proper forms have been filed in advance of the payment. Exempt organizations, in principle, remain subject to the statutory withholding rate of 15.0% and are required to file for a refund of such withholding, however such organizations may become eligible for the exemption at source when the domestic law as described above has entered into force. Please note, in case an anti-abuse rule is included in a tax treaty (e.g. principle purpose test), benefits under a tax treaty will only be granted if obtaining a treaty benefit is not one of the principal purposes of the arrangement or transaction.

Appendix - Dutch and US taxation (continued)

A Non-Resident Holder may not claim the benefits of the US Tax Treaty unless (i) he/she is a resident of the US as defined therein, or (ii) he/she is deemed to be a resident on the basis of the provisions of article 24(4) of the US Tax Treaty, and (iii) his or her entitlement to those benefits is not limited by the provisions of article 26 (limitation on benefits) of the US Tax Treaty.

Dividend stripping rules

Under Dutch tax legislation regarding anti-dividend stripping, no exemption from, or refund of, Dutch dividend withholding tax is granted if the recipient of dividends paid by us is not considered the beneficial owner of such dividends.

Gift or inheritance taxes

Dutch gift or inheritance taxes will not be levied on the transfer of ordinary shares by way of gift or upon the death of a Non-Resident Individual, unless the transfer is construed as an inheritance or as a gift made by or on behalf of a person, who at the time of the gift or death, is deemed to be resident of the Netherlands.

Gift tax and inheritance tax are levied on the beneficiary. For purposes of Dutch gift and inheritance tax, an individual of Dutch nationality is deemed to be a resident of the Netherlands if he/she has been a resident thereof at any time during the 10 years preceding the time of the gift or death. For purposes of Dutch gift tax, a person not possessing Dutch nationality is deemed to be a resident of the Netherlands if he/she has resided therein at any time in the 12 months preceding the gift.

Value added tax

No Dutch VAT is imposed on dividends in respect of our ordinary shares or on the transfer of our shares.

Residence

A Non-Resident Holder will not become resident, or be deemed to be resident, in the Netherlands solely as a result of holding our ordinary shares or of the execution, performance, delivery and/or enforcement of rights in respect of our ordinary shares.

A Non-Resident Holder could qualify as a foreign taxpayer for Dutch CIT purposes in relation to dividend income and capital gains realized from holding our ordinary shares if the following conditions are cumulatively met:

- The Non-Resident Holder owns an interest that qualifies as a substantial interest (i.e. at least 5%);
- The Non-Resident Holder is used with the primary intention (or one of the primary intentions) of evading Dutch personal income tax at the level of its (ultimate) shareholders (abusive case); and
- The structure is considered artificial i.e. not based on sound business reasons that reflect the economic reality.

Non-resident corporate shareholders/members subject to the non-resident taxation will be subject to Dutch CIT at the statutory CIT rate of 25.8% on dividend income and (deemed) capital gains.

US taxation

The following is a discussion of the material US federal income tax consequences relating to the acquisition, ownership and disposition of ordinary shares by a United States Holder (as defined below) acting in the capacity of a beneficial owner who is not a tax resident of the Netherlands. This discussion deals only with ordinary shares held as capital assets and does not deal with the tax consequences applicable to all categories of investors, some of which (such as tax-exempt entities, financial institutions, regulated investment companies, dealers in securities/traders in securities that elect a mark-to-market method of accounting for securities holdings, insurance companies, investors owning directly, indirectly or constructively 10.0% or more of our outstanding voting shares, investors who hold ordinary shares as part of hedging or conversion transactions and investors whose functional currency is not the US dollar) may be subject to special rules. In addition, the discussion does not address any alternative minimum tax or any state, local, Foreign Investment in Real Property Tax Act-related US federal income tax consequences, or non-US tax consequences.

This discussion is based on the US-Netherlands Income tax treaty, the Internal Revenue Code of 1986, as amended to the date hereof, final, temporary and proposed Treasury Department regulations promulgated, and administrative and judicial interpretations thereof, changes to any of which subsequent to the date hereof, possibly with retroactive effect, may affect the tax consequences described herein. In addition, there can be no assurance that the IRS will not challenge one or more of the tax consequences described herein, and we have not obtained, nor do we intend to obtain, a ruling from the IRS or an opinion of counsel with respect to the US federal income tax consequences of acquiring or holding shares. Prospective purchasers of ordinary shares are advised to consult their tax advisers with respect to their particular circumstances and with respect to the effects of US federal, state, local or non-US tax laws to which they may be subject.

As used herein, the term 'United States Holder' means a beneficial owner of ordinary shares for US federal income tax purposes whose holding of such ordinary shares does not form part of the business property or assets of a permanent establishment or fixed base in the Netherlands, who is fully entitled to the benefits of the treaty in respect of such ordinary shares; and is:

- An individual citizen or tax resident of the US; or
- A corporation or other entity treated as a corporation for US federal income tax purposes created or organized in or under the laws of the US or of any political subdivision thereof; or
- An estate of which the income is subject to US federal income taxation regardless of its source; or
- A trust whose administration is subject to the primary supervision of a court within the US and which has one or more US persons who have the authority to control all of its substantial decisions.

Appendix - Dutch and US taxation (continued)

If an entity treated as a partnership for US federal income tax purposes owns ordinary shares, the US federal income tax treatment of a partner in such partnership will generally depend upon the status and tax residency of the partner and the activities of the partnership. A partnership that owns ordinary shares and the partners in such partnership should consult their tax advisers about the US federal income tax consequences of holding and disposing of the ordinary shares.

Passive Foreign Investment Company considerations

We believe we were not a passive foreign investment company for US federal income tax purposes in 2023 and that we will not be a passive foreign investment company in 2024. However, as passive foreign investment company status is a factual matter that must be determined annually at the close of each taxable year, there can be no certainty as to our actual passive foreign investment company status in any particular year until the close of the taxable year in question. We have not conducted a detailed study at this time to confirm our non-passive foreign investment company status. If we were treated as a passive foreign investment company in any year during which a United States Holder owned common shares, certain adverse tax consequences could apply. Investors should consult their tax advisers with respect to any passive foreign investment company considerations.

Taxation of dividends

United States Holders should generally include in gross income, as foreign-source dividend income the gross amount of any non-liquidating distribution (before reduction for Dutch withholding taxes) we make out of our current or accumulated earnings and profits (as determined for US federal income tax purposes) when the distribution is actually or constructively received by the United States Holder. Distributions will not be eligible for the dividends-received deduction generally allowed to US corporations in respect of dividends received from other US corporations. The amount of the dividend distribution included in income of a United States Holder should be the US dollar value of the foreign currency (e.g. euros) paid, determined by the spot rate of exchange on the date of the distribution, regardless of whether the payment is in fact converted into US dollars. Distributions in excess of current and accumulated earnings and profits, as determined for US federal income tax purposes, will be treated as a non-taxable return of capital to the extent of the United States Holder's US tax basis in the ordinary shares and thereafter as taxable capital gain. We presently do not maintain calculations of our earnings and profits under US federal income tax principles. If we do not report to a United States Holder the portion of a distribution that exceeds earnings and profits, the distribution will generally be taxable as a dividend even if that distribution would otherwise be treated as a non-taxable return of capital or as capital gain under the rules described above.

