

ASML

**Small
patterns. Big
impact.**

Annual Report
2022

Smaller size, bigger capability is a well-established trend in the chip industry. And thanks to the joint efforts of our 39,000 people working together with suppliers, customers and innovation partners, we are taking that ever further.

Every day we push the boundaries of physics and shrink patterns to help shape the future of life, work and play across the planet. Strongly embedded in a global innovation ecosystem, we enable ground-breaking technology that can help humanity manage challenges and seize opportunities by facilitating smart living and mobility, accessible healthcare, food security and the transition to renewable energy.

Creating small patterns that enable a big impact.



Tackling
pollution

See page 8 >



Global
well-being

See page 22 >



Food
security

See page 30 >



Energy
transition

See page 40 >



Smart
mobility

See page 51 >



Virtual and
augmented
reality

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Wearable
technology

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STRATEGIC REPORT



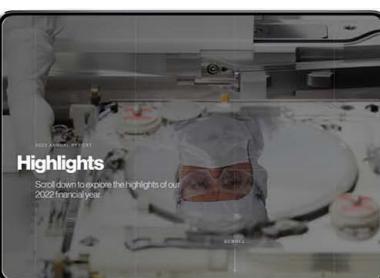
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A definition or explanation of abbreviations, technical terms and other terms used throughout this Annual Report can be found in the chapter Definitions. In some cases, numbers have been rounded for readers' convenience.

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 N.V. 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 expected business, results projections, business 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”, “could”, “should”, “project”, “believe”, “anticipate”, “expect”, “plan”, “estimate”, “forecast”, “potential”, “intend”, “continue” 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 our expected trends and outlook, strategies, corporate priorities and goals, expected semiconductor industry trends, expected trends in markets served by our customers, including expected growth in semiconductor demand, manufacturing

capacity, expected semiconductor market trends and market growth and drivers of such trends and growth, expected financial results, including expected sales, service revenue, gross margin, expected capital expenditures, R&D and SG&A expenses, effective annualized tax rate, annual revenue growth rate and outlook for 2023 and other statements under “Trend Information”, annual sales and gross margin opportunity and potential and growth outlook and for 2025 and 2030, sales model for 2025 and other statements under the section entitled “Long-term growth opportunities”, statements under the section entitled “Risk factors”, expected trends in customer demand and demand for semiconductors including expected trends in end markets, including Memory and Logic, expected development of High-NA and expected timing to start shipment of High-NA systems

and high-volume production of High-NA systems, for semiconductor industry market opportunities, expected EUV and DUV and installed based management sales and the expectation about continuing role of DUV systems, EUV product roadmap, our supply chain strategies and goals, customer, partner and industry roadmaps, expected productivity and benefits of our tools, potential future innovations and system performance, expected shipments of our tools, including demand for and timing of shipments, statements with respect to DUV and EUV competitiveness, the development of EUV technology, revenue recognition, expected demand for wafers, expected impact of inflation, ESG strategy including our sustainability targets, goals and strategies, environmental, diversity and sustainability strategy, ambitions, goals and

targets, including circular procurement goals, targeted greenhouse gas emissions and waste reduction, recycling and refurbishment initiatives, investments and goals and energy-saving strategies and targets, including statements on targeting zero carbon emissions and indirect emissions from energy use across operations and reducing intensity of all other emissions in the value chain and the goals for timing thereof, statements with respect to Moore’s Law, cash return and dividend policy, our expectation to continue to return cash to our shareholders through share buybacks and dividends including our proposed dividend for 2022 and statements relating to our share buyback program, statements with respect to the expected impact of accounting standards 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 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.

Record performance in a challenging year

With record net bookings for 2022, an innovation pipeline filled with new products and services and our talented, energized and engaged people, we face the future with great confidence.

Dear Stakeholder,

The figures speak for themselves: record sales of €21.2 billion, up by 13.8% compared with 2021, a gross margin of 50.5% and a dividend per share of €5.80 add up to another outstanding year for ASML. Our net bookings stand at an unparalleled €30.7 billion for the year 2022, our pipeline is flowing freely, with a number of new products launched, set to launch or in development, and our people are talented, energized and engaged. Not surprisingly, we are looking forward to a very bright future with strong growth. I would like to thank all our stakeholders for their support during the year – and in particular I wish to pay tribute to our people, who have again displayed outstanding commitment and expertise, and without whom none of our achievements would have been possible.

Yet despite the positive numbers, the reality is that 2022 could actually have been even better. Our ability to meet customer demand continued to be impacted by a set of circumstances that were not fully in our control. The aftermath of COVID-19, the ongoing war in Ukraine and struggles among some of our supply chain partners to deliver according to our agreed plans due to material shortages have combined to cause significant turbulence and meant that we were unable to give our customers what they needed all of the time.

Ultimately, we have seen the global chip shortage that first appeared in 2020 continue through 2022. We have all encountered this in one way or another in our personal lives, whether through delays in taking ownership of a new vehicle or reduced availability of technology such as solar panels.

Delivering on our business strategy...

Although we have at times struggled operationally, from a strategic standpoint we have continued to deliver. 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. Among many highlights of the year, we shipped the first TWINSCAN NXT:2100i, received new orders for the TWINSCAN EXE:5200 and saw several customers adopt Alignment Optimization 12 Color.

While we had more unhappy customers than I would have liked, we have also experienced empathy and support. We have always kept customers fully informed of any delays to shipments, and they can see for themselves how our investments are set to increase capacity. Cranes stand across the skylines of our sites as our investment to increase our manufacturing capacity to 90 EUV 0.33 NA and 600 DUV systems by 2025-2026 begins to take shape, while we are also ramping our EUV 0.55 NA (High-NA) capacity to 20 systems by 2027-2028. And key partners such as Carl Zeiss are also busy adding capacity, doing everything they can to free the logjam in the supply chain.



Our investments are set to increase capacity."

Peter Wennink

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



Record performance in a challenging year (continued)

It is true that some customers, concerned about the global economic environment, are choosing to delay shipments. But as evidenced by our order book, most are continuing to push us to get the tools they need and are eager to take up any spare capacity we can release to get deliveries even earlier than scheduled if possible.

We have also been working to improve the flexibility of our manufacturing capacity, our workforce and our supply chain to enable us to respond quickly and appropriately to the current waves of uncertainty.

...and on our ESG strategy

The theme for this annual report is *Small patterns. Big impact.* The things we do at ASML have a wide-ranging impact, not only on our customers but on society at large. 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, from enabling predictive healthcare, energy transition and smart cities to wearables, self-driving cars and robotics.

Launched in 2021, our ESG strategy acknowledges and addresses the impact we have on society. It underpins our drive to be a responsible organization and a force for good in the world.

Of course, we are not unique in this. All responsible companies now dedicate significant resources to ESG matters, reflecting how the world is coming to terms with its major challenges, notably climate change and the energy transition. For us, ESG is about helping to create a responsible society – one where as many people as possible have a safe and healthy environment, a job, a home and access to food, good schools and quality medical care. These are important basic conditions for businesses to flourish and for economies to grow. As we outline in 'Environmental, Social and Governance - ESG at a glance', we have made good progress over the last 12 months.

We have always been very vocal about the fact that we're running this company to a stakeholder model, not per se only a shareholder model. We have five stakeholder groups – our people, our customers, our suppliers, our shareholders and society. It is the balance between those five that actually makes a company credible. If you focus only on one or two of those stakeholders, the others are likely going to suffer. So we work very hard to get the balance right. We are not perfect and there remains much to do – but our ESG strategy is an important beacon that is lighting up the way ahead.

Working with our partners

We can't survive without our partnership ecosystem, and this goes right to the heart of our values – challenge, collaborate and care. We love being challenged, and we rise to challenges much better when we collaborate with others, from academia and research institutions to leading-edge companies from all over the world, creating trust and sharing both risks and rewards. Together, we are developing technology that can have a positive impact – caring for the ecosystem, for all our stakeholders and for our planet.

We work together in a strong global semiconductor innovation ecosystem with our suppliers and innovation partners, as well as with other equipment providers such as etch and deposition partners, to understand patterning and how we can provide the solutions that our customers, our customers' customers and our end users demand.

As architects and integrators, we orchestrate this process – building on our values to help fill our innovation funnel and keep the ASML pipeline flowing freely. The Brainport Eindhoven innovation ecosystem, in which we operate from our headquarters in Veldhoven, is a good example of this level of cooperation, which is based on trust, transparency and a willingness to share expertise and knowledge.



“

Our ESG strategy is an important beacon that is lighting up the way ahead.”

Peter Wennink

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

Record performance in a challenging year (continued)

Driving the search for global talent

It may be a cliché that people are a company's greatest asset, but it is also very true – and the shortage of talent is a factor that is impacting every industry on the planet, including ours. To meet the chip industry's ambitions, globally and within the European ecosystem, we need to significantly increase the inflow of engineering talent in the coming decade.

The governments of South Korea, the US, Taiwan and Japan are all investing heavily in chip-related education and vocational training. We need to see the Dutch and other European governments doing the same. At ASML, we're playing our part. Education is a key pillar of our community engagement activities, and during 2022 we again supported programs to boost interest in technology among young people and increase local talent pools in [all the main] geographies where we operate.

Read more in:
Social

In 2022 we welcomed 7,130 new people into ASML, so our efforts to attract talented individuals are paying dividends, supported by the fact that we're able to offer them the opportunity to work at the cutting edge of technology. Today, we have more than 140 nationalities at ASML – but we know that young people move often and may not stick around for 20 years or so as previous generations did. So our challenge is to make sure that ASML is an attractive long-term option where people can contribute and enjoy the benefits of doing so and develop themselves. That is where our 'can do' culture is so important. We have a workplace environment here where people can drive innovation forward, inspire each other and help make sure that digital technology fulfills its potential.

Looking ahead to 2023 and beyond

At the 2023 AGM, Gerard Kleisterlee, the Chairman of our Supervisory Board, will step down after having served on the Supervisory Board since 2015. I would like to express our gratitude to Gerard for his valuable contributions as Chairman of the Supervisory Board and the Selection and Nomination Committee, and member of the Technology Committee. He has brought profound experience to the Supervisory Board during his eight years of service and has been a great source of guidance and advice for ASML. We wish Gerard all the best for the future.

When looking at our business environment, in the short term it is clouded by uncertainty due to a number of macroeconomic concerns including energy shortages, inflation, reduced consumer confidence and recession. On a geopolitical level, the bifurcation of socio-economic blocks – with the associated export and import controls – is threatening the development of the global village that contributed so much to a lot of the innovation we have seen in recent years. If countries or trade blocks withdraw into their own territories, then innovation will be less effective and more expensive.

Several news organizations reported end of January 2023 that the US, the Netherlands and Japan agreed to further restrict the export of semiconductor manufacturing equipment to China. We understand that steps have been taken that would cover advanced lithography tools as well as other types of equipment. The terms of this agreement have not been publicly disclosed and remain confidential for now. We expect that it will take many months for the governments to write and enact new rules. Combined with the current market situation, we do not expect these measures to have a material effect on our expectations for 2023.

Looking at the immediate future, we will have to deal with the shocks in the system, and I am confident that we will do so, supported by growing demand for semiconductors and semiconductor equipment. Over the next 12 months, I anticipate that we will yet again break records.

Beyond 2023, I am very positive about our industry in general and about ASML in particular. Some industry analysts believe that our semiconductor industry will grow to be worth a trillion dollars by 2030 – and we do not disagree. Our own expectation is that our combined systems and installed base revenue could provide an annual revenue growth rate of around 14%¹ for the period 2020-2030.

Teamwork, both within ASML and externally with our partners and suppliers, will be a crucial component if we are to achieve that ambition. By challenging, collaborating and caring, we will play a leading role in meeting customer demands, delivering the right technology at the right time to enable the semiconductor industry to thrive while taking to heart the interests of the communities around us.