Subject to limitations provided in the US Internal Revenue Code, a United States Holder may generally deduct from its US federal taxable income, or credit against its US federal income tax liability, the amount of qualified Dutch withholding taxes. However, Dutch withholding tax may be credited only if the United States Holder does not claim a deduction for any Dutch or other non-US taxes paid or accrued in that year. In addition, Dutch dividend withholding taxes will likely not be creditable against the United States Holder's US tax liability to the extent we are not required to pay over the amount withheld to the Dutch Tax Administration. Currently, a Dutch corporation that receives dividends from qualifying non-Dutch subsidiaries may credit source country tax withheld from those dividends against Dutch withholding tax imposed on a dividend paid by a Dutch corporation, up to a maximum of 3.0% of the dividend paid by the Dutch corporation. The credit reduces the amount of dividend withholding that we are required to pay to the Dutch Tax Administration but does not reduce the amount of tax we are required to withhold from dividends.

For US foreign tax credit purposes, dividends paid by us generally will be treated as foreign-source income and as 'passive category income' (or in the case of certain holders, as 'general category income'). Gains or losses realized by a United States Holder on the sale or exchange of ordinary shares generally will be treated as US-source gain or loss. The rules governing the foreign tax credit are complex and we suggest that each United States Holder consult his or her own tax adviser to determine whether, and to what extent, a foreign tax credit will be available.

Dividends received by a United States Holder will generally be taxed at ordinary income tax rates. However, the Jobs and Growth Tax Relief Reconciliation Act of 2003, as amended by the Working Families Tax Relief Act of 2004, the American Jobs Creation Act of 2004, the American Taxpayer Relief Act of 2012, and most recently the 2017 tax reform act (Public Law No. 115-97) reduces to 20.0% the maximum tax rate for certain dividends received by individuals, so long as certain exclusions do not apply and the stock has been held for at least 60 days during the 121-day period beginning 60 days before the ex-dividend date. Dividends received from 'qualified foreign corporations' generally qualify for the reduced rate. A non-US corporation (other than a passive foreign investment company) generally will be considered to be a qualified foreign corporation if: (i) the shares of the non-US corporation are readily tradable on an established securities market in the US or (ii) the non-US corporation is eligible for the benefits of a comprehensive income tax treaty with the US that has been identified as a qualifying treaty and contains an exchange of information program. In addition, subject to income limitations, dividends received by US individuals and US residents, estates and trusts will be subject to a Net Investment Income Tax (NIIT) assessed at the rate of 3.8%. Individual United States Holders should consult their tax advisers regarding the impact of this provision on their particular situations.

Dividends paid by us generally will constitute 'portfolio income' for purposes of the limitations on the use of passive activity losses (and, therefore, generally may not be offset by passive activity losses) and as 'investment income' for purposes of the limitation on the deduction of investment interest expense.

Appendix - Dutch and US taxation (continued)

Taxation on sale or other disposition of ordinary shares

Upon a sale or other disposition of ordinary shares, a United States Holder will generally recognize capital gain or loss for US federal income tax purposes in an amount equal to the difference between the amount realized, if paid in US dollars, or the US dollar value of the amount realized (determined at the spot rate on the settlement date of the sale) if proceeds are paid in currency other than the US dollar, as the case may be, and the United States Holder's US tax basis (determined in US dollars) in such ordinary shares. Generally, the capital gain or loss will be long-term capital gain or loss if the holding period of the United States Holder in the ordinary shares exceeds one year at the time of the sale or other disposition. The deductibility of capital losses is subject to limitations for US federal income tax purposes. Gain or loss from the sale or other disposition of ordinary shares generally will be treated as US source income or loss for US foreign tax credit purposes. Generally, any gain or loss resulting from currency fluctuations during the period between the date of the sale of the ordinary shares and the date the sale proceeds are converted into US dollars will be treated as ordinary income or loss from sources within the US. Each United States Holder should consult his or her tax adviser with regard to the translation rules applicable when computing its adjusted US tax basis and the amount realized upon a sale or other disposition of its ordinary shares if purchased in, or sold or disposed of for, a currency other than the US dollar.

Information reporting and backup withholding

Information returns may be filed with the IRS in connection with payments on the ordinary shares or proceeds from a sale, redemption or other disposition of the ordinary shares. A 'backup withholding' tax may be applied to, and withheld from, these payments if the beneficial owner fails to provide a correct taxpayer identification number to the paying agent and to comply with certain certification procedures or otherwise establish an exemption from backup withholding. Any amounts withheld under the backup withholding rules might be refunded (or credited against the beneficial owner's US federal income tax liability, if any) depending on the facts and provided that the required information is furnished to the IRS.

The discussion set out above is included for general information only and may not be applicable depending upon a holder's particular situation. Holders should consult their tax advisers with respect to the tax consequences to them of the purchase, ownership and disposition of shares including the tax consequences under state, local and other tax laws and the possible effects of changes in US federal and other tax laws.

Appendix - Financing policy

Financing policy

We continue to hold on to our long-held prudent financing policy, which is based on three foundational elements:

- Liquidity: Maintain sufficient liquidity to ensure continued business growth and to provide buffer for cash flow volatility
- Capital structure: Maintain a capital structure that targets a solid investment-grade credit rating
- Cash return: Provide a sustainable dividend per share that will grow over time, paid quarterly, while returning excess cash to shareholders through share buybacks or capital repayment

Liquidity

Our principal sources of liquidity consist of cash and cash equivalents, short-term investments and available credit facilities. In addition, we may from time to time raise additional funding in debt and equity markets. We seek to ensure that our principal sources of liquidity will be sufficient to satisfy our liquidity requirements at all times.

Our liquidity needs are affected by many factors, some of which are based on the normal ongoing operations of the business, and others relate to uncertainties of the global economy and the semiconductor industry. Although our cash requirements fluctuate based on the timing and extent of these factors, we believe that cash generated from operations, together with our other sources of liquidity are sufficient to satisfy our requirements, including our expected capital expenditures, R&D expenses and debt servicing.

We invest our cash and cash equivalents and short-term investments in short-term deposits with financial institutions, governments and government-related bodies that have investment-grade credit ratings and in money market and other investment funds that invest in high-rated short- and medium-term debt securities. Our investments are mainly denominated in euros and to some extent in US dollars, Taiwanese dollars and Chinese yuan.

Year ended December 31 (€, in millions)	2022	2023
Deposits with financial institutions, governments and government-related bodies	2,548.1	1,348.7
Investments in money market funds	3,196.7	3,167.4
Bank accounts	1,523.5	2,488.6
Cash and cash equivalents	7,268.3	7,004.7
Deposits with financial institutions, governments and government-related bodies	107.7	5.4
Short-term investments	107.7	5.4

We maintain an available committed credit facility maturing in July 2026, with a group of banks, of €700.0 million, under which no amounts were outstanding at the end of 2023 and 2022. This facility has a maturity date of July 2026.

Capital structure

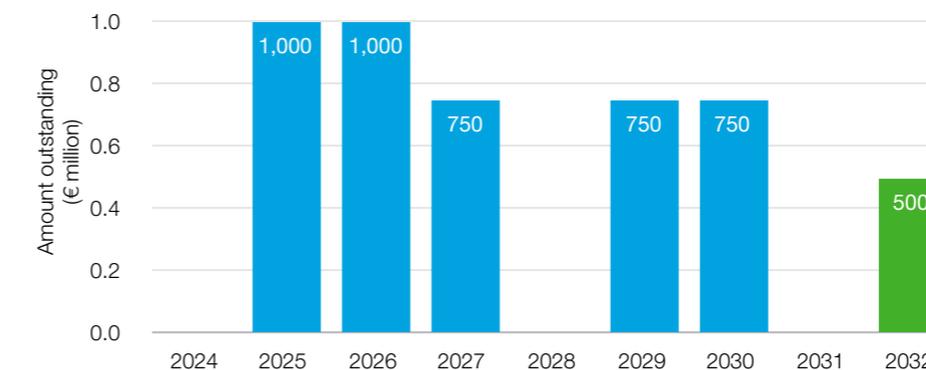
Our objectives when managing our capital structure are to safeguard our ability to satisfy our capital providers by maintaining a capital structure that ensures liquidity and supports a solid investment-grade credit rating. The capital structure includes both debt and the components of equity, in accordance with both US GAAP and EU-IFRS. The capital structure is mainly altered by, among other things, our financial results, adjusting the amount of dividends paid to shareholders, the amount of share buybacks or capital repayment, and any changes in the level of debt. Our capital structure is formally reviewed with the Supervisory Board each year in connection with our updated long-term financial plan and relevant scenarios. The outcome of this year's review confirmed to maintain our existing financing policy in relation to our capital structure.

Our current credit rating from Moody's is A2 (Stable) and from Fitch is A (Stable), which is consistent with the ratings on December 31, 2022.

We have Eurobonds outstanding with an aggregate principal amount of €4.8 billion, having the following maturities:

Outstanding Eurobond Maturity Amounts

(The 2032 bond of 500 million euros is a green bond)



Appendix - Financing policy (continued)

Cash return policy

ASML aims to distribute a dividend that will be growing over time, paid quarterly. On an annual basis, the Board of Management, upon prior approval from the Supervisory Board, submits a proposal to the AGM with respect to the amount of dividend to be declared with respect to the prior year, taking into account any interim dividend distributions. The dividend proposal in any given year will be subject to availability of distributable profits, retained earnings and cash, and may be affected by, among other things, our view of potential future liquidity requirements including for investments in production capacity, working capital requirements, the funding of our R&D programs and acquisition opportunities that may arise from time to time and by future changes in applicable tax and corporate laws (for example plans of Dutch government to tax share buybacks).

ASML intends to declare a total dividend in respect of 2023 of €6.10 per ordinary share. Recognizing the interim dividends of €1.45 per ordinary share paid in August 2023, November 2023 and February 2024, this leads to a final dividend proposal to the General Meeting of €1.75 per ordinary share. The total 2023 dividend is a 5.2% increase compared to the 2022 total dividend of €5.80 per ordinary share.

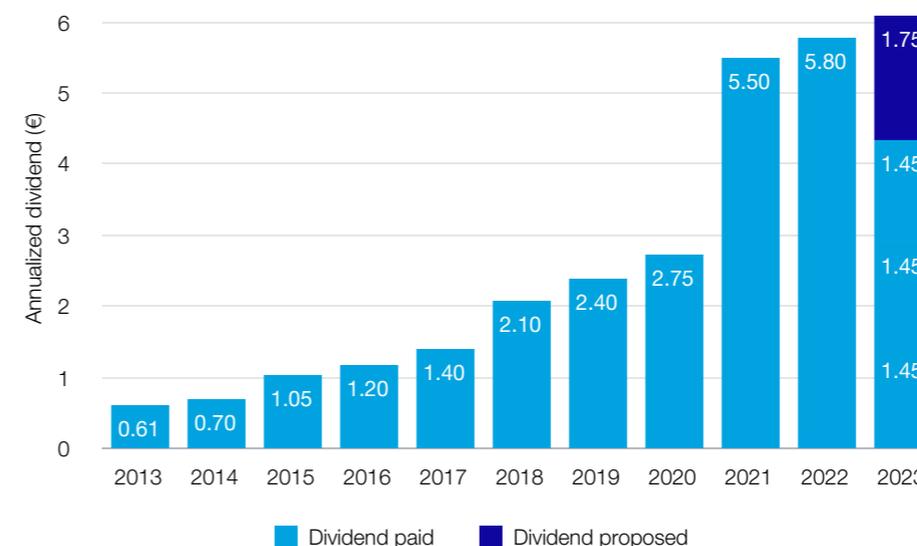
In addition to dividend payments, we intend to return cash to our shareholders on a regular basis through share buybacks or capital repayment, subject to our actual and anticipated level of liquidity requirements and other relevant factors.

On November 10, 2022, we announced a new share buyback program to be executed by December 31, 2025. As part of this program, ASML intends to repurchase shares up to an amount of €12 billion, of which we expect a total of up to 2 million shares will be used to cover employee share plans. ASML intends to cancel the remainder of the shares repurchased. The new program has replaced the previous €9 billion share buyback program 2021-2023 which was completed on October 18, 2022. The share buyback program may be suspended, modified or discontinued at any time.

In 2023, we repurchased 1,620,128 shares (2022: 8,538,787 shares) for a total consideration of 1,000.0 million (2022: 4,639.7 million), all of which were purchased under the new program. In 2023, we canceled 3,553,815 shares (2022: 3,337,825 shares canceled), all of which were purchased under the 2021-2023 program.

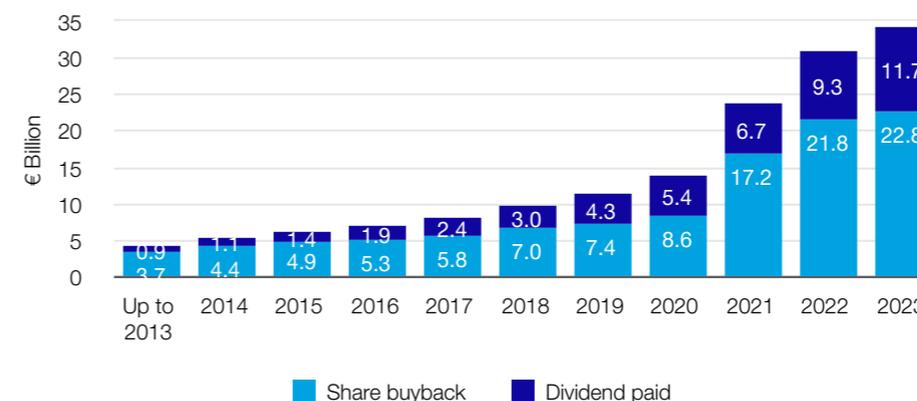
Dividend per share history

(Dividend for a year is paid in the subsequent year, except interim)



Cumulative cash returns

(Cash return is cumulative share buyback + dividend)



Appendix - Government regulation

Our business is subject to direct and indirect regulations in each of the countries in which our customers or we do business, and changes in various types of regulations can affect our business adversely. As our business has expanded, we have become subject to increasing and increasingly complex regulation. Such regulations include environmental regulation, workplace safety regulation, regulation under securities laws and stock exchange rules, anti-corruption regulation, anti-trust regulation, national security regulations, trade restrictions, export controls including licensing or authorization requirements, requirements to obtain authorizations for use of US technology and for employees producing and developing such technology. The implementation of new, and changes in enforcement of, safety, environmental or other legal requirements, including export controls and required permits and licenses or changes in interpretation, implementation or enforcement of such regulations and requirements, could impact our products, our manufacturing or distribution processes or location of sales and where we can deliver our products and services, and could affect the timing of product introductions, the cost of our production, and products as well as their commercial success in each market in which we operate. The impact of these regulations and enforcement thereof could adversely affect our business, financial condition and our results of operations even where the specific regulations do not directly apply to us or to our products.