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

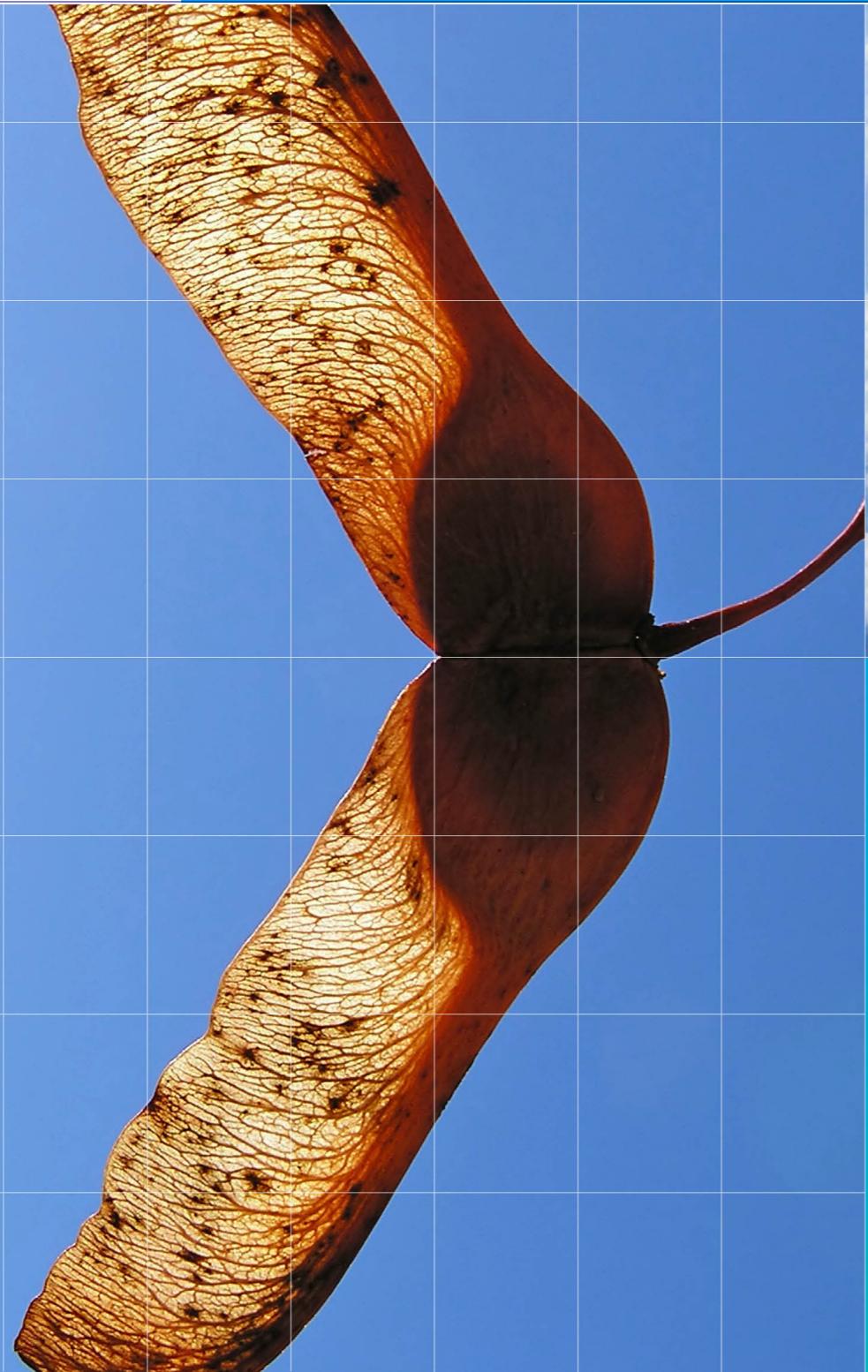


By challenging, collaborating and caring, we will play a leading role in meeting customer demands, delivering the right technology at the right time."

Peter Wennink

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

1. Using the midpoint of the 2030 revenue scenarios ASML models over the period 2020-2030, we expect a potential compound annual growth rate of around 14% from our base 2020 revenue, around €14.0 billion. This is a combination of growth in our systems sales as well as our installed base management revenue.



TACKLING POLLUTION

Nano innovations, macro challenges

Our lithography solutions not only help to reduce chip size – they also increase performance and energy efficiency. That's opened the door to nano-innovations such as the 'winged microchip' – inspired by the way seeds disperse through the air, these ultra-miniaturized electronic devices can ride the wind to track air pollution, airborne disease and environmental contamination.

[Read more online](#)

At a glance

As a global innovation leader in the chip industry, we provide chipmakers with hardware, software and services to mass produce patterns on silicon through lithography.

Berliner Glas (ASML Berlin GmbH), which we acquired in 2020, is reflected as part of our business throughout this report, with the exception of non-financial reporting.

Key facts



€21.2bn

Total net sales

€18.6bn Asia
€2.0bn US
€0.6bn EMEA

[Read more on page 44 >](#)



39,086

Employees (FTE)

18,854 in Operations
14,181 in R&D
6,051 in Sales and Support

[Read more on page 97 >](#)



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Material sustainability topics

Responsibility and good governance are fundamental to how we do business

[Read more on page 71 >](#)



€3.3bn

R&D investments

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

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>60

Locations

Across three continents
Headquartered in the Netherlands since 1984

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Nationalities

We strive to maintain an environment where all feel valued and respected

[Read more on page 97 >](#)

Key products and services

Lithography systems

Extreme ultraviolet (EUV). We are the world's only manufacturer of EUV equipment, the most advanced system with the capability of printing smaller features with higher density.

Deep ultraviolet (DUV). As the workhorse of the semiconductor industry, DUV produces the majority of layers in a customer device today, and will remain important for future devices.

Metrology and inspection systems

Using optical and e-beam technology, these systems enable chipmakers to assess their performance across the chip manufacturing process, helping to improve accuracy, performance and quality control.

Computational lithography

This process is used in the development of new chips to optimize reticle designs and enable more precise monitoring and control.

Software

Lithography process and control software solutions.

Refurbishment

We measure a machine's life in decades, not years. We refurbish and upgrade our older lithography systems to extend their lives, and we offer associated services.

Customer support

We support our customers with a broad range of applications, services, technical support products and upgrades to ensure our equipment works reliably in their production process.

Our global presence



Asia

China
Hong Kong
Japan
South Korea
Malaysia
Singapore
Taiwan



North America

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



EMEA

Belgium
France
Germany
Ireland
Israel
Italy
Netherlands
United Kingdom

What makes us ASML

Our purpose

Why we exist

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

Society has made huge advances over the years, but the world still faces crucial challenges for the future. We must change how we think and act on themes that impact everyone. That's why we seek to innovate at least at the same pace as our customers, focusing our intellect and resources to constantly look for new ways that will help improve society in areas such as energy use, climate change, mobility, healthcare, education and nutrition.



Our vision

What we try to achieve

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

At ASML, we believe that the microchip industry is in a unique position to help tackle these challenges. From artificial intelligence (AI) to a vast internet of things (IoT), microchips are at the heart of modern technology that's enabling the transition to sustainable energy, improving global health, increasing the safety and efficiency of transport, tackling pollution, bridging the digital divide or feeding close to eight billion people without exhausting the earth's resources.

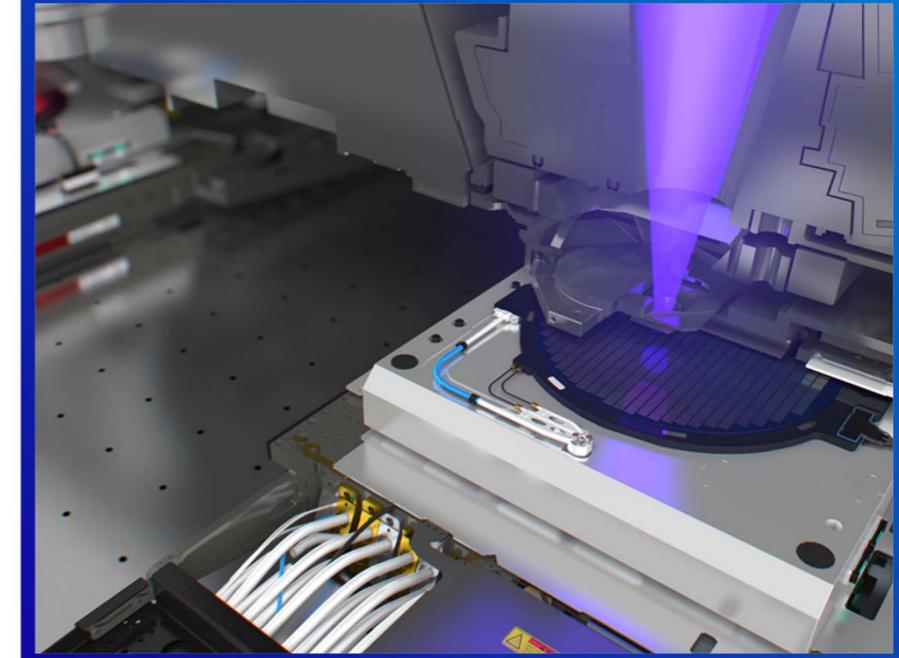


Our mission

What we uniquely do

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

The long-term growth of the semiconductor industry is based on the principle that the energy, cost and time required for electronic computations can be reduced by shrinking transistors on microchips. To enable shrink, what we do – lithography – is key. Through our sustained investment in and dedication to research and development, we have become the innovation leader and a focused supplier of holistic lithography solutions to all of the world's major chipmakers.



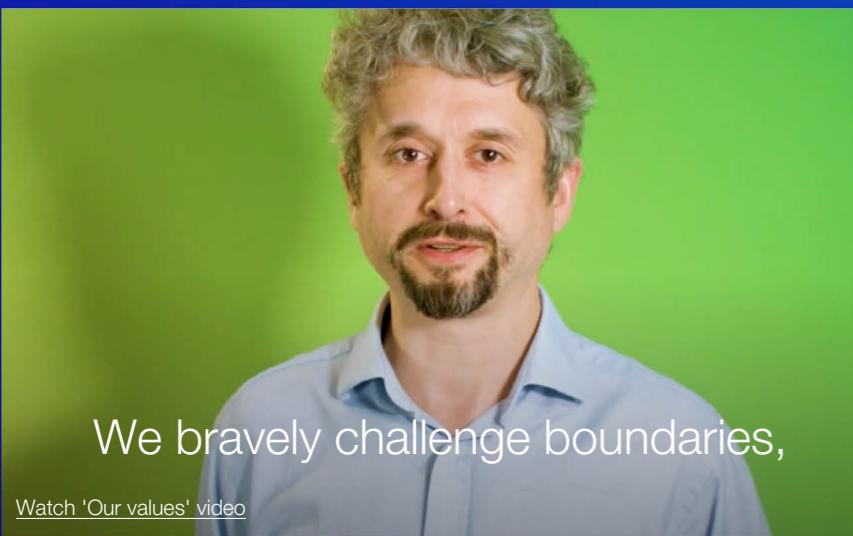
What makes us ASML (continued)

Our core values

To help solve humanity's toughest challenges while at the same time addressing our own, we must continue to amplify ASML's core values that created our success – challenge, collaborate and care. We believe that these values help to provide opportunities for our employees in a safe, inclusive environment to develop their talent, feel respected and thrive, which enables them to make smart decisions that benefit all stakeholders.

We challenge

Say it can't be done, we dare you. We bravely challenge boundaries and question the status quo. We continuously refine our ideas and processes, which enables us to keep pushing technology forward.

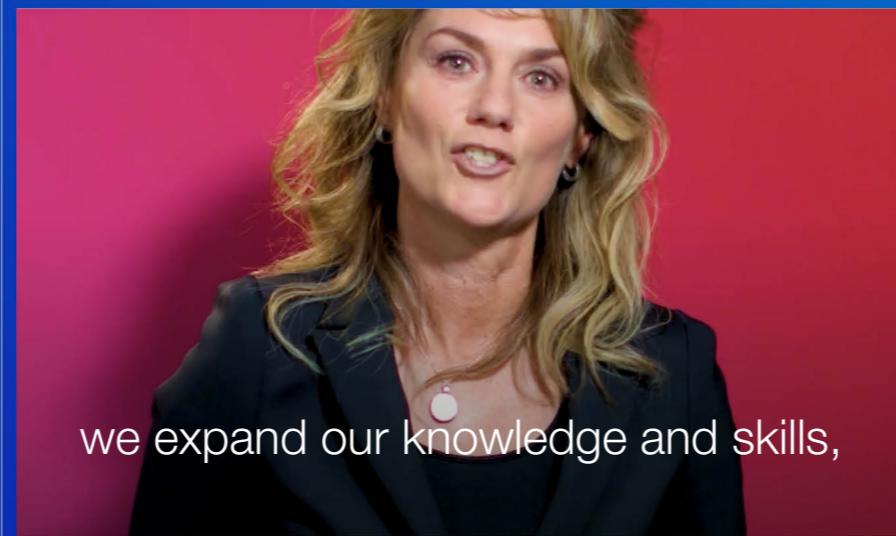


We bravely challenge boundaries,

[Watch 'Our values' video](#)

We collaborate

We collaborate to tap into our collective potential. Together with our partners in our ecosystem, we expand our knowledge and skills, learn from each other and share approaches to deliver the best results. This way, we create solutions that are optimized for ASML as a whole.



we expand our knowledge and skills,

We care

As an industry leader, we act with integrity and respect, realizing that our impact extends beyond technology to people, society and the planet. We take personal responsibility to create a safe, inclusive and trusting environment where people from all backgrounds are encouraged and enabled to speak up, contribute, make mistakes, learn and grow.



to people, society and the planet.

How we innovate

Our innovation philosophy is one where we see ourselves as architects and integrators, working with partners in an innovation ecosystem.

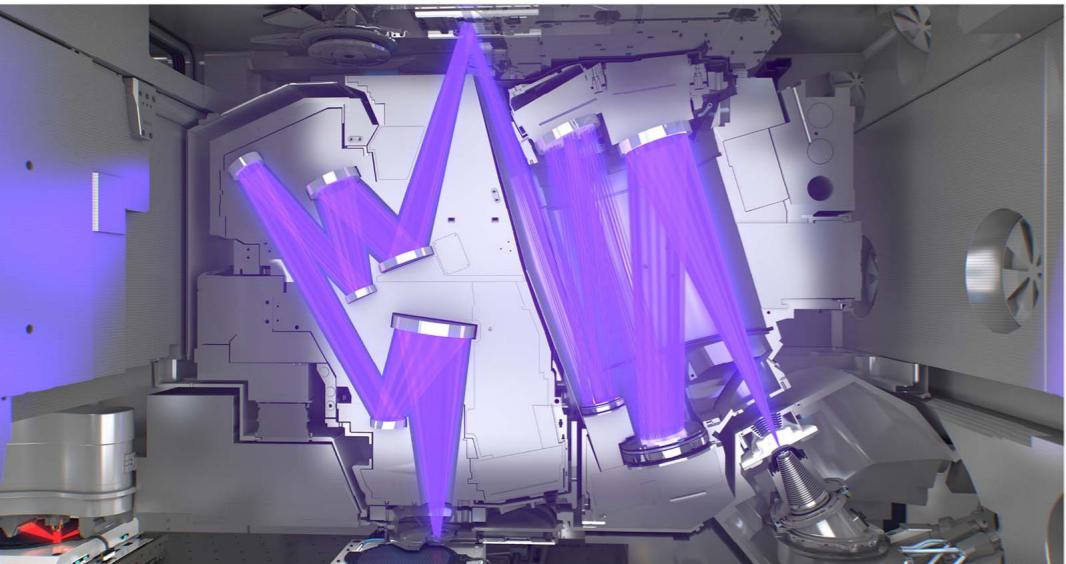
Tiny microchips, driving a global ecosystem

Every moment of every day, people make use of technology that contains microchips. These are small but mighty devices, and fabricating the layers on even the simplest chip requires an elaborate process that few companies in the world have mastered. This can take months from start to finished product, as the silicon wafer travels through dozens of different machines in a chipmaker's fab (semiconductor fabrication plant) before it finds its way into electronic products.