[Read more in Risk - Risk factors - 6. Legal and compliance.](#)

Appendix - Offer and listing details

Our ordinary shares are listed for trading in the form of registered ASML Nasdaq shares and in the form of registered ASML Euronext Amsterdam shares. The principal trading market of our ordinary shares is Euronext Amsterdam (trading symbol: ASML). Our ordinary shares also trade on Nasdaq (trading symbol: ASML).

Our shares listed on Nasdaq are registered with JPMorgan Chase Bank N.A., our New York Transfer Agent, pursuant to the terms of the Transfer Agent Agreement between ASML and JPMorgan Chase Bank N.A. Our shares listed on Euronext Amsterdam are held in dematerialized form through the facilities of Euroclear Nederland, the Dutch centralized securities custody and administration system. The New York Transfer Agent charges shareholders a fee of up to USD 5.00 per 100 shares for the exchange of our shares listed at Nasdaq for our shares listed at Euronext Amsterdam and vice versa.

Dividends payable on our shares listed at Nasdaq are declared in euro and converted to US dollars at the rate of exchange at the close of business on the date determined by the Board of Management. The resulting amounts are distributed through the New York Transfer Agent and no charge is payable by holders of our shares listed at Nasdaq in connection with this conversion or distribution.

Pursuant to the terms of the Transfer Agent Agreement, we have agreed to reimburse the New York Transfer Agent for certain out of pocket expenses, including in connection with any mailing of notices, reports or other communications made generally available by ASML to holders of ordinary shares. The New York Transfer Agent has waived its fees associated with routine services to ASML associated with our shares listed at Nasdaq. In addition, the New York Transfer Agent in consideration of its acting as Transfer Agent has agreed to make a contribution towards covering certain expenses incurred by ASML in connection with the issuance and transfer of our shares listed on Nasdaq. In the year ended December 31, 2023, the Transfer Agent contributed USD 0.6 million towards coverage of expenses incurred by ASML (which mainly comprised of audit, advisory, legal and listing fees incurred due to the existence of our share listing on Nasdaq).

Appendix - Exchange controls

Cash distributions, if any, payable in euros on our shares listed at Euronext Amsterdam may be officially transferred by a bank from the Netherlands and converted into any other currency without being subject to any Dutch legal restrictions. However, for statistical purposes, such payments and transactions must be reported by ASML to the Dutch Central Bank. Furthermore, no payments, including dividend payments, may be made to jurisdictions subject to certain sanctions, adopted by the government of the Netherlands, implementing resolutions of the Security Council of the United Nations. Cash distributions, if any, on our shares listed at Nasdaq shall be declared in euros but paid in US dollars, converted at the rate of exchange at the close of business on the date fixed for that purpose by the Board of Management in accordance with the Articles of Association.

Appendix - Documents on display

We are subject to certain reporting requirements of the Exchange Act. As a “foreign private issuer”, we are exempt from the rules under the Exchange Act prescribing certain disclosure and procedural requirements for proxy solicitations, and our officers, directors and principal shareholders are exempt from the reporting and “short-swing” profit recovery provisions contained in Section 16 of the Exchange Act, with respect to their purchases and sales of shares. In addition, we are not required to file reports and financial statements with the SEC as frequently or as promptly as companies whose securities are registered under the Exchange Act that are not foreign private issuers. However, we are required to file with the SEC, within four months after the end of each fiscal year, an Annual Report on Form 20-F containing financial statements audited by an independent accounting firm and interactive data comprising financial statements in extensible business reporting language. We publish unaudited interim financial information in accordance with US GAAP after the end of each quarter. We furnish this quarterly financial information to the SEC under cover of a Form 6-K.

Documents we file with the SEC are publicly available on the SEC’s website, which contains reports and other information regarding registrants that are required to file electronically with the SEC. The address of this website is <http://www.sec.gov>.

Appendix - Controls and procedures

Disclosure controls and procedures

As of December 31, 2023, ASML's senior management conducted an evaluation, under the supervision and with the participation of ASML's CEO and CFO, of the effectiveness of the design and operation of ASML's disclosure controls and procedures (as defined in Rule 13a-15(e) under the Exchange Act). Based on such evaluation, ASML's CEO and CFO have concluded that, as of December 31, 2023, ASML's disclosure controls and procedures are effective in recording, processing, summarizing and reporting, on a timely basis, information required to be disclosed by ASML in the reports that it files or submits under the Exchange Act and are effective in ensuring that information required to be disclosed by ASML is accumulated and communicated to ASML's management, including ASML's CEO and CFO, as appropriate to allow timely decisions regarding required disclosure.

Management's report on internal control over financial reporting

ASML's management is responsible for establishing and maintaining adequate internal control over financial reporting, as defined in Rule 13a-15(f) under the Exchange Act. Under the supervision and with the participation of ASML's CEO and CFO, ASML's management conducted an evaluation of the effectiveness of ASML's internal control over financial reporting as of December 31, 2023, based upon the framework in "Internal Control – Integrated Framework" (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission. Based on that evaluation, management has concluded that ASML's internal control over financial reporting was effective as of December 31, 2023, at providing reasonable assurance regarding the reliability of financial reporting and the preparation of the Financial Statements for external purposes in conformity with US GAAP.

KPMG Accountants NV, an independent registered public accounting firm, have audited the Financial Statements as included in this Annual Report and, have also audited and issued a report, included herein, on the effectiveness of ASML's internal control over financial reporting.

Changes in internal control over financial reporting

During the year ended December 31, 2023, there have been no changes in our internal control over financial reporting that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Inherent limitations of disclosure controls and procedures in internal control over financial reporting

It should be noted that any system of controls, however well-designed and operated, can provide only reasonable, and not absolute, assurance that the objectives of the system will be met. In addition, the design of any control system is based in part upon certain assumptions about the likelihood of future events.

Appendix - Financial calendar and investor relations

Financial Calendar

April 17, 2024

Announcement of First Quarter results for 2024

April 24, 2024

Annual General Meeting

July 17, 2024

Announcement of Second Quarter results for 2024

October 16, 2024

Announcement of Third Quarter results for 2024

Fiscal Year

ASML's fiscal year ends on December 31, 2024

Investor Relations

ASML Investor Relations supplies information regarding the company and its business opportunities to investors and financial analysts. Our annual reports, quarterly releases and other information are also available on our website.

Appendix - ASML contact information

Corporate Headquarters

De Run 6501
5504 DR Veldhoven
The Netherlands

Mailing Address

P.O. Box 324
5500 AH Veldhoven
The Netherlands

Investor Relations

phone: +31 40 268 3938
email: investor.relations@asml.com

[For additional contact information please visit asml.com](https://www.asml.com)

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	C. Reasons for the Offer and Use of Proceeds	Not applicable	
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This document contains information required for the Annual Report on Form 20-F for the year ended December 31, 2023, of ASML Holding NV. Reference is made to the Form 20-F cross reference table above. Only the information in this document that is referenced in the Form 20-F cross reference table and this paragraph, this cross-reference table itself, the section entitled Special note regarding forward looking statements and the Exhibits themselves shall be deemed to be filed with the Securities and Exchange Commission for any purpose. Any additional information in this document which is not referenced in the Form 20-F cross reference table, this paragraph, the section entitled Special note regarding forward looking statements or the Exhibits themselves shall not be deemed to be incorporated by reference, shall not be part of the 2023 Annual Report on Form 20-F and is furnished to the Securities and Exchange Commission for information only.

This document also includes references to certain information contained on ASML's website: the information contained on ASML's website is not incorporated by reference and does not form part of this document.

Appendix - Special note regarding emission targets

This Annual Report contains statements relating to our approach to and interim progress on achieving certain energy efficiency and greenhouse gas emissions reduction targets, including our ambition to achieve net zero emissions. References to “net zero emissions” throughout this Annual Report means reducing scope 1, 2 and 3 emissions to zero or to a residual level that is consistent with reaching net zero emissions at the global or sector level in eligible 1.5° C scenarios or sector pathways and neutralizing (or offsetting including through carbon offsets) any residual emissions at the net zero target date.

Unless otherwise indicated, information contained in this Annual Report concerning net zero emissions is based on our internal Environmental Management System (EMS) implemented to monitor energy use and emissions, as well as publicly available information, including the guidance from the Greenhouse Gas Protocol for the calculation of the emissions scope, the assessment guidelines of the Task Force on Climate-related Financial Disclosures (TCFD) and certain market-based conversion factors. Given such non-financial data is derived from various sources and the way data is processed differs across our operating subsidiaries and departments, there is an inherent degree of uncertainty in the estimations of such data. You are cautioned not to give undue weight to such data.

We appointed KPMG to provide limited assurance over selected sustainability metrics included in this Annual Report, including our data and claims related to carbon emissions, greenhouse gas emissions reduction targets and energy efficiency to the extent discussed in the Assurance Report of the Independent Auditor. Forward-looking information concerning greenhouse gas emissions and net zero emissions is subject to qualifications and the uncertainties as set forth under – Special note regarding forward looking statements in this Annual Report.

Definitions

Name	Description
0-9	
3TG	Tin, tantalum, tungsten and gold
3D NAND	A type of non-volatile flash memory in which the memory cells are stacked vertically in multiple layers.
A	
A&M	Access & Mobility
ABC compliance review	Anti-bribery and corruption compliance review
ADAS	Advanced driver-assistance systems
ADI	After development inspection
AFM	The Dutch Authority for the Financial Markets (Autoriteit Financiële Markten)
AGM	Annual General Meeting
AI	Artificial intelligence
AIoT	Artificial intelligence of things
Applied Materials Inc.	Semiconductor equipment company
ARCNL	Advanced Research Center for Nanolithography
ArF	Argon fluoride
ArFi	Argon fluoride immersion
ASC	Accounting Standards Codification
ASC 606	Accounting Standards Codification revenue recognition
ASC 740	Accounting Standards Codification provision for income taxes
ASML	ASML Holding NV and/or any of its subsidiaries and associates
ASML Foundation	An independent charity with strong ties to ASML that supports educational initiatives for disadvantaged 4- to 18-year-olds in regions where ASML operates.
ATP throughput	Throughput of the measured system (in wph) according to the acceptance test protocol
B	
BAPA	Bilateral advance pricing agreements
Big data	Extremely large data sets that may be analyzed computationally to reveal patterns, trends and associations.
Big Four accounting firms	Deloitte, Ernst & Young, KPMG and PricewaterhouseCoopers
BoM	Board of Management
BOM	Brabantse Ontwikkelings Maatschappij

Name	Description
Bradley Curve	Illustrates the relationship between accidents and corporate culture
Brainport Eindhoven	A technology region in the south of the Netherlands comprising companies, educational institutions and governmental organizations.
BREEAM	Building Research Establishment Environmental Assessment Method
Brion	Brion Technologies, Inc.
C	
CAGR	Compound annual growth rate
Canon	Canon Kabushiki Kaisha
CAPEX	Capital expenditures, defined as additions in property, plant and equipment plus additions in intangible assets plus additions in right-of-use assets (operating and finance).
Capital resources	Financial, manufactured, intellectual, human, social and relationship, and natural elements employed to produce goods and services.
Carl Zeiss SMT	Carl Zeiss SMT GmbH
Cash conversion rate	An economic statistic in controlling that represents the relationship between cash flow and net profit.
CBO	Chief Business Officer
CCIP	Customer Co-investment Program
CCPA	California Consumer Privacy Act (US)
CCR %	Cash conversion rate percentage
CD	Critical dimension
CDP	The Carbon Disclosure Project
CEO	Chief Executive Officer
CERN	The European Organization for Nuclear Research
CFO	Chief Financial Officer
CGU	Cash-generating unit
CGU ASML	ASML excluding CGU Cymer Light Sources
CHIPS and Science Act	The Creating Helpful Incentives to Produce Semiconductors and Science Act of 2022 (CHIPS Act), signed into law in August 2022, designed to boost US competitiveness, innovation and national security.
CISO	Chief Information Security Officer
CIT	Corporate income tax
CLA	Collective labor agreement
Cleanroom	The central part of a wafer fab where wafers are processed and the environment is carefully controlled to eliminate dust and other contaminants.

Definitions (continued)

Name	Description
CMD	Capital Markets Day
CMO	Chief Marketing Officer
CMOS	Complementary metal-oxide semiconductor
CO ₂ (e)	Carbon dioxide (equivalent)
Code	The Dutch Corporate Governance Code
Code of Conduct	Code of ethics and conduct
Company	ASML Holding NV
Computational lithography	The use of powerful algorithms and computer modeling of the manufacturing process to optimize reticle patterns by intentionally deforming them to compensate for physical and chemical effects that occur during lithography and patterning.
COO	Chief Operations Officer
COSO	Committee of Sponsoring Organizations of the Treadway Commission
COVID-19	Coronavirus disease 2019
CRC	ASML's corporate risk committee
CRE	Corporate Real Estate department of ASML
CRMC	Capital Research & Management Company
CSPO	Chief Strategic Sourcing & Procurement Officer
CSRD	Corporate Sustainability Reporting Directive
CTO	Chief Technology Officer
Cyber Weerbaarheidscentrum Brainport	Foundation in the Brainport Eindhoven region that offers companies in the high-tech and manufacturing industry the opportunity to enhance their protection against cybercrime.
Cymer	Cymer Inc., Cymer LLC and its subsidiaries
D	
D&E	Development and engineering
DEFRA	Department for Environment, Food & Rural Affairs
Deloitte	Deloitte Accountants BV
D&I	Diversity and inclusion
DJSI	Dow Jones Sustainability Index
DRAM	Dynamic random-access memory
DUV	Deep ultraviolet