This multifaceted production process has led, over decades, to the semiconductor industry becoming a global ecosystem. This ecosystem includes specialized chip design companies, equipment and infrastructure suppliers and the chipmakers themselves.

A strong collaborative network at the cutting edge of our digital future

As a crucial manufacturer of lithography equipment, ASML is a vital part of this ecosystem chain. The fabrication of the circuitry patterns on silicon wafers, made possible by our lithography systems, can be found in the factories of every major chipmaker in the world.



But our systems are just one part of a network and process involving numerous suppliers and the latest chipmaking equipment. Every step and every machine in the process is important. That's why collaboration and innovation are key. At ASML, we collaborate to succeed – from the academics who help us understand and push the laws of physics, to our customers who identify new possibilities and the suppliers that translate our ideas into products and technology.

Our ecosystem partners

We innovate through partnerships. By developing our technology in close collaboration with our customers, we seek to build today what they need tomorrow. We develop our machines based on their input, and engage closely with them to help pursue their technology and cost roadmaps.

We also work closely with our suppliers, trusting them to manufacture parts and modules for our systems. Many of them are deeply involved in developing new technology and achieving the innovations we seek. With some of these so-called 'farmout suppliers', we work as co-investors.

Our partnership with Carl Zeiss SMT has spanned more than three decades, and we also hold an important strategic interest in the company. We apply the principle of 'two companies, one business', working together to drive operational excellence in innovation and technology.

We co-develop expertise through a wide network of technology partners, including universities and research institutions such as imec in Belgium and the technical universities in Twente, Delft and Eindhoven and Advanced Research Center for Nanolithography (ARCNL), all in the Netherlands.

Generating ideas and finding technological innovations and solutions

With more than 14,000 of the brightest minds in the industry in our R&D department, ASML is uniquely placed to innovate the most advanced lithography systems in the world. We continue to invest heavily in R&D – in 2022, we spent €3.3 billion in this vital area, compared with €2.5 billion in 2021, while balancing our customers' needs, product capabilities and technology 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 – to assess if they can be applied in ASML's technology roadmap to support our customers and help drive their own semiconductor device roadmaps.

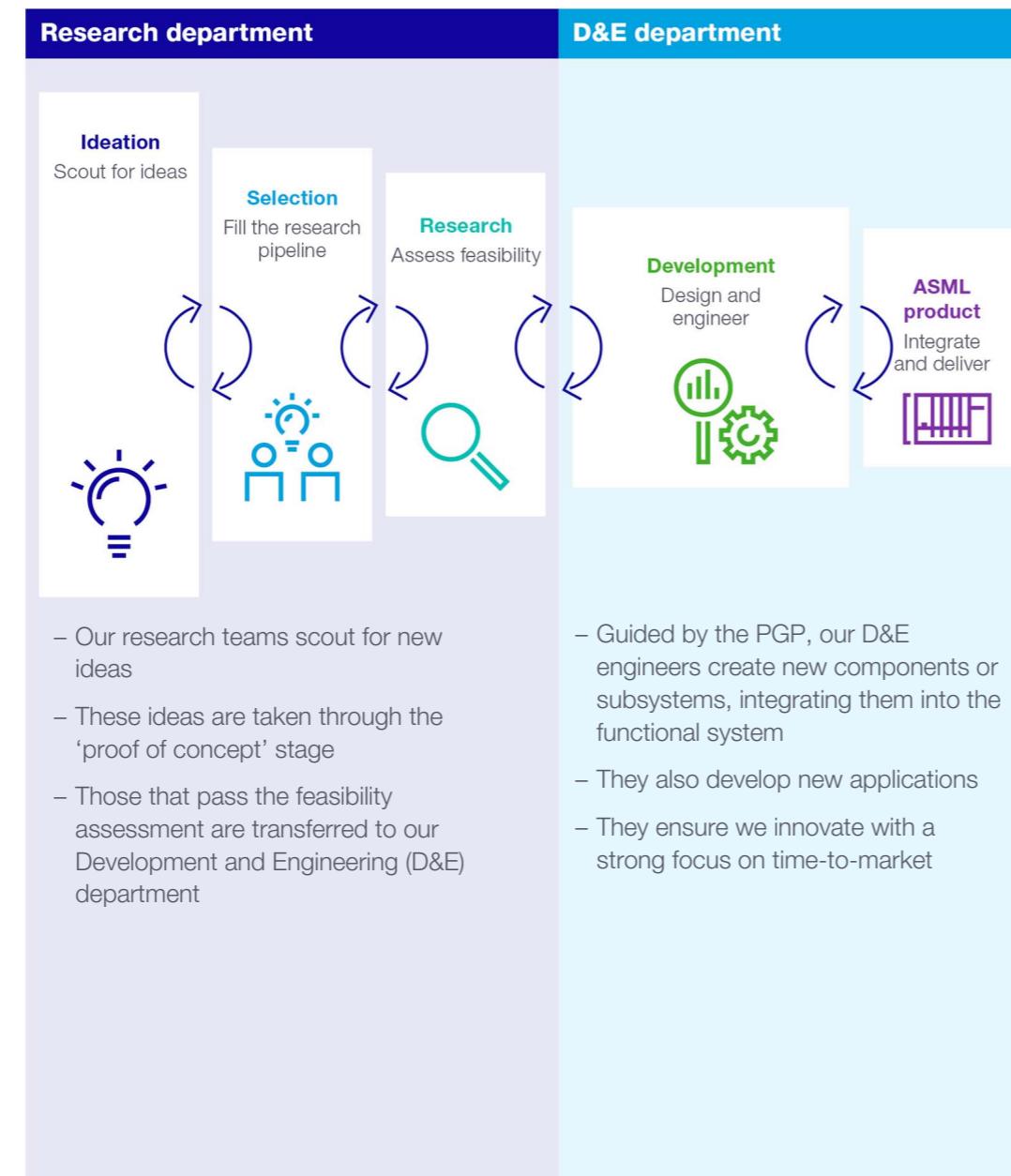
We innovate through partnerships. By developing our technology in close collaboration with our customers, we seek to build today what they need tomorrow.

How we innovate (continued)

Filling the ‘innovation funnel’

We encourage our experts to build a wide network in the broader technology space. This supports the constant stream of new ideas to our technology pipeline that flows through what we call our ‘innovation funnel’ (see diagram on the right). This helps us select new ideas that have the potential to advance our products and their customer application.

Ideas that pass the feasibility assessment go into our product generation process (PGP), a decision-based process for product development that includes building and testing system prototypes in the necessary environments. Prototypes that pass these tests may eventually lead to new product releases.



Innovation achievements in 2022

Every day, our teams take on the exciting challenge of building and driving innovation to enhance our reputation as the providers of the most advanced lithography systems in the world. To do this, we apply concurrent engineering, often starting new system development before the previous generation has even reached the customer. At the same time, we continuously seek to improve our products and capabilities, while safeguarding their reliability, manufacturability and serviceability.

In DUV, we shipped the first TWINSCAN NXT:870 – the first NXT KrF system – and the first TWINSCAN NXT:2100i – enabling over 20% improvement of on-product overlay to a customer.

In our EUV High-NA business, we received both the first High-NA mechanical projection optics and

illuminator and the new wafer stage from suppliers. These modules will be used for initial testing and integration, an important step for the EXE:5000 program.

In addition, to further strengthen our product offering, we released ALO12C – a hardware-software combination – that enables our customers to optimize wafer alignment performance using 12 colors instead of four.

We have also continued to progress our metrology and inspection roadmap. For example, the HMI eScan 1100 multibeam system, our first-generation multibeam system with 25 beams (5x5), has been shipped for customer evaluation.

In 2022, we also shipped our first eScan460 system, which is our next-generation single-beam inspection system.



Customer intimacy

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

Engaging with our customers at all levels and focusing on long-term challenges

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 – which includes increasing the adoption of EUV in high-volume manufacturing environments. In 2022, we received additional orders for the TWINSCAN EXE:5200, the high-volume manufacturing version of our EUV 0.55 NA (High-NA) platform. All current EUV customers have submitted orders for High-NA, demonstrating the demand for continuing shrink.



Complete customer satisfaction

When we talk about customer intimacy, we mean the entire customer relationship across all channels, from the early stages of innovation onward. At each stage, we aim to foster trust, advocacy and continuous engagement, with the goal of achieving complete customer satisfaction.

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.

Close customer alignment

We have built a structure of customer interactions across various channels in the organization to support and sustain our partnerships with customers. For example, we run regular meetings with our key customers to align our product development plans with their business goals and needs.

These meetings include Executive Review Meetings, at which members of our senior management team and Board of Management discuss business and strategies with customers; Technology Review Meetings, at which our senior technology experts, our Chief Technology Officer and our Chief Business Officer discuss technology roadmaps and requirements with customers; and Operational Review Meetings, where we review topics related to our customers' operational activities.

Building on our customer relationships

We market and sell our products directly to customers, without agencies or other intermediaries. Our dedicated Sales and Customer Management department is responsible for building and maintaining our customer relationships and ensuring all relevant ASML departments contribute to meeting customer needs. Our account managers, field and application engineers and service and technical support specialists are located close to our customers throughout Asia, the US and EMEA.

We know how essential it is for us to have well-trained engineers in the regions where we operate, so we offer training designed to boost the capabilities of our local customer service teams as well as enhance local technical expertise. Alongside good remote-control capabilities, this ensures that we continue to increase the self-sufficiency of the local field engineers.

Working with customers in 2022

While we maintained a high level of engagement with our customers throughout the pandemic, we were pleased that the physical interactions started to return to 'normal' this year. With travel restrictions, quarantine and workforce constraints coming to an end in many countries, we were able to hold physical meetings with more customers around the world, and they were able to visit us at the Veldhoven campus more and more.

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

Customer intimacy (continued)

However, some restrictions remained around the world during the year.

Our customer relationships have been important in trying to manage the significant ramp-up of demand in the first part of the year. The market remained strong, but the overheated nature of the market this year, combined with the challenges we experienced in delivering systems as fast as our customers needed, impacted the conversations we had with them. While we went through the delivery challenges together, we did our best to keep our customers fully informed of shipment status and progress in our capacity plans.

Given the shortages that built up in the early part of 2022, our customers still needed our equipment urgently. We have worked with them to achieve this, focusing on the dynamics of different customers in various areas in the industry. As part of our commitment to responding rapidly to our customers' needs, we also introduced 'fast shipments'.

The market continues to be influenced by governments, for example through the CHIPS and Science Act in the US and EU, which focuses on federal aid to encourage the construction of microprocessor manufacturing facilities. This type of governmental attention requires major investments in specific regions, which also require delivery of our equipment for new fabs.

Measuring our approach

Our Voice of the Customer program helps to ensure our employees hear firsthand about our customers' needs and challenges. This is especially important for employees without direct access to customers. To reach as many of our people as possible, the program makes use of different channels of communication: live presentations and Q&As with senior customer representatives, recorded customer interviews, online articles and personal engagement with customer representatives.

While we still face the long tail of COVID-19 restrictions in some areas, we continue to run local Voice of the Customer initiatives and remote customer interviews. Our regular schedule of interactions continued throughout the year, and we are starting to reintroduce live presentations with larger audiences and combining remote with face-to-face interactions where we can.

We also ask our customers to rate our performance through our Customer Feedback Survey. Their direct ratings and frank comments provide valuable insight into how we can contribute to our customers' successes and help them to overcome challenges. We carefully analyze the results, check the insights gained with each customer and then define targeted, continuous improvement plans with their input to ensure we take their priorities into account.

We have been busy deploying the improvement actions identified in our 2020 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 2022 we sent out our latest survey. The results of the 2022 survey show us that our customers are satisfied with our teams, and products, performance and the business support we provide for them. They also ask us to closely listen to their feedback, provide them with shorter delivery times and continue pushing the technology forward in collaboration with them and in line with their needs.



Externally, TechInsights, through its annual Customer Satisfaction Survey, benchmarks the performance of suppliers across the semiconductor industry based on three key factors: supplier performance, customer service and product performance. Our target is to achieve a top-three ranking among large suppliers of semiconductor equipment. In the 2022 TechInsights benchmark, we again achieved a second place Customer Satisfaction ranking among the '10 Best Large Suppliers of Chip Making Equipment', and first place in the best suppliers of fab equipment category.