Name	Description
DUV immersion fast shipment	A process that reduces some of the testing in our factory. Customer acceptance after the reduced factory acceptance test (FAT) is considered to be proven for established technologies with a history of successful customer acceptances after the site acceptance test (SAT). Transfer of control for these systems and recognition of revenue related to these systems has occurred upon delivery of the systems.
E	
EAC	Energy attribute certificates
EBIT	Earnings before interest and taxes
EHS	Environment, health and safety
EHS Competence Center	A group within ASML that defines EHS standards, gathers best practices and helps managers implement them.
EIM	External interface module
EMEA	Europe, the Middle East and Africa
EMS	Environmental management system
EPE	Edge placement error
EPS	Earnings per share
ERM	Enterprise risk management
ERP	Enterprise resource planning system
ESA	European Space Agency
eScan	ASML's e-beam wafer inspection system family for targeted in-line defect detection.
ESG	Environmental, social and governance
ESG score	An integrated scoring system for environmental, social and governance (ESG) factors used in credit rating decisions.
ETR	Effective tax rate
EU	European Union
EU-IFRS	International Financial Reporting Standards as adopted by the European Union
EXE - EUV 0.55 NA	High numerical aperture, specifically a next-generation EUV lithography platform, also referred to as EUV 0.55 NA.
Euribor	Euro Interbank Offered Rate
Eurobond	A bond denominated in euros
Euroclear Nederland	The Dutch Central Securities Depository (Nederlands Centraal Instituut voor Giraal Effectenverkeer BV)
Euronext Amsterdam	Euronext Amsterdam NV

Definitions (continued)

Name	Description
EUV	A lithography technology that uses extreme ultraviolet (EUV) light with a wavelength of 13.5 nm – this is currently the cutting edge of lithography, enabling technology nodes of 16 nm and beyond.
EVP	Executive Vice President
EVP HR&O	Executive Vice President Human Resources & Organization
Exchange Act	US Securities Exchange Act of 1934
F	
Fab	Semiconductor fabrication plant
FAQ	Frequently asked questions
Farmout suppliers	Our suppliers that we work with as co-investors
Fast shipment	A fast shipment process skips some of the testing in our factory and provides our customers with earlier access to wafer output capacity. When customer acceptance at FAT is not proven, this leads to a deferral of revenue recognition until SAT
FAT	Factory acceptance test
FDII	Foreign-derived intangible income
Feature	The elements that make up the pattern for a given layer of a microchip.
FFHA	Foundation for Hospital Art
Fitch	A leading provider of credit ratings, commentary and research for global capital markets.
Flash	A type of non-volatile memory used for storing and transferring information
Foundry	A contract manufacturer of logic chips
Fraunhofer	Applied research organization in Germany
FTEs	Full-time equivalents
FTSE4Good	Series of ethical investment stock market indices launched in 2001 by the FTSE Group.
G	
G-SEED	Green Standard for Energy and Environmental Design
GAAP	Generally accepted accounting principles
GDP	Gross domestic product
GDPR	General data protection regulation
Gemba Walk	The Gemba Walk is an opportunity for staff to stand back from their day-to-day tasks to walk the floor of their workplace to identify wasteful activities.
GeSI	Global e-Sustainability Initiative
GHG	Greenhouse gas
GPU	Graphics processing unit

Name	Description
GQLTCS	General, quality, logistics, technology, cost and sustainability
GRI	Global Reporting Initiative
GRI standards	GRI sustainability reporting standards
H	
H ₂	Molecular hydrogen
HDD	Hard disk drive
HMI	The brand name for ASML's range of electron beam (e-beam) wafer inspection and metrology systems
Holistic lithography	Our approach to optimizing the entire microchip printing process and enabling affordable scaling in chip technology by integrating lithography systems with computational modeling and wafer metrology and inspection solutions to analyze and control the manufacturing process in real time
Horizon Europe Program	A public-private partnership that facilitates collaboration and strengthens the impact of research and innovation in developing, supporting and implementing EU policies while tackling global challenges
HR&O	Human Resources & Organization
HTSC	High Tech Systems Center
Huisman	Huisman Equipment BV
HVAC	Heating, ventilation and air conditioning
I	
IAS	International accounting standards
IBM	Installed base management
IC	Integrated circuit
ICT	Information and communication technology
ID2PPAC	Integration of processes and modules for the 2 nm node meeting Power Performance Area and Cost requirements
IDM	Integrated device manufacturer
IEA	International Energy Agency
IFRS	International financial reporting standards
IIRC	International Integrated Reporting Council
i-line	Light with a wavelength of 365 nm, generated by mercury vapor lamps and used in some lithography systems.
ILO	International Labor Organization
Imaging	The transfer of a pattern onto the photoresist on a wafer using light.
imec	Interuniversitair Micro-Elektronica Centrum

Definitions (continued)

Name	Description
Immersion lithography	A lithography technique that uses a pool of ultrapure water between the lens and the wafer to increase the lenses numerical aperture (ability to collect and focus light). This improves both the resolution and depth of focus for the lithography system.
Inclusion Index	The overall score related to the questions included in the we@ASML survey that specifically relate to 'inclusion'.
Industrial site	Industrial buildings and offices combined at one location
Intel	Intel Corporation
Internal Control - Integrated Framework 2013	Criteria issued by the Committee of Sponsoring Organizations of the Treadway Commission.
Internet of Things (IoT)	A network of physical objects embedded with sensors, actuators, electronics and software that allow the objects to collect and exchange data.
IP	Intellectual property
IPR	Intellectual property rights
IRA	Inflation Reduction Act of 2022
I-REC	International renewable energy certificate
IRS	Internal Revenue Service of the United States
ISO	International Organization for Standardization
IT2	IC Technology for the 2 nm Node (EU project)
J	
JG13+	Job grade 13 and higher
JP Morgan Chase	US-based holder of our New York share register
K	
KLA-Tencor	KLA-Tencor Corporation
KPI	Key performance indicator
KPMG	KPMG Accountants NV
K-Reach	Act on the Registration and Evaluation of Chemicals in South Korea
KrF	Krypton fluoride
kt	Kilotonne or 1,000 tonnes (1 tonne = unit of mass equal to 1,000 kilograms)
kWh	Kilowatt-hour
L	
LED	Light-emitting diode

Name	Description
LEED	Leadership in Energy and Environmental Design
LGBTQIA+	Lesbian, gay, bisexual, transgender, queer, intersex, asexual and other identities
LIBOR	London Interbank Offered Rate
Lithography	Lithography, or photolithography, is the process in microchip manufacturing that uses light to pattern parts on a silicon wafer.
Logic	Integrated devices such as microprocessors, microcontrollers and GPUs. Also refers to companies that manufacture such devices.
LTI	Long-term incentive
LXP	Learning eXperience Platform
M	
MBA	Master of Business Administration
Memory	Microchips, such as NAND Flash and DRAM, that store information. Also refers to companies that manufacture such chips.
Metalektro	Multi-employer union plan is managed by PME (Stichting Pensioenfonds van de Metalektro).
Metrology	The science of weights and measures or of measurement.
mm	Millimeter (one thousandth of a meter)
MNP	Make Next Platform
Moody's	An American credit rating agency that provides corporate ratings.
MPS	Mature Products and Services
MSCI	Morgan Stanley Capital International
Mt	Megatonne, a metric unit equivalent to 1 million (10 ⁶) tonnes, or 1 billion (10 ⁹) kilograms
MW	Megawatt, a metric unit equivalent to one million (10 ⁶) watt
N	
NA	Numerical aperture
NAND	A binary logical operator that gives an output when it receives one or no input; a composite of 'NOT AND'.
Nanoscale	The nanoscopic scale (or nanoscale) usually refers to structures with a length scale applicable to nanotechnology, usually cited as 1–100 nanometers.
Nasdaq	Nasdaq Stock Market LLC
Net bookings	Net bookings include all system sales orders and inflation related adjustments, for which written authorizations have been accepted.
Net zero emissions	Reaching a state of net zero emissions involves: (a) reducing scope 1, 2 and 3 emissions to zero or to a residual level that is consistent with reaching net-zero emissions at the global or sector level in eligible 1.5°C scenarios or sector pathways and; (b) neutralizing any residual emissions at the net zero target date and any GHG emissions released into the atmosphere thereafter.

Definitions (continued)

Name	Description
NGO	Nongovernmental organization
NIIT	Net investment income tax
Nikon	Nikon Corporation
NL	The Netherlands
nm	Nanometer (one billionth of a meter)
Node	A stepping stone in the chipmaking industry's roadmap for smaller features and more advanced microchips, describes and differentiates generations of semiconductor manufacturing technologies and the chips made with them. Nodes with 'smaller sizes' refer to more advanced technologies.
Non-GAAP	A measure of a company's historical or future financial performance, financial position or cash flows that are not calculated or presented in accordance with the GAAP.
NPR	Non-product-related
NRE	Non-recurring engineering
NV	Naamloze vennootschap, referred to as NV
NXE - EUV 0.33 NA	A dual-stage stepper based on the NXT platform powered by an extreme UV-based light source at 13.5 nm wavelength to enable resolution of 13 nm half pitch and beyond, also referred to as EUV 0.33 NA.
NXE fast shipment	A process that reduces some of the testing in our factory. Final testing and formal acceptance then takes place at the customer site. This leads to a deferral of revenue recognition for those shipments until formal customer acceptance, but does provide our customers with earlier access to wafer output capacity.
NXT	An enhanced version of the original TWINSCAN system platform offering significantly improved overlay and productivity.
O	
OCI	Other comprehensive income
ODM	Original design manufacturer
OECD	Organization for Economic Co-operation and Development
OEM	Original equipment manufacturer
ONE	ASML's Our New Enterprise program, which aims to improve our business processes and IT enterprise management system.
Operations employees	Customer support and Manufacturing and Supply Chain Management employees
Overlay	The layer-to-layer alignment of chip structures
P	
P&L	Statement of profit and loss
PAS	Philips Automatic Stepper

Name	Description
Pattern fidelity	A holistic measure of how well the desired pattern is reproduced on the wafer.
Pattern fidelity control	A holistic approach to controlling the whole process of manufacturing advanced microchips in high volumes that aims to improve overall yields. It draws data from production equipment and computational lithography tools, analyzing it with techniques such as machine learning to provide real-time feedback.
Patterning	The process of creating a pattern in a surface to build microchips.
PCAOB	Public Company Accounting Oversight Board
PFAS	Perfluoroalkyl chemicals
PGP	Product generation process
Philips	Health technology company, headquartered in the Netherlands
PHLX Index	Semiconductor sector index
PIN3S	Pilot Integration of 3 nm Semiconductor Technology
PIs	Performance indicators
PME	Bedrijfstakpensioenfonds Metalektr
Preference shares foundation	Stichting Preferente Aandelen ASML
Preference share option	An option to acquire cumulative preference shares in our capital.
Q	
Q&As	Questions and answers
R	
R&D	Research and development
RBA	Responsible Business Alliance
RC	ASML's Remuneration Committee
REACH	Registration, evaluation, authorization and restriction of chemicals
Recoverable amount	The greater out of an asset's fair value less costs to sell and its value in use.
REMA	EUV reticle masking module
Remuneration Policy	The remuneration policy applicable to the Board of Management of ASML Holding NV
Reticle	A plate containing the pattern of features to be transferred to the wafer for each exposure.
ROAIC	Return on average invested capital
RoHS	Restriction of hazardous substances
S	

Definitions (continued)

Name	Description
Standard & Poor's	A stock index of the United States that, due to its broad composition, gives a reliable picture of developments in the American stock market.
Samsung	Samsung Electronics Corporation
SAQ	Self-assessment questionnaire
Sarbanes-Oxley Act	The Sarbanes-Oxley Act of 2002
SAT	Site acceptance test
SB	ASML's Supervisory Board
SBTi	Science-Based Targets initiative
Scope 1 CO ₂ e emissions	Direct carbon dioxide emissions from resources an organization owns or controls
Scope 2 CO ₂ e emissions	Indirect carbon dioxide emissions due to the energy an organization consumes
Scope 3 CO ₂ e emissions	All other indirect carbon dioxide emissions that occur in an organization's value chain
Scope 3 CO ₂ e emissions intensity	All other indirect carbon dioxide emissions that occur in an organization's value chain expressed as a percentage of revenue or gross profit.
SDGs	United Nations' Sustainable Development Goals
SEC	The United States Securities and Exchange Commission
SEMI	Semiconductor Equipment and Materials International
SEMI S2	SEMI S2 – Safety Guideline, Environmental, Health and Safety Guideline for Semiconductor Manufacturing Equipment, a set of performance-based EHS considerations for semiconductor manufacturing equipment.
SEMI S23	SEMI S23 – Guide for Conservation of Energy, Utilities and Materials Used by Semiconductor Manufacturing Equipment, guidelines for collecting, analyzing, and reporting energy-consuming semiconductor manufacturing equipment utility data.
SG&A	Selling, general and administrative expenses
Shrink	The process of developing smaller transistors for more advanced chips.
SMART Photonics	Foundry for integrated photonic circuits
SoC	System on a chip
SPE Shareholders	A syndicate of three banks for the purpose of leasing ASML's headquarters in Veldhoven.
SPIE	International society for optics and photonics
S&P	Sourcing and procurement
SSD	Solid-state drive
Springplank 040	Social care organization in Eindhoven offering support and guidance to homeless people.
SSRA	Safety risk assessment

Name	Description
Star level	Startups accelerated by Eindhoven Startup alliance / HighTechXL that show a multiple of investment of above 10 times.
STEM	Science, technology, engineering and mathematics
STI	Short-term incentive
STR	Stichting Technology Rating, a non-profit organization
Sub fab	Located under the cleanroom floor, the sub fab contains auxiliary equipment such as the drive laser.
SWOT	Strengths, weaknesses, opportunities and threats
T	
TAPES3	Technology Advances for Pilot line of Enhanced Semiconductors for 3 nm
TC	ASML's Technology Committee
TCC	Total Cash Compensation
TCFD	Task Force on Climate-related Financial Disclosures
TCJA	Tax Cuts and Jobs Act
Technical competence	The capabilities and spread of technical expertise among our people, and the extent to which they are embedded in our processes and operations.
Thales NL	Dutch branch of the international Thales Group
Throughput	The number of wafers a system can process per hour
Tier 1 (2, 3) supplier	Tier 1 suppliers are direct suppliers, whereas Tier 2, 3 and beyond refer to suppliers of our suppliers.
TJ	Terajoule (one trillion joules)
TNO	Nederlandse Organisatie voor Toegepast Natuurwetenschappelijk Onderzoek (Netherlands Organisation for Applied Scientific Research)
Transistor	A semiconductor device that is the fundamental building block of microchips
TSCA	Toxic Substances Control Act
TSMC	Taiwan Semiconductor Manufacturing Company Ltd.
TSR	Total shareholder return
TWINSKAN	ASML's unique lithography system platform, with two complete wafer stages to allow one wafer to be mapped while another is being exposed, thereby enabling higher accuracy and throughput.
U	
UNGP	United Nations guiding principles
US	United States
US GAAP	Generally accepted accounting principles in the United States of America
US ITC	United States International Trade Commission