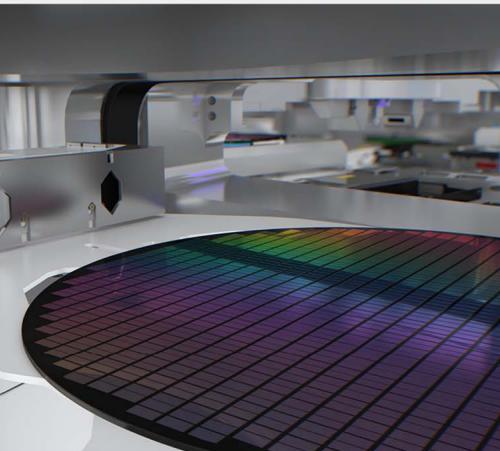
Our products and services

Our highly differentiated solutions provide unique value drivers, for both our customers and ASML, that will enable affordable shrink well into the next decade.

Holistic lithography product and service portfolio

The semiconductor industry is driven by affordable scaling – the ability to make smaller, more energy-efficient transistors at the right price. Our holistic lithography product portfolio is geared toward lithography-enabled shrink that goes far beyond the current decade, allowing our customers to generate the greatest value per silicon wafer for many years to come.

Our comprehensive portfolio supports customers with a broad range of products and services, from mass-producing advanced Logic and Memory chips to creating novel ‘More than Moore’ applications or cost-effective mature chip technologies. Our product offerings provide patterning solutions for various industry wavelengths – from the most advanced 13.5 nm EUV wavelength to the industry’s workhorse DUV wavelengths of 193 nm, 248 nm and 365 nm.



Our holistic lithography approach
See page 35 >

As chipmakers continue to scale nodes, they face unprecedented engineering, material, structural and manufacturing difficulties. Our applications products support our lithography platforms, driven by our unique capability to help customers maximize patterning performance. This portfolio includes optical and e-beam metrology, high-resolution e-beam inspection, computational lithography and scanner and process control software solutions.

We also support our growing installed base with best-in-class customer support, providing our customers with upgrade solutions for higher productivity and improved imaging, overlay and availability.

Extreme ultraviolet (EUV) lithography systems

In more than two decades since we started developing EUV technology, we have invested billions in R&D and acquired Cymer, a San Diego-based maker of light sources, to accelerate our EUV source technology. This has helped us solve several technical challenges to enable the EUV infrastructure our customers need for high-volume manufacturing.

Our success has come through close cooperation with our customers and suppliers, and ASML is currently the world’s only manufacturer of EUV lithography systems. Since its introduction, our EUV installed base produced more than 111 million wafers, compared with 59 million wafers produced by end of 2021.

EUV 0.33 NA

Our EUV platform extends our customers’ Logic and Memory roadmaps by delivering resolution improvements and state-of-the-art overlay performance, enabling year-on-year cost reductions. EUV lithography uses light with a wavelength of just 13.5 nm and a numerical aperture of 0.33. This is a wavelength reduction of almost 15 times compared with the next most advanced lithography solution used in advanced chipmaking – deep ultraviolet (DUV) argon fluoride (ArF) lithography, with its 193 nm light. This allows our customers to use EUV in a single exposure, rather than complex multiple-patterning strategies with ArF immersion, and enables them to further shrink microchip structures. Our EUV product roadmap is intended to drive affordable scaling to 2030 and beyond.

The TWINSCAN NXE:3600D is 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.

EUV 0.55 NA (High-NA)

After six years of engineering, we have started to build the next generation of EUV lithography systems – further improving resolution with a higher numerical aperture (NA) of 0.55 NA compared with the 0.33 NA of our current EUV platform. To reduce technological introduction risk and R&D costs, the EUV 0.55 NA (High-NA) platform maximizes commonality with the EUV 0.33 NA platform.

Our EUV 0.55 NA systems – TWINSCAN EXE:5000 and EXE:5200 – are an evolutionary step in EUV technology, introducing a novel optics design and significantly faster reticle and wafer stages. Their 0.55 NA provides a resolution increase compared with the 0.33 NA lens used in our previous EUV machines, and this enables higher-resolution patterning for even smaller transistor features.

TWINSCAN NXE:3600D ▶



Our products and services (continued)

EUV lithography systems (continued)

These enhancements offer considerable benefits to our customers, enabling lithography simplification for future nodes, higher yield and decreased defect density for both Logic and dynamic random-access memory (DRAM). With its larger optics, the EXE platform can print smaller features with higher density, reducing patterning costs for customers. EUV 0.55 NA helps 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 EUV 0.55 NA (High-NA) technology to start supporting high-volume manufacturing in 2025/2026.

In 2022, we received purchase orders from all of our current EUV customers for the delivery of the industry's first TWINSCAN EXE:5200 system – EUV high-volume production system with a high NA and a productivity of 220 wafers per hour.

Deep ultraviolet (DUV) lithography systems

DUV lithography systems are the workhorses of the industry. Supporting numerous market segments, DUV systems produce the majority of layers in a customer device today and will remain important for future devices. We offer immersion as well as dry lithography solutions for all wavelengths currently used in the semiconductor industry – i-line using 365 nm wavelength, KrF using 248 nm and ArF using 193 nm. These systems help manufacture a broad range of semiconductor nodes and technologies, and support the industry's cost- and energy-efficient scaling.

Our DUV immersion and dry systems lead the industry in productivity, imaging and overlay performance for high-volume manufacturing of the most advanced Logic and Memory chips in combination with EUV, while continuing to deliver value for mature nodes and lower-volume applications.

Immersion systems

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 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

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 Memory and Logic 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 wafers per hour) and footprint.

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

For more critical KrF layers, the 0.93 NA TWINSCAN XT:1060K is our most advanced dual-stage KrF lithography tool at 248 nm, with the highest NA and productivity in the industry, offering best-in-class resolution at and below 80 nm.

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.

TWINSCAN NXT:2100i ▾



With an 0.80 NA, the TWINSCAN NXT:870 is our new generation KrF system.

TWINSCAN NXT:870 ▾



Our products and services (continued)

Mature products and services

Before EUV, before immersion and even before our TWINSCAN systems, there was the PAS. In 1991, seven years after the company was founded, we launched the PAS 5500, which would prove to be our breakthrough platform. This system dramatically reduced manufacturing times for our customers, and its modular design enabled them to produce multiple generations of advanced chips using the same system.

Our refurbished products business, known as Mature Products and Services (MPS), refurbishes and upgrades our older lithography systems to extend their lives and offer associated services. MPS's customer base is wide and active in a variety of markets, especially in the 'More than Moore' space.

PAS 5500 ▾



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 through our refurbishment and associated services.

Remarkably, 95% of the systems that we have sold in the last 30 years are still in use.

We offer refurbished systems of the PAS 5500 and first-generation AT, XT and NXT systems. Our refurbishment and associated services are adept at extending the lifespan of our customers' installed base, drawing value from their capital and contributing to sustainable product use.

**Read more in:
Environmental - Circular economy - Refurbish mature products.**

Metrology and inspection systems

Our metrology and inspection systems allow chipmakers to measure the patterns that they actually print on the wafer to see how well they match the intended pattern. Our portfolio covers every phase of bringing a chip to market, from R&D to mass production, and our systems monitor each step of the manufacturing process – enabling chipmakers to assess the performance of the entire process.

The systems offer the speed and accuracy needed to create automated control loops via our process control solutions. This optimizes the lithography system settings for each exposure to reduce edge placement error (EPE), which is the combination of product overlay and critical dimension uniformity, enlarge the process window and achieve the highest yield and best performance in mass production.

Optical metrology

Our YieldStar optical metrology solutions allow chipmakers to assess the quality of patterns on the wafer in volume production, through fast and accurate overlay measurements. Overlay, or how well one layer of a chip is aligned with the previous one, is an important measure of lithography performance and a key contributor to EPE. As structures on microchips get smaller and smaller, overlay and EPE become increasingly important.

The YieldStar 385H, launched in 2020, offers in-resist post-lithography (pre-etch) overlay and focus metrology, with enhanced throughput and accuracy. Compared with previous systems, key enhancements include a faster stage and faster wavelength changing. This enables highly accurate overlay measurements and tool matching using multiple wavelengths without impacting throughput.

Our latest model, launched in 2021, the YieldStar 1385H, provides the ability to measure after-etch device patterns, enabling extended yield control capability for our customers. This system for fast, accurate in-device overlay and metrology delivers improved in-device accuracy and around 50% productivity improvement capability over the previous YieldStar 1375 model, and has the capability to measure multiple layers at once, helping customers to improve yield through post-etch process control.

E-beam metrology and inspection

Our HMI e-beam solutions allow customers to locate and analyze individual chip defects amid billions of printed features, extending the scope for process control. While e-beam solutions were historically too slow to monitor volume production processes, we have made progress in various methods of increasing the throughput of e-beam systems.

We continue to extend technology leadership in voltage contrast inspection and physical defect inspection with the widely adopted single-beam platform. The eScan 430 is our latest single-beam inspection system, delivering more than 35% throughput improvement across various applications in Logic, DRAM and 3D NAND.

Our high-resolution e-beam metrology system 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 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 have 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.

Our products and services (continued)

Metrology and inspection systems (continued)

Building on the 2020 launch of our breakthrough multibeam inspection tool HMI eScan 1000, with a 3x3 image, we have now introduced the next-generation HMI eScan 1100 to our product portfolio. 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 eScan1100 multibeam system was installed at a customer site to start customer evaluation.

System and process control

Our system and process control software products enable automated control loops to maintain optimal operation of lithography processes. Using powerful algorithms, they analyze metrology and inspection data and calculate necessary corrections for each individual exposure. These are then fed back to the lithography system to minimize EPE in subsequent wafer lots. In this way they enable the creation of ever more advanced microchips with maximum yield and performance. Our system and process control roadmap aims to take increasing advantage of the huge flexibility of our lithography systems. We are able to apply more powerful algorithms with higher-order corrections to support our customers' own roadmaps for increasing EPE performance.

Computational lithography and software solutions

Our computational lithography solutions are used in 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. Insight from computational lithography solutions is also increasingly being used to guide metrology and inspection, increasing throughput and enabling more precise process monitoring and control in high-volume manufacturing.

These products are based on accurate computer simulations of the lithography system and process, representing a wide variety of physical and chemical effects. Increasingly, we are using machine-learning techniques to further speed up development, and are continually developing our computational lithography offering to increase the range and accuracy of models and reduce the computational time and cost.

Managing our installed base systems

To provide all our customers with the best possible value proposition, we offer an extensive installed base management portfolio, including a wide range of service and upgrade options.

Our installed base continues to grow, with many systems finding second or even third lives at new owners in new markets and applications.

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.

Customer support

We support our customers with a broad range of applications, services and technical support products to maintain and enhance our systems' performance. We have more than 9,000 customer support employees, who work to 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, an easy, centralized customer portal and training for customer engineers.



Innovation – the driving force behind our progress

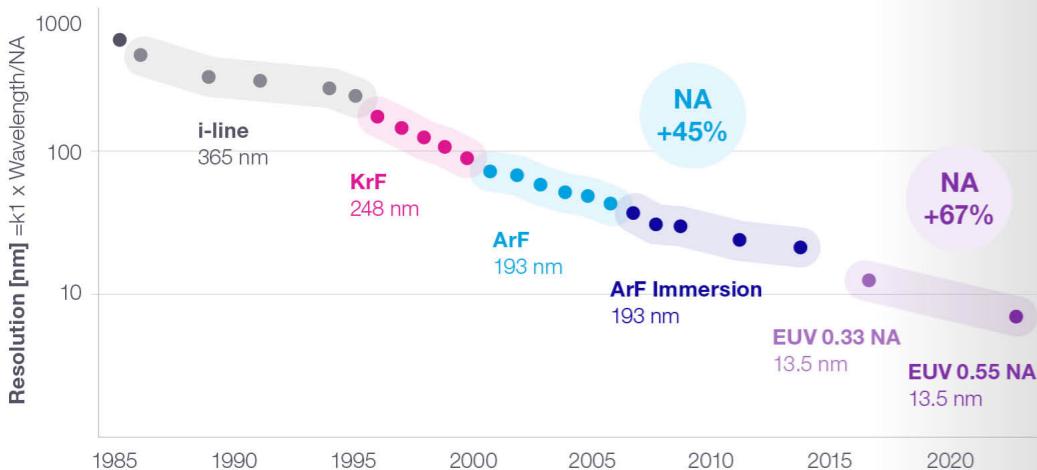
In conversation with our President, Chief Technology Officer and Vice Chair of the Board of Management
Martin van den Brink

What were the stand-out achievements of the last 12 months?

For us, innovation is all about making a difference in the marketplace. Our goal is always to give customers the products and capabilities they need to deliver on the potential of technology for making a positive contribution to society. The hunger for computational power is endless. Energy transition, connectivity, healthcare and many more areas are all being transformed by digital technology – we do not directly create the tech that is making these developments possible, but we are important enablers.

So the most pleasing aspects of the last year have included seeing some of the ideas we have been working on in recent years become reality. For example, we made the first shipment of our latest DUV NXT technology, the TWINSCAN NXT:2100i. Furthermore, all our current EUV customers have now submitted orders for EUV 0.55 NA (High-NA). Customers will start their R&D in 2024-2025, aiming for high-volume manufacturing in 2025-2026.

Over 35 years 2 orders of magnitude resolution reduction continues... by working on wavelength, NA and k_1



The Rayleigh criterion that drives Moore's Law

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

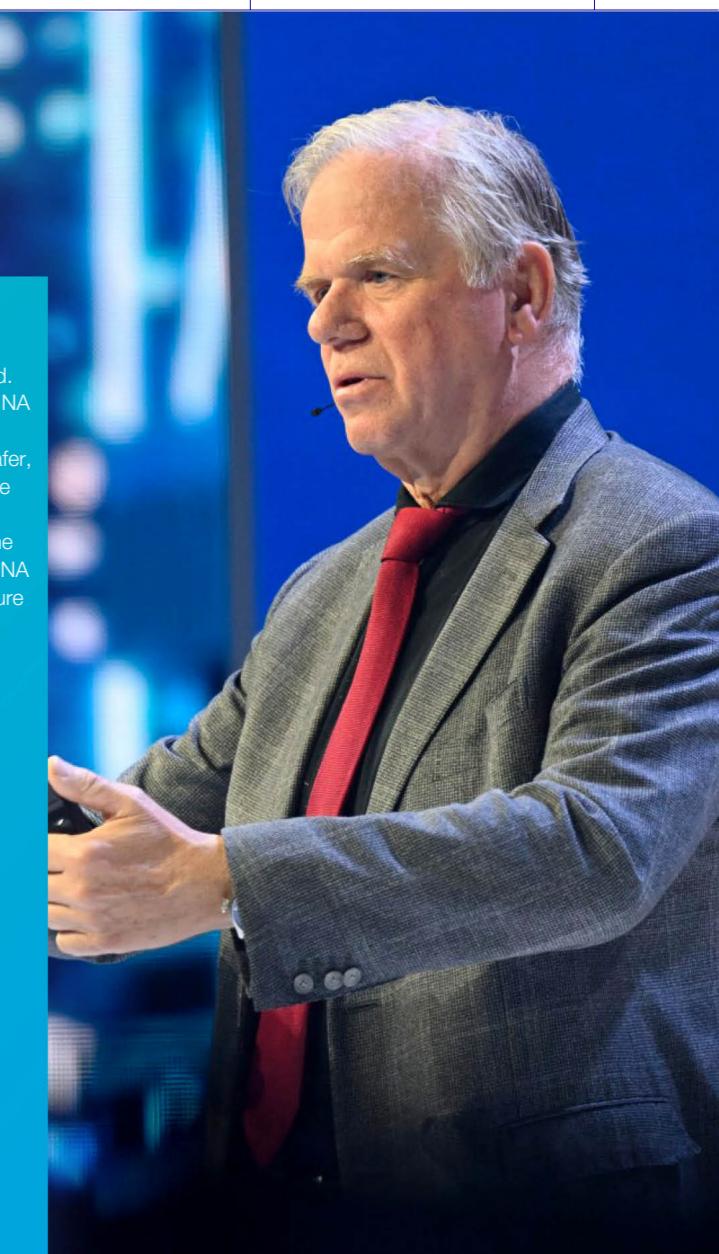
– **CD** is the critical dimension, a measure of how small the smallest structures are that the lithography system can print.
 – **Lambda** is the wavelength of the light source used and the smaller the wavelength, the smaller the structures that can be printed. Our deep ultraviolet (DUV) lithography systems, known as the industry workhorse, dive deep into the UV light spectrum to print the tiny features that form the basis of the microchip. Over the years, ASML has made several wavelength steps, and our DUV lithography systems range from 365 nm (i-line), 248 nm (KrF) to 193 nm (ArF). With the 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.

- **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, using the breaking index of the water to increase the NA (so-called immersion systems). After the wavelength step to EUV, ASML is 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.

- **k_1** 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](#)



Innovation – the driving force behind our progress (continued)

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

Martin van den Brink



We are 100% committed to advancing both EUV and DUV technologies in order to provide a balanced product portfolio. We have seen something of a transition in our R&D focus in recent years, with increased emphasis and resources dedicated to DUV, which will continue to be the industry workhorse and the technology of choice for many customers. We are now ramping up our development of solutions that are driving commonality, productivity and performance to new standards, underpinning the future of DUV.

Behind the scenes, we have been making good progress with our scanner and process control software solutions, as well as with our computational engine and optical and e-beam metrology and inspection solutions. And there is a lot more to come in the years ahead, as we continue to sharpen our focus on holistic lithography. Lithography systems are highly complex, so we aim to provide customers with a holistic, integrated approach that enables them to optimize the lithography process. To take the new half-dome mirror as an example, this provides the customer with around 100 different controls, in addition to the approximately 1,000 that we already offered. This year we enhanced our virtual computing platform that brings data together from every part of the lithography process, analyzes it and provides a feedback loop to control the performance of our tools and optimize what is a very complex process.

Is Moore's Law still alive and well?

Overall shrink will continue for years to come. In his book '*The Singularity is Near*', Ray Kurzweil explains how the number of transistors per device will continue to increase for a decade or more due to system innovation, of which lithography is one aspect.

But first of all, let's be clear that shrink is a really complicated story. It is partly determined by what we do with our lithography, in line with Moore's Law, and through dimensional scaling this has been the main driver of shrink over the last 15 years. This is still hugely significant but is slowing down a little [as patterns become ever smaller]. In addition to dimensional scaling, shrink is being enabled by both device and system scaling. Device scaling involves innovation in the materials and structures used to make transistors, while system scaling results from greater on-chip integration, such as system-on-chip solutions that combine processors, memory and auxiliary functionality into one chip.

Looking beyond scaling and Moore's Law, other metrics are also important in our industry – for example, energy-efficient performance (EEP), which was pioneered at TSMC, one of our key customers. EEP tracks energy efficiency, which is expected to increase threefold every two years.

What are the main challenges for you as CTO?

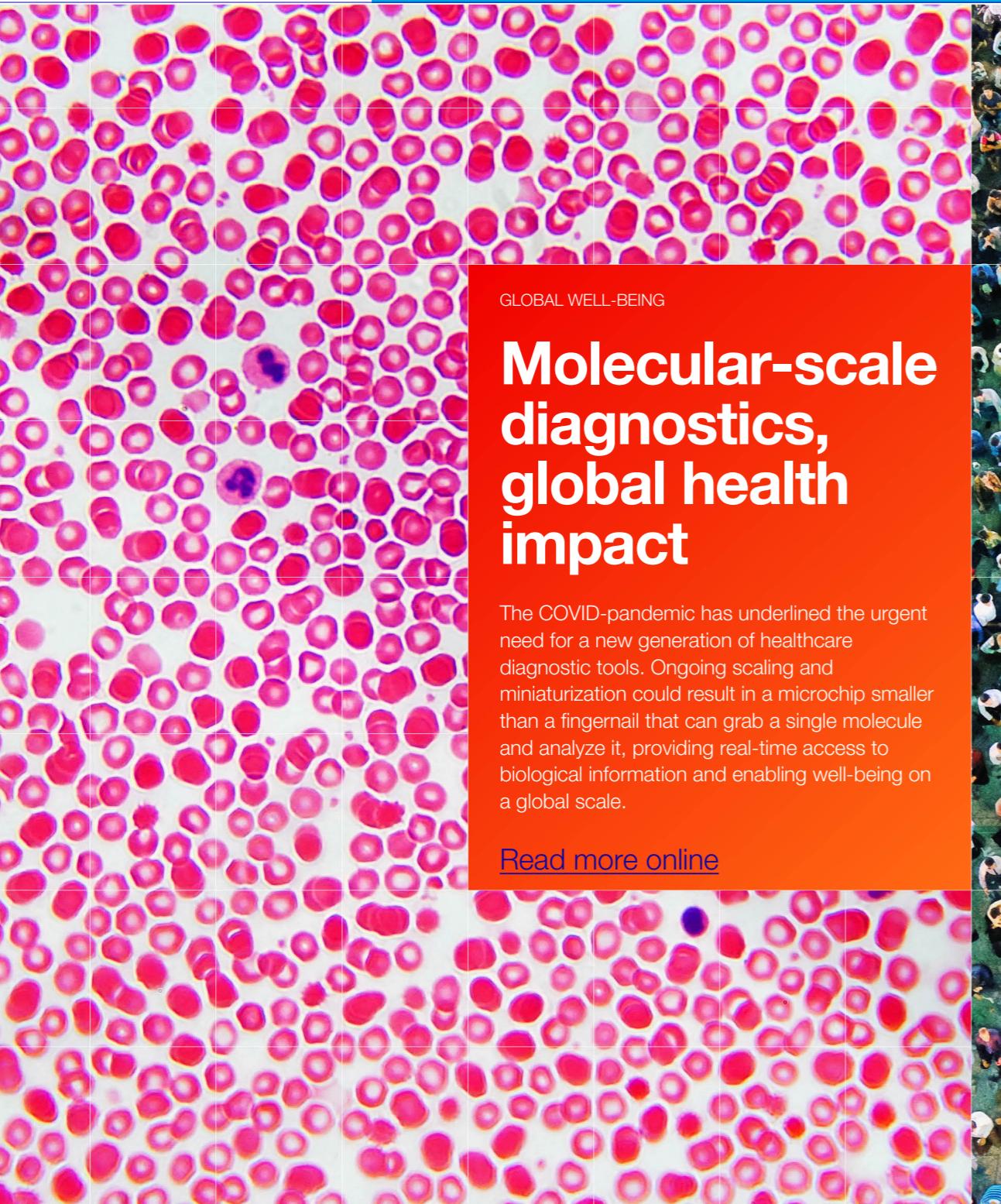
As CTO, I'm always asking myself how I can best drive innovation at ASML and make sure the pipeline continues to be filled. And one of the most important factors in that is people. Our growth and ability to hire large numbers of new staff present challenges in their own right. We employ more than 14,000 FTE in R&D and are adding 7-8% to that number every year. So that's 1,000 or more new people over a 12-month period, all of whom need to quickly learn about and buy into our culture before they can become part of our team.

Sustainability is another challenge that has moved rapidly up the agenda in recent years. The amount of passion and expertise that we are now able to bring to a topic like re-use and repair – not only internally within ASML but also externally among our partners – is very encouraging. As a group, we are acknowledging responsibility for our environmental footprint, which of course is increasing in line with the industry's growth. We are constantly striving to improve EEP, but the fact remains that more lithography equipment at work in fabs will inevitably require more energy in total. It is going to be challenging to understand what it means to create a truly sustainable semiconductor industry.

What's next for innovation at ASML?

I could talk about EUV with an NA higher than 0.7 (known as Hyper-NA) potentially becoming a reality shortly after the end of this decade; however, the most appropriate guide to what comes next is actually: it all depends on cost. We need to be more and more focused on cost reduction – that means not reducing resources but making sure that the solutions we bring to market are simpler, more sustainable, more serviceable, more manufacturable and more scalable. It is not responsible to move to the next product without understanding the cost and complexity constraints we have to put on those products from the very beginning. That is exactly what we did with our new optical metrology system, which will come to market in 2023. We re-examined this project within intense cost parameters and have been able to achieve a new technology that is many times more cost-effective than before.

Similarly, we are continuing to work to contain the cost of the current EUV 0.33 NA systems, as well as High-NA and Hyper-NA, to make sure that the appetite for shrink remains strong. Ten years ago, when we developed High-NA, we could not have imagined that NA beyond 0.55 even existed. So Hyper-NA is very, very difficult to achieve. The great thing is that our business and R&D capability are such that we can handle all of these things simultaneously. We can develop technology like Hyper-NA while focusing on cost containment, simplicity, sustainability, manufacturability and serviceability all at the same time.



GLOBAL WELL-BEING

Molecular-scale diagnostics, global health impact

The COVID-pandemic has underlined the urgent need for a new generation of healthcare diagnostic tools. Ongoing scaling and miniaturization could result in a microchip smaller than a fingernail that can grab a single molecule and analyze it, providing real-time access to biological information and enabling well-being on a global scale.

[Read more online](#)



The world around us

The big picture

The world faces a range of macro challenges, including the war in Ukraine, post-COVID-19 supply chain constraints, inflationary pressures and risk of a global recession.

The big picture for our sector continues to be dominated by the global shortage of semiconductors. With its ability to transform how we all live and work, digital technology sits at the heart of the macroeconomic landscape. Expanding application space and relentless innovation are expected to continue to fuel growth across semiconductor markets. Industry sources anticipate annual growth rates of 9% and more than a doubling of semiconductor revenue from 2020 to 2030.



However, while the medium- and long-term outlook and trends remain unchanged, the current macro environment creates some near-term uncertainties. The war in Ukraine has changed short-term economic pressures around the world by driving a rapid and significant increase in energy costs which is likely to dampen consumer demand. Not surprisingly, people will choose to pay their utility bills rather than buy the latest smartphone. In addition, we are seeing inflation increases across all the world's major economies, and this will in the short term also reduce demand for products that use semiconductors.

We continue to be very positive about the outlook for our sector in general, and for ASML in particular. While the current macro environment creates near-term uncertainties, we expect longer-term demand and capacity showing healthy growth. Expanding application space, continued industry innovation, more foundry competition and technological sovereignty drive an increased demand across semiconductor markets. The issues that restricted the supply chain during and after the pandemic surges of 2020 and 2021 are beginning to abate, and we are scaling up for capacity increases. With additional global demand for wafers expected to be over 780,000 wafer starts per month per year in 2030, we plan to increase our annual capacity to 90 EUV 0.33 NA and 600 DUV systems (2025-2026), while also ramping up EUV 0.55 NA (High-NA) capacity to 20 systems per year (2027-2028).

Trends affecting our marketplace

The following are some of the major themes and trends driving our industry's development, both today and tomorrow.

Increasing market demand

The convergence of wireless communication, telecom, media and cloud via connected devices continues to drive demand for advanced semiconductors across the globe. Growing populations, urbanization, the transition toward renewable energy using wind and solar power, and ongoing electrification to support smart mobility are creating increasing demand for advanced electronic devices.

Microchips are at the heart of all of these devices, ranging from sensors and actuators to smart, scalable and flexible computing solutions. This drives the demand for both new and mature chips that are specifically designed for a wave of new applications in areas ranging from smart homes, cities and industries to predictive healthcare, smart wearables and autonomous robotics.