Definitions (continued)

Name	Description
V	
Vanderlande	A material handling and logistics automation company based in the Netherlands
VAT	Value-added tax
VIE	Variable interest entity
VLSI	VLSI Research Inc.
VNO-NCW	The Confederation of Netherlands Industry and Employers
VOC	Volatile organic compound
VP	Vice president
VPA	Volume purchase agreement
VPC	Volume parts contract
VR	Virtual reality
W	
WACC	Weighted average cost of capital
Wafer inspection	The process of locating and analyzing individual chip defects on a wafer
Wafer metrology	The process of measuring the quality of patterns on a wafer
Waste intensity	The total waste in millions of kilograms (excluding construction waste) divided by revenue (in millions of euros).
Wavelength	The distance between two peaks of a wave such as light. The shorter the wavelength of light used in a lithography system, the smaller the features the system can resolve.
Website	www.asml.com
WHT	Withholding tax
Works Council	Works Council of ASML Netherlands BV
wph	Wafers per hour
X	
XTAL	XTAL, Inc.
Y	
YieldStar	ASML's diffraction-based wafer metrology platform
Z	
ZEISS	Carl Zeiss AG

Signatures

ASML Holding NV hereby certifies that it meets all of the requirements for filing on Form 20-F and that it has duly caused and authorized the undersigned to sign this Annual Report on Form 20-F on its behalf.

ASML Holding NV (Registrant)

/s/ Peter T.F.M. Wennink

Name: Peter T.F.M. Wennink

Title: President, CEO and member of the Board of Management

Dated: February 14, 2024

/s/ Roger J.M. Dassen

Name: Roger J.M. Dassen

Title: Executive Vice President, CFO and member of the Board of Management

Dated: February 14, 2024

Exhibit index

Exhibit No.	Description
1.1	Articles of Association of ASML Holding NV (English translation) (dated May 12, 2022)
2.1	Description of Securities registered under Section 12 of the Exchange Act (Incorporated by reference to the Registrant's Annual Report on Form 20-F for the year ended December 31, 2021)
4.1	Form of Indemnity Agreement between ASML Holding NV and members of its Board of Management (Incorporated by reference to the Registrant's Annual Report on Form 20-F for the year ended December 31, 2003)
4.2	Form of Indemnity Agreement between ASML Holding NV and members of its Supervisory Board (Incorporated by reference to the Registrant's Annual Report on Form 20-F for the year ended December 31, 2003)
4.3	Form of Employment Agreement for members of the Board of Management (Incorporated by reference to the Registrant's Annual Report on Form 20-F for the fiscal year ended December 31, 2003)
4.4	Nikon-ASML Patent Cross-License Agreement, dated December 10, 2004, between ASML Holding NV and Nikon Corporation (Incorporated by reference to the Registrant's Annual Report on Form 20-F for the fiscal year ended December 31, 2014) ¹
4.5	ASML/Carl Zeiss Sublicense Agreement, 2004, dated December 10, 2004, between Carl Zeiss SMT AG and ASML Holding NV (Incorporated by reference to the Registrant's Annual Report on Form 20-F for the fiscal year ended December 31, 2004) ¹
4.6	ASML Performance Stock Plan for Members of the Board of Management (Version 1) (Incorporated by reference to the Registrant's Registration Statement on Form S-8 filed with the SEC on July 5, 2007 (file No. 333-144356))
4.7	ASML Performance Stock Option Plan for Members of the Board of Management (Version 2) (Incorporated by reference to the Registrant's Registration Statement on Form S-8 filed with the Commission on July 5, 2007 (file No. 333-144356))
4.8	ASML Board of Management Umbrella Share Plan (Incorporated by reference to the Registrant's Registration Statement on Form S-8 filed with the SEC on April 13, 2015 (file No. 333-203390))
4.9	Partnership and Joint Venture Agreement, among Carl Zeiss AG, ASML Holding NV and Carl Zeiss SMT Holding Management GmbH, dated 29 June 2017 (Incorporated by reference to the Registrant's Annual Report on Form 20-F for the fiscal year ended December 31, 2017)
4.10	Settlement and Cross License Agreement, dated February 18, 2019, among Nikon Corporation, ASML Holding NV and Carl Zeiss SMT GmbH and, with regards to Sections 3(b) 2.2.1, 3.8, 6.3.3, 6.6, 10.6, 10.8, 10.14 and 10.15, Carl Zeiss AG (Incorporated by reference to the Registrant's Annual Report on Form 20-F for the fiscal year ended December 31, 2019) ³
4.11	ASML – SMT Business Agreement, dated July 21, 2021 between ASML Netherlands BV and Carl Zeiss SMT GmbH ³

Exhibit No.	Description
8.1	List of Main Subsidiaries ²
12.1	Certification of CEO and CFO Pursuant to Rule 13a-14(a) of the Securities Exchange Act of 1934 ²
13.1	Certification of CEO and CFO Pursuant to Rule 13a-14(b) of the Securities Exchange Act of 1934 ²
15.1	Consent of Independent Registered Public Accounting Firm ²
19.1	ASML Insider Trading Rules
97.1	Clawback Policy
101.INS	XBRL Instance Document ²
101.SCH	XBRL Taxonomy Extension Schema Document ²
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document ²
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document ²
101.LAB	XBRL Taxonomy Extension Label Linkbase Document ²
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document ²
104	Cover Page Interactive Data File (formatted as inline XBRL and contained in Exhibit 101) ²

1. Certain information omitted pursuant to a request for confidential treatment filed separately with the SEC.

2. Filed at the SEC herewith.

3. Portions of this exhibit have been omitted because (i) they are not material and (ii) the registrant customarily and actually treats the information as private or confidential.

As of December 31, 2023, ASML is party to six outstanding debt instruments (senior notes) under which the total amount of securities under each individual debt instrument does not exceed 10% of the total assets of ASML and its subsidiaries on a consolidated basis. Pursuant to paragraph 2(b) (i) of the instructions to the exhibits to Form 20-F, ASML agrees to furnish a copy of such instruments to the SEC upon request. ASML's senior notes are:

- 3.500% ASML Holding NV Fixed Rate Senior Notes due 2025 (XS2631416950);
- 1.375% ASML Holding NV Fixed Rate Senior Notes due 2026 (XS1405780963);
- 1.625% ASML Holding NV Fixed Rate Senior Notes due 2027 (XS1527556192);
- 0.625% ASML Holding NV Fixed Rate Senior Notes due 2029 (XS2166219720);
- 0.250% ASML Holding NV Fixed Rate Senior Notes due 2030 (XS2010032378); and
- 2.250% ASML Holding NV Fixed Rate Senior Notes due 2032 (XS2473687106).