[Read more on page 26 >](#)



The world around us (continued)

Trends affecting our marketplace (continued)

Global geopolitics

The current trade environment presents significant challenges for the global semiconductor industry. Geopolitical tensions and increased protectionism are likely to continue. Recently steps have been made towards an agreement between governments that will further restrict the export of semiconductor manufacturing equipment to China. This agreement will be translated into legislation in the course of 2023 and, to our understanding, will be focused on advanced chip manufacturing technology, including but not limited to



advanced lithography tools. The pandemic has alerted governments around the world that global supply chains can create significant geographical dependencies on services, raw materials and end products.

Semiconductors are playing an increasingly important role in the growth and continuity of large industrial complexes, and the strategic importance of the semiconductor industry is only likely to increase.



Governments have turned their attention to securing sufficient semiconductor supplies to support their local industries, ensuring higher levels of technological sovereignty, and they are planning significant investments in the semiconductor industry. Industry forecasts indicate that the top three semiconductor manufacturers plan to invest over \$300 billion in global capacity in the coming years.

The industry continues to manage its overall costs, though price rises could ultimately be passed on to the end market, resulting in an increase of prices of devices. Trade tensions and protectionism also introduce significant complexity throughout the supply chain and the processes required. The industry, like so many others in this trading environment, needs to review its global supply chain.

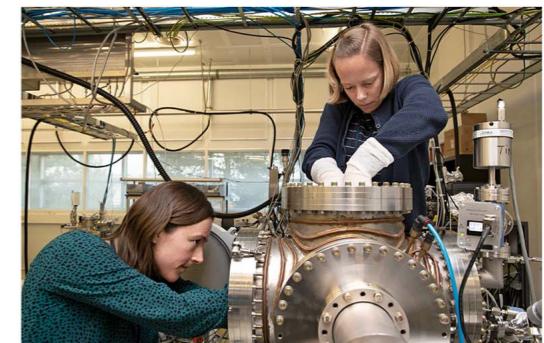
Acting on climate change

Climate change is an urgent matter for governments, companies and individuals around the world. It is a global challenge that requires a global response to limit global warming to 1.5°C. Technologies to counter climate change – from the energy transition to electrification, supporting smart mobility and agricultural innovation – all require semiconductors. For example, semiconductors are crucial in the generation, storage, distribution and consumption of electrical energy.

Internally, the semiconductor industry has an important role to play, as the manufacturing process alone consumes large volumes of energy and water resources.

Driving Moore's Law to enable shrink and, at the same time, improve computing power and storage capacity, also fuels the demand for these vital resources. New architectures and a new way of looking at the entire ecosystem will be required to enhance energy and water resource efficiency.

[Read more on page 76 >](#)



The world around us (continued)

Trends affecting our marketplace (continued)

Technological developments

Technology is evolving fast, and the next level of computing is approaching at speed. The era of mobile computing – where you bring the computer with you – is moving toward an immersive world of ‘ubiquitous computing’, with computing power available wherever you go.

Unleashing the power of data better and faster with artificial intelligence

The transition to ubiquitous computing is enabled by what has been termed the ‘artificial intelligence of things’ (AloT). AloT is a smart and connected network of devices that seamlessly communicate over powerful 5G networks, unleashing the power of data better and faster than ever. This combination of artificial intelligence (AI) technologies and the internet of things (IoT) infrastructure will achieve more efficient IoT operations, improve human-to-machine interactions and enhance data management and analytics.

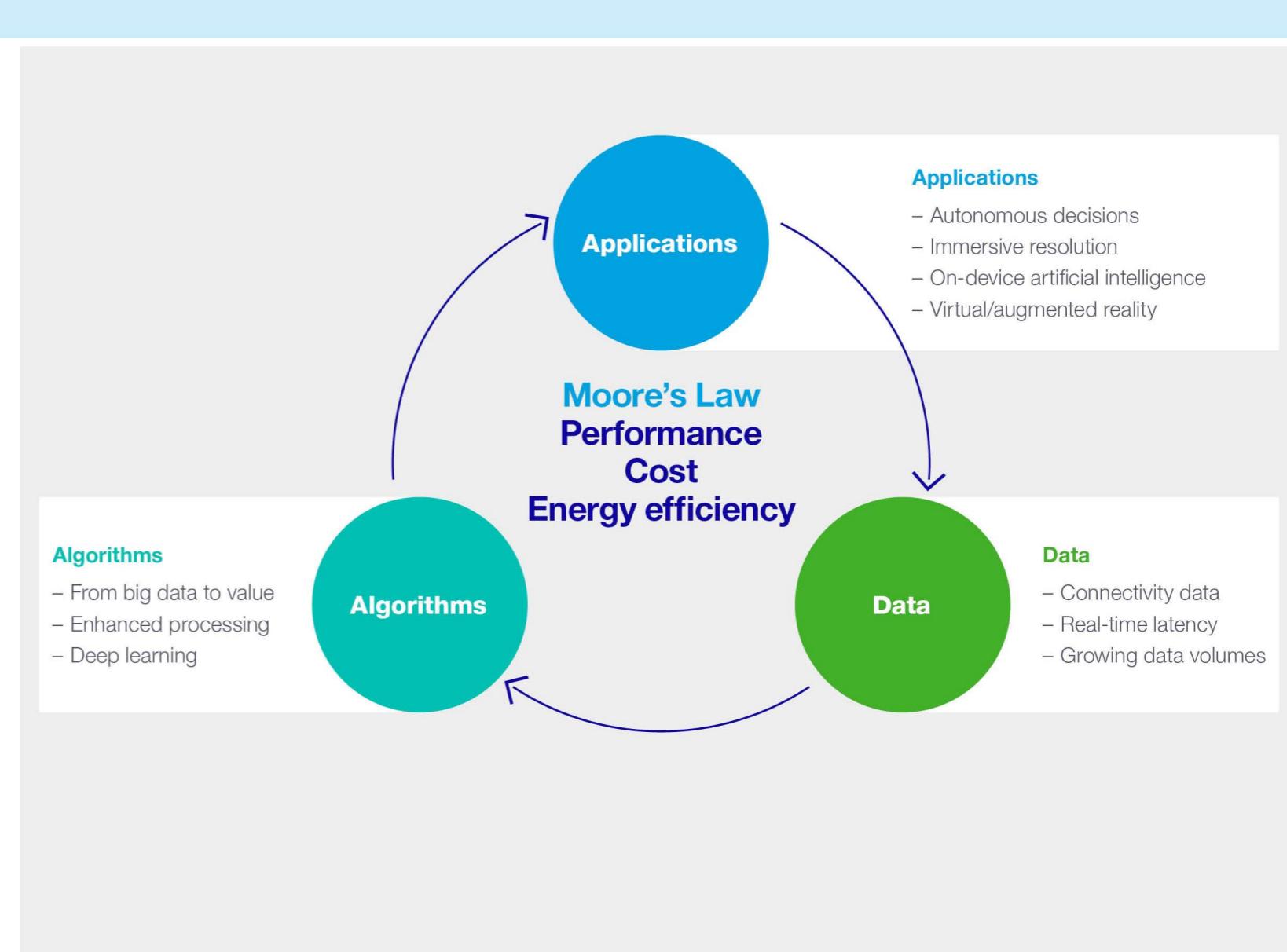
The potential of AloT will gradually open up as AI and IoT increasingly intertwine, facilitated by 5G. The vast amount of data that people can access, and the insights this provides, will fuel semiconductor business growth and digital transformation.

There are around 40 billion connected devices currently in use, with more being added every second. This number is expected to increase to 350 billion devices by 2030. Connected IoT devices are expected to create up to 175 ZB (zettabytes) of data per year by 2025 based on external research. To put that in perspective, one zettabyte is equal to a trillion gigabytes. And to download 175 ZB of data with the average internet connection speed currently available would take one person 1.8 billion years – a very long day at the office (or anywhere else).

So, this big data will also need to become fast data to allow for ubiquitous computing, as the world moves toward ‘edge’ computing, where processing is brought as close to the source of data as possible, rather than happening in the cloud.

Semiconductor-enabled computing trends

Moore’s Law is the guiding principle for the semiconductor industry, the motor driving the industry to transit from mobile computing to ubiquitous computing. This transition continues to expand, facilitating three major trends in computing, as shown in the overview on the right: applications, data and algorithms.



The world around us (continued)

Trends affecting our marketplace (continued)

Semiconductor industry market

In 2020, more than 953 billion chips were manufactured around the world, feeding a \$471 billion industry. In 2022, the semiconductor industry increased the output to over 1.11 trillion chips, which fed a \$618 billion market. Growth is set to continue, with market analysts predicting the industry could reach an over \$700 billion by 2025.

Semiconductor technology plays a crucial part in shaping the interconnected and intelligent network future, and end markets continue to grow. The overview shows an outlook on the current market size and market opportunity for the entire industry based on external research.

Smartphone



Key driver
Continued refresh of all semiconductor content including image sensors

2020 market size (\$bn)

117

Personal computing



High-end compute and Memory, fast conversion to SSD

2020 market size (\$bn)

100

Consumer electronics



Legacy products and packaged ICs, advanced ICs in add-ons

2020 market size (\$bn)

50

Automotive



Strong IC content growth: GPU, sensors, V2X communication sensing

2020 market size (\$bn)

40

Industrial electronics



High-end compute for AI on big data and sensors

2020 market size (\$bn)

51

Wired and wireless infrastructure



Devices for fast data processing, modem, base-station infrastructure refresh

2020 market size (\$bn)

38

Servers, data centers and storage



High processor and Memory growth, hardware accelerations including GPU

Total

471

2022 market size (\$bn)

144

2025 market opportunity (\$bn)

115

2025 market opportunity (\$bn)

71

2025 market opportunity (\$bn)

63

2025 market opportunity (\$bn)

73

2025 market opportunity (\$bn)

53

2025 market opportunity (\$bn)

100

2025 market opportunity (\$bn)

618

2030 market opportunity (\$bn)

150

2030 market opportunity (\$bn)

124

2030 market opportunity (\$bn)

79

2030 market opportunity (\$bn)

93

2030 market opportunity (\$bn)

93

2030 market opportunity (\$bn)

62

2030 market opportunity (\$bn)

136

2030 market opportunity (\$bn)

737

Outlook CAGR 2020-2030 (%)

213

Outlook CAGR 2020-2030 (%)

131

Outlook CAGR 2020-2030 (%)

114

Outlook CAGR 2020-2030 (%)

149

Outlook CAGR 2020-2030 (%)

160

Outlook CAGR 2020-2030 (%)

82

Outlook CAGR 2020-2030 (%)

249

Outlook CAGR 2020-2030 (%)

1,098

6%

3%

9%

14%

12%

8%

13%

9%

Source: ASML's Investor Day presentation (November 2022). Please note rounding differences may exist.

The world around us (continued)

Our markets

Our customers – the world's leading microchip manufacturers – can be grouped into Memory and Logic chipmakers. We design our machines based on their input, and we work together to make sure our machines run smoothly in their fabs.

Memory and Logic chips

Memory chips can store a large amount 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 chips, which process information in electronic devices, are produced by two groups of manufacturers. The first group, known as integrated device manufacturers (IDMs), designs and manufactures Logic chips. The second group comprises contract manufacturers known as foundries. Foundry manufacturers produce chips for ‘fabless’ companies that focus only on chip design and distribution, but do not manufacture microchips themselves.

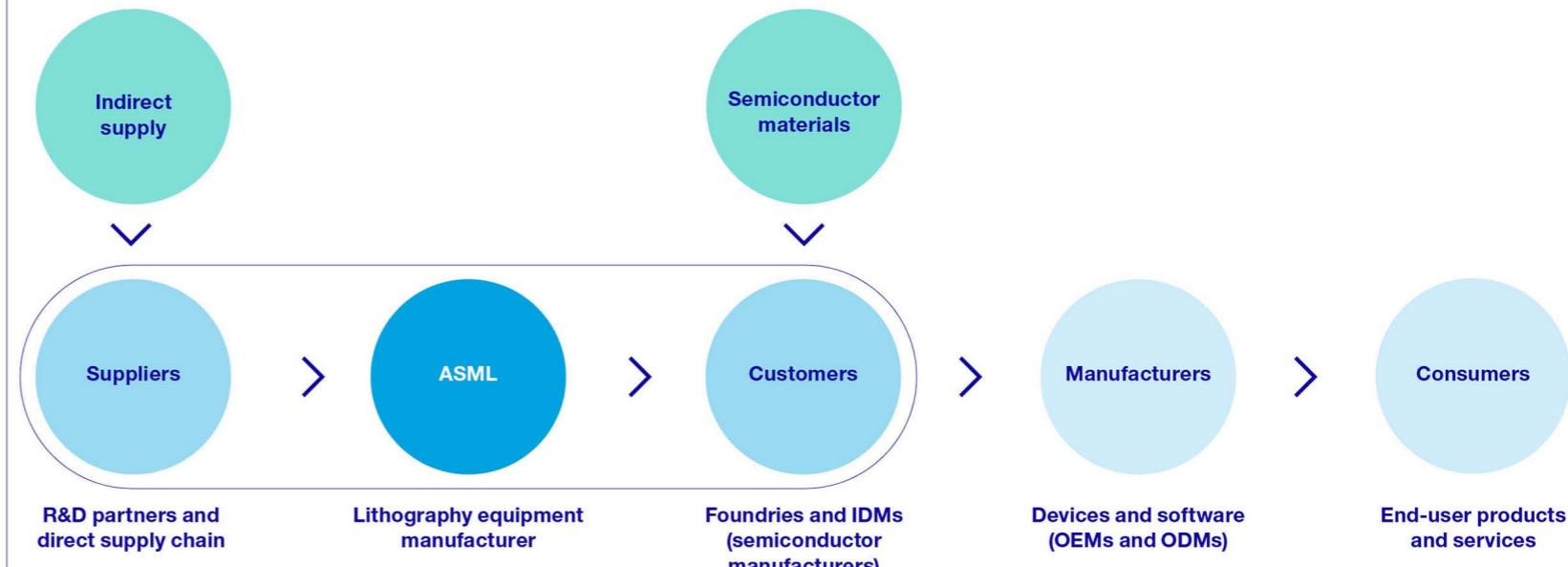
Both Logic and Memory chips can vary greatly in complexity and capability. For example, the most advanced chips power leading-edge technology in AI, big data and automotive technology, while simpler, low-cost chips integrate sensing capabilities into everyday technology to create a vast IoT.

Growth in the chip market

The historical market compound annual growth rate (CAGR) over the last 10 years was 6%, while industry sources project the chip market (worldwide semiconductor revenues) will grow at a CAGR of 9%¹ in the period 2020-2023.

¹ Source: ASML's Investor Day presentation (November 2022).

The role of lithography



Lithography is where we come in. It is a driving force in the creation of faster and cheaper chips that are also more powerful and energy efficient. Today's most advanced processors are based on the Logic N5 node, and contain billions of transistors. Shrinking transistors further is becoming increasingly difficult, but we are not as close to the fundamental limits of physics as some might think.

Next-generation chip designs will include more advanced materials, new packaging technologies and more complex 3D designs, all of which will create the electronics of the future.

The manufacturing of chips becomes increasingly complex as semiconductor feature sizes shrink, but the need to mass produce at an acceptable cost remains. Our holistic lithography product portfolio helps to optimize production and enable affordable shrink by integrating lithography systems with computational modeling, as well as metrology and inspection solutions that help our customers to improve their yield.

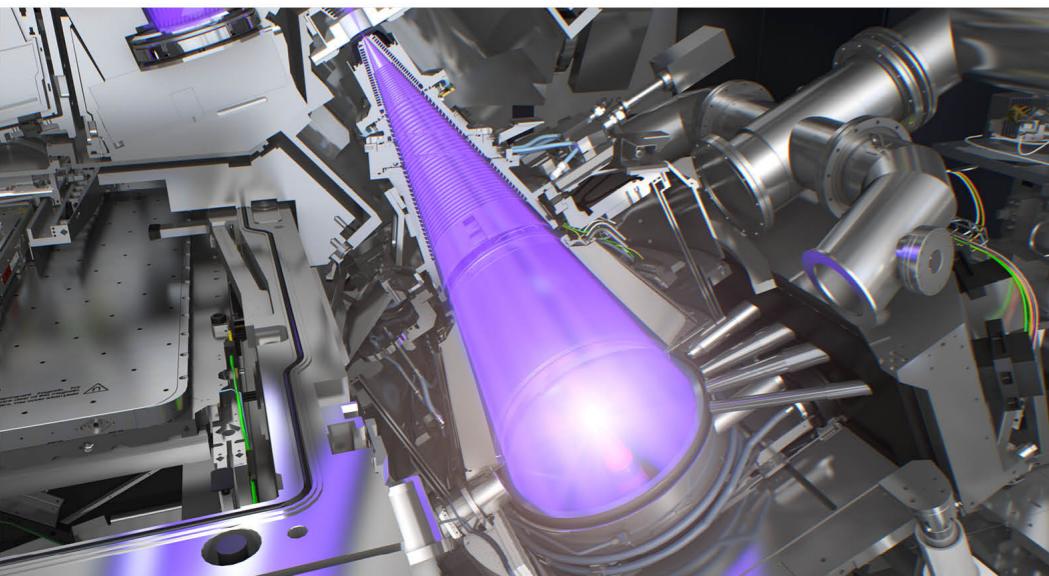
Our computational models enable our customers to optimize their mask design and tape-out time (the time taken in sending the final design to the manufacturer for production). This works through mask-correction software to prepare and modify the design for optimized exposures, while the metrology and inspection solutions help in analyzing and controlling the manufacturing process in real time.

The world around us (continued)

The role of lithography (continued)

The lithography process

When you break it down, a lithography system is essentially a projection system. In our DUV systems, light is projected through a blueprint of the pattern that will be printed (known as 'mask' or 'reticle'); in our EUV systems, light is reflected via the reticle. With the pattern encoded in the light, the system's optics shrink and focus the pattern onto a photosensitive silicon wafer. After the pattern is printed, the system moves the wafer slightly and makes another copy on the wafer.



This process is repeated until the wafer is covered in patterns, completing one layer of the wafer's chips. To make an entire microchip, this process is repeated on layer after layer, stacking the patterns to create an integrated circuit (IC). The simplest chips have around 40 layers, while the most complex can have more than 150 layers.

The size of the features to be printed varies depending on the layer, which means that different types of lithography systems are used for different layers – our latest-generation EUV systems are used for the most critical layers with the smallest features, while our ArF, ArF, KrF and i-line systems can be used for less critical layers with larger features.

Inside a fab

A semiconductor fabrication plant, commonly known as a 'fab', is a factory where microchips are manufactured. The heart of a fab is the cleanroom. All fabrication steps take place here, so the environment is controlled to eliminate dust on a nanoscale. Under the cleanroom floor is the 'sub fab', which contains auxiliary equipment such as the drive laser. The utility fab – containing the pumping and abatement systems for vacuum and cooling – is usually found one floor below this.

The making of a microchip involves a multiple-step sequence, including lithography to create a pattern in the photoresist and chemical processing steps such as deposition, photoresist coating, ion implantation and etching, to create electronic circuits on a silicon wafer.

Microchips are made of layers about 50-150 nm thick that are built on the semiconductor substrate one layer at a time. The most advanced chips require EUV and DUV immersion lithography tools to make them. Simpler microchips, such as sensors for IoT applications, can be produced using DUV dry machines.

After adding material for a new layer during deposition, the desired pattern is exposed onto it, which after development leaves lines and geometric shapes positioned precisely in the desired locations. Then the layer is etched, making these designs permanent on the wafer. The entire manufacturing process of microchips – from start to tested and packaged device, ready for shipment – can take between 18 and 26 weeks, depending on their complexity.



The world around us (continued)

Semiconductor application areas

Predictive healthcare

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

[Read our story on page 22 >](#)

Smart home

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



Energy transition

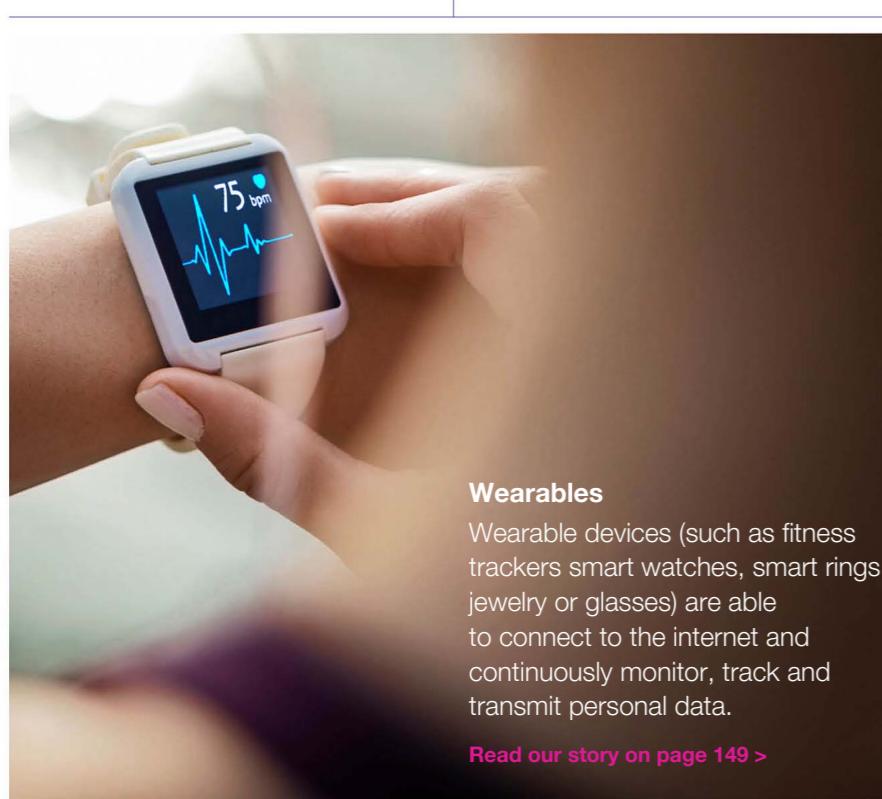
Semiconductors play a key enabling role in the global shift from fossil-based energy production and consumption to renewable energy sources like wind and solar.

[Read our story on page 40 >](#)



Smart cities

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



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.

[Read our story on page 149 >](#)



Autonomous robotics

A new generation of lightweight robots connected to a greater network and fitted with smart sensors enables humans and machines to work side by side, with greater safety and efficiency.



Mixed reality

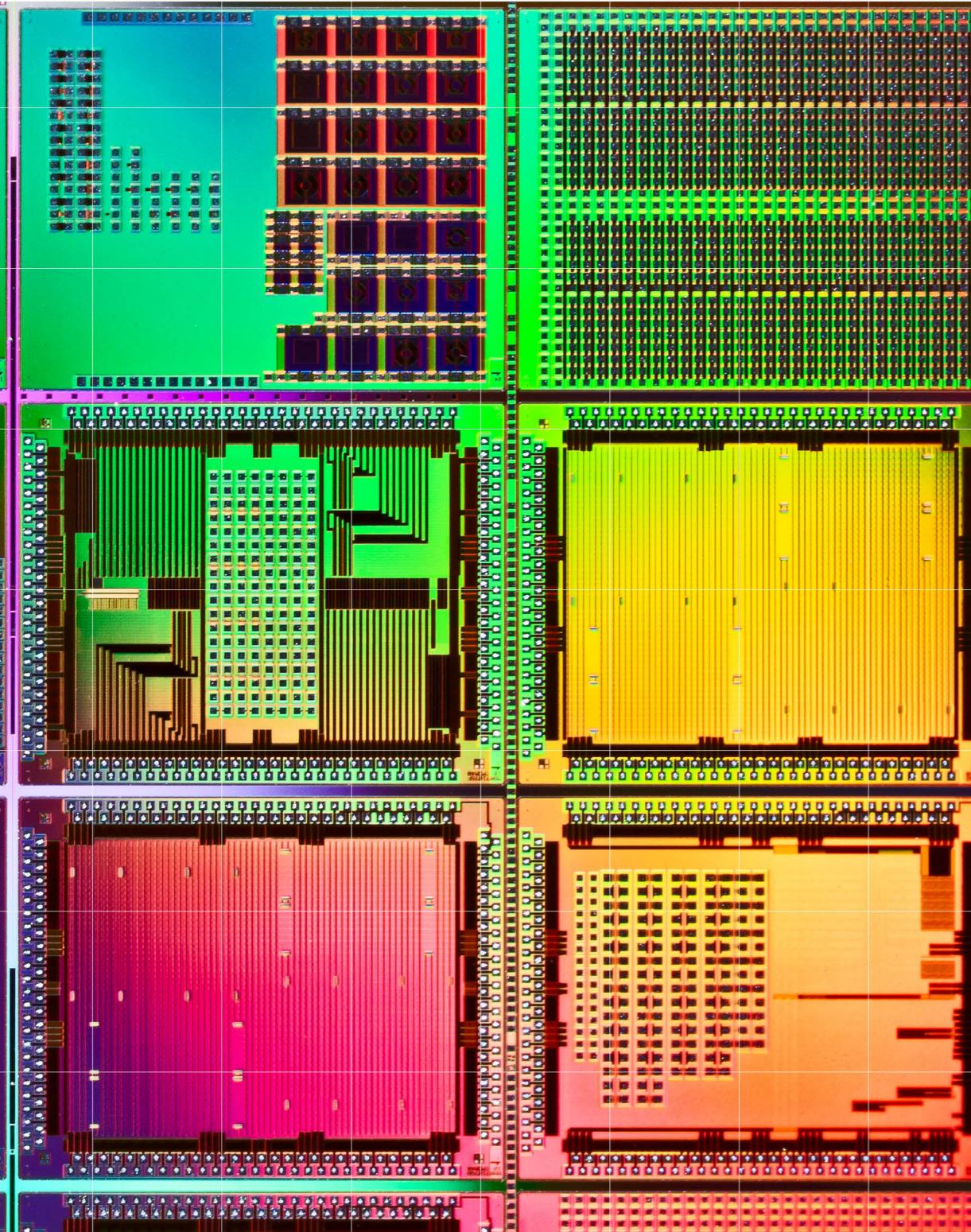
Combining augmented reality and virtual reality technology (so that physical and digital objects coexist and interact in real time) will bring together the real world and digital elements to create the next-level user experience.

[Read our story on page 69 >](#)



Self-driving cars

These vehicles are literally supercomputers on wheels, with advanced driver-assistance systems (ADAS) enabled by electronics and semiconductors.



FOOD SECURITY

Lower cost, higher yield

Farmland in remote locations, particularly in emerging economies such as Kenya and Ethiopia, can be extremely vulnerable to climate change. As microchips become smaller and cheaper, access to mobile devices is increasing across the world. Farmers are now using smartphones to access vital weather information – aiming to ensure better crops and greater food security.

[Read more online](#)

Focused on long-term value creation

Our purpose is to unlock the potential of people and society by pushing technology to new limits – with a vision that our groundbreaking technology solves some of humanity's toughest challenges. Our strategy and priorities are designed to deliver on these points and create value for our stakeholders.

We provide chipmakers with everything they need – hardware, software and services – to mass produce patterns on silicon through lithography. Our customers depend on our products to bring cutting-edge technology to life. To meet their needs, we invest in the future. We invest in research and development to create chipmaking machines that can deliver the smallest features and highest yields.

We invest in our factories and facilities around the world so we can meet increasing customer demand for our products and services, driven by strong growth rates across both advanced and mature semiconductor markets, continued innovation, more foundry competition and technological sovereignty. The number of machines we plan to deliver in the coming years continues to grow.

We also invest in our workforce, the people who give life to our values – challenge, collaborate and care. They come from more than 100 countries to work together and advance ASML's mission. Our values push us to invest in being a good neighbor and global citizen. From supporting our preservation to minimizing our environmental impact, our initiatives lay the groundwork for long-term sustainable growth.

To make our vision for the future a reality, we need to collaborate with our customers and suppliers, across departments, sectors and continents, effectively executing improvements and processes across ASML and our ecosystem to bring our holistic lithography solutions to the market. Our investors enable the innovation that advances our technology and creates value. Together, we aim to lead the semiconductor industry into a sustainable and profitable future.

Our core strategy is to

- 1. Grow our core holistic lithography business**
- 2. Secure unique supply chain capabilities to ensure business continuity**
- 3. Move toward adjacent business opportunities**
- 4. Increase our focus on ESG sustainability**

With a current focus on five priorities

-  **Strengthen customer trust**
-  **Holistic lithography**
-  **DUV competitiveness**
-  **EUV.33 NA for manufacturing**
-  **EUV.55 NA insertion**

Grow our holistic lithography business two- to threefold by 2030

Fueled by strong customer demand, we expect substantial growth opportunities for our holistic lithography business in this decade. We will continue to increase the capacity of our company to meet this demand, both for mature and advanced lithography systems, preparing for cyclical while sharing risks and rewards fairly with all stakeholders.

Based on different market scenarios, we see 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%

To realize this significant growth, we will focus on protecting and gaining market share by delivering on our technology roadmap, addressing our growth and execution challenges, and securing competitiveness in DUV and metrology and inspection.

The semiconductor industry innovates at an incredible pace to deliver on Moore's Law, producing microchips that are three times more energy-efficient every two years. By continuing to advance our lithography and patterning control solutions for silicon substrates, we will provide the continued shrink and reduction in edge placement error that our customers' semiconductor roadmaps require over the next decade.

Our holistic lithography approach integrates a set of products that enables chipmakers to develop, optimize, and control the semiconductor production process. In addition to our lithography systems, we provide customers with process control solutions that include computational lithography, optical and e-beam metrology, high-resolution inspection, and scanner and process control software 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.

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.

Focused on long-term value creation (continued)

Secure unique supply chain capabilities to ensure business continuity

We will continue to focus on securing business continuity in our core lithography business and controlling future unique, roadmap-enabling technologies. Our supply chain is a critical enabler of our ambition to grow our core business. In order to deliver our growth aspirations, we need to secure innovation, scale-up and continuity, sound business conditions and a constructive collaboration model with our unique technology suppliers. We are proactively assessing our supply base for projected demand and control of future roadmap-enabling capabilities.

Move toward adjacent business opportunities

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

Increase our focus on ESG sustainability

We believe digital technologies are among the most important tools available to help society make progress and address environmental 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 greenhouse gas emissions.

We recognize that development of technology comes with new problems to solve, such as the energy use of devices and data centers, increased waste and material use, and social challenges. We believe our industry has a great opportunity and a moral obligation to drive sustainable growth.

We are committed to using our innovations to also enable the semiconductor industry to reduce its footprint. We aim to help our customers minimize materials and energy required to produce advanced microchips. Within our own operations, including our supply chain, we are also looking closely at our social and environmental impact.

[Read more on page 70 >](#)

Our five strategic priorities

Through the continued execution of our strategic priorities, we aim to provide cost-effective solutions for our customers, enable the extension of the industry roadmap into the next decade, and support our long-term commitment to our environmental, social and governance (ESG) ambitions.

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 re-use, and drive improvements in performance and energy efficiency of our products to reduce costs and waste.

Holistic lithography

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

DUV competitiveness

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.

EUV .33 NA for manufacturing

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

EUV .55 NA insertion

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

Our ESG Sustainability strategy

Central to our strategic approach, we collaborate with our stakeholders to deliver on the ambitions of our ESG Sustainability strategy:

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, climate action and circular economy.

Social

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

Governance

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

Our ESG Sustainability strategy is based on a materiality assessment where we determine the most significant impacts for our company. Our aim is to create long-term value for our stakeholders, while also contributing to the United Nations' Sustainable Development Goals (SDGs).

1 2 3 4 What we need to create value

The depth and breadth of our resources and the relationships we build are key to our continued success.

People and culture



We have more than **39,000** talented, dedicated and highly motivated employees of **143** nationalities. Our focus is to recruit the best and provide them with a diverse and inclusive environment: a place of work where people share the same values to challenge, collaborate and care. Our culture helps us make smart decisions to benefit all stakeholders and create long-term value for shareholders.

[Read more on page 36 and 97 >](#)

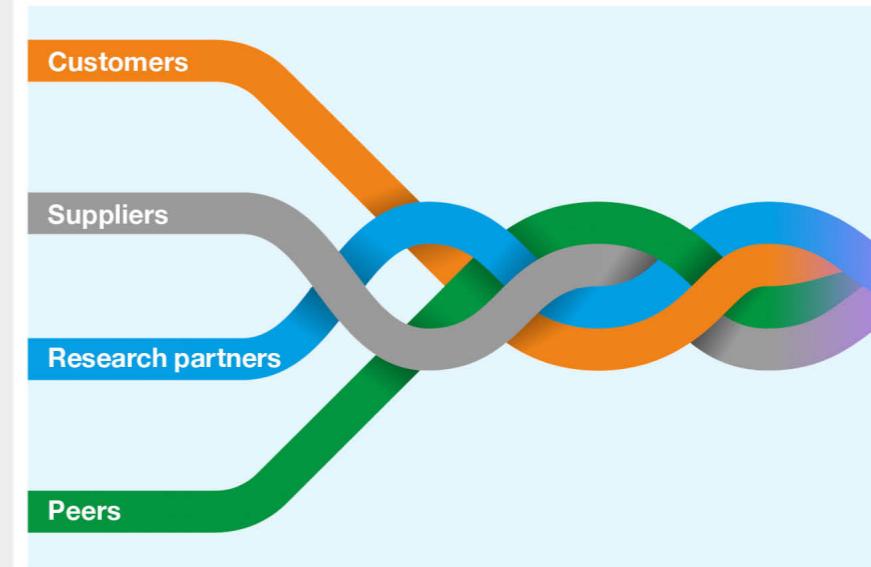
Manufacturing

Almost **10,000** people work in ASML's **8** manufacturing sites in the EU, US and Asia. These global facilities provide a high-precision, Lean environment, where we assemble, test and deliver our complex lithography and metrology and inspection portfolio, from prototype to final product.

[Read more on page 16 >](#)



Ecosystem of partners



Our lithography solutions are the result of strong partnerships with shared incentives to compete and drive innovation.

Customers

- Commit to future technology
- Qualify technology for volume manufacturing
- Drive ecosystems

Suppliers

- Secure supply chain innovation
- Commit investment and resources to technology

Research partners

- Deliver continuous research activity
- Co-develop expertise

Peers

- Deliver critical materials
- Deliver critical data
- Deliver new required processes

Capital

We are a long-term business with strong capital reserves, underpinned by a robust balance sheet. Total shareholders' equity at the end of 2022 amounts to **€8.8bn** on a consolidated balance sheet total of **€36.3bn** and net cash provided by operating activities of **€8.5bn** in 2022. This financial strength enables us to maintain our investment in equipment and ongoing developments to achieve our ambitious growth agenda.



[Read more on page 218 >](#)

Innovation

We manufacture the most advanced lithography systems in the world. This has been achieved because innovation is a constant in our quest to push the boundaries of technology. We spent **€3.3bn** on R&D in 2022, but our innovation does not work in isolation. Instead, it is part of a close collaboration with key partners in the value chain and our **14,000** R&D employees.

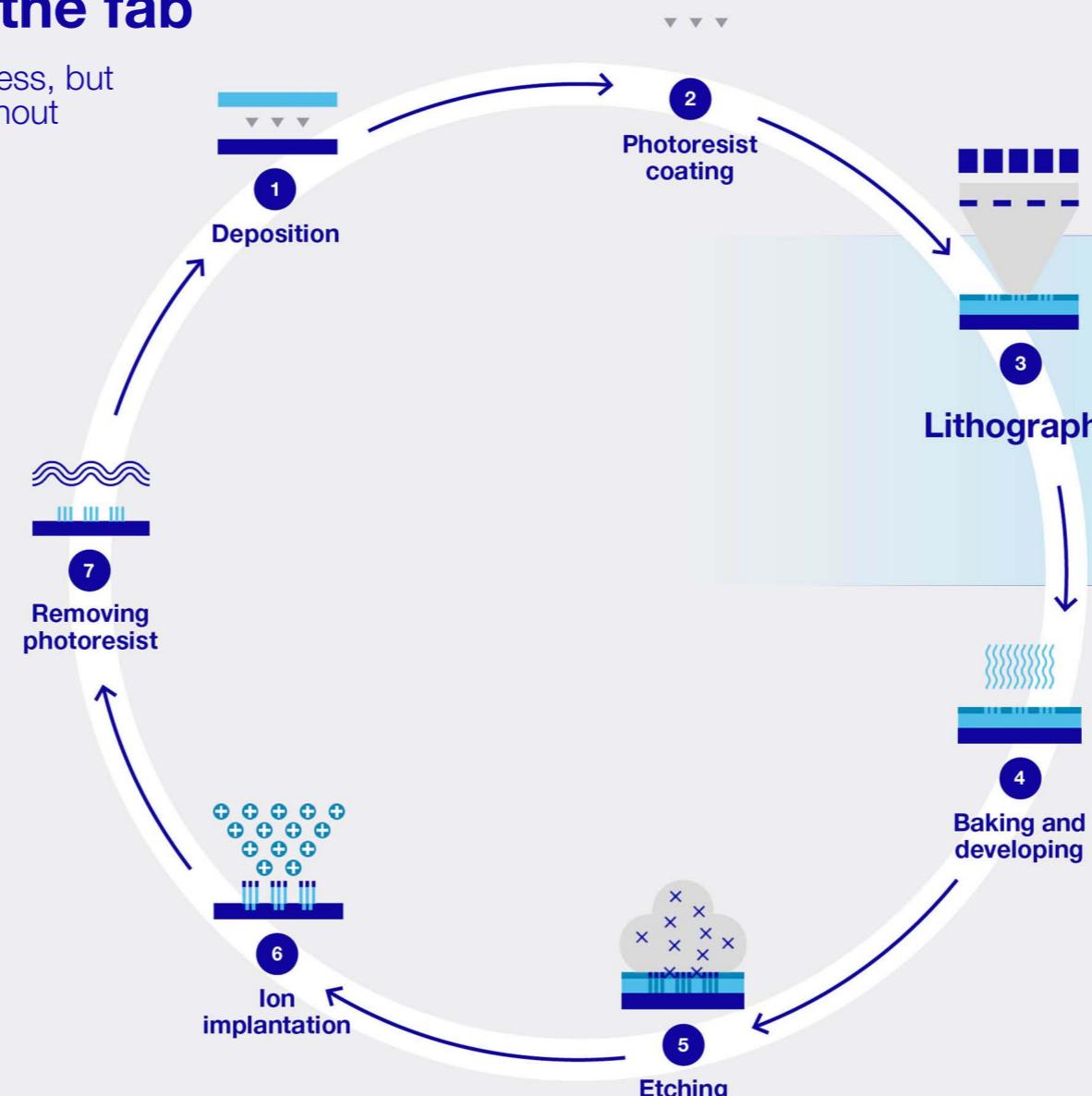
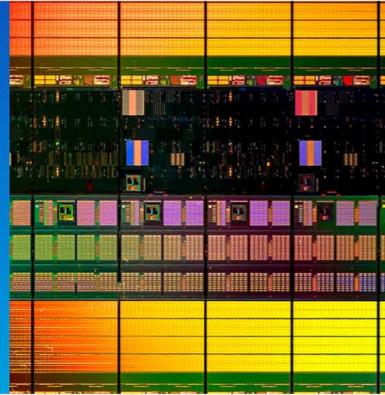
[Read more on page 118 >](#)



① ② ③ ④ Creating value within the fab

We are a critical part of the chip manufacturing process, but our world-leading technology would not function without other key partners in the value chain.

Digital technology is required to help people and society progress



ASML

Our holistic triangle
See page 35 >

Lithography

Computational lithography

Metrology and inspection



1. Deposition

The first step is typically to deposit thin films of semiconducting material onto the 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 and developing

The wafer is then baked and developed to make the pattern permanent, with a pattern of open spaces.

5. Etching

Materials such as gases are used to etch away material from the open spaces, leaving a 3D version of the pattern.

6. Ion implantation

The wafer may be bombarded with positive or negative ions to tune the semiconductor properties.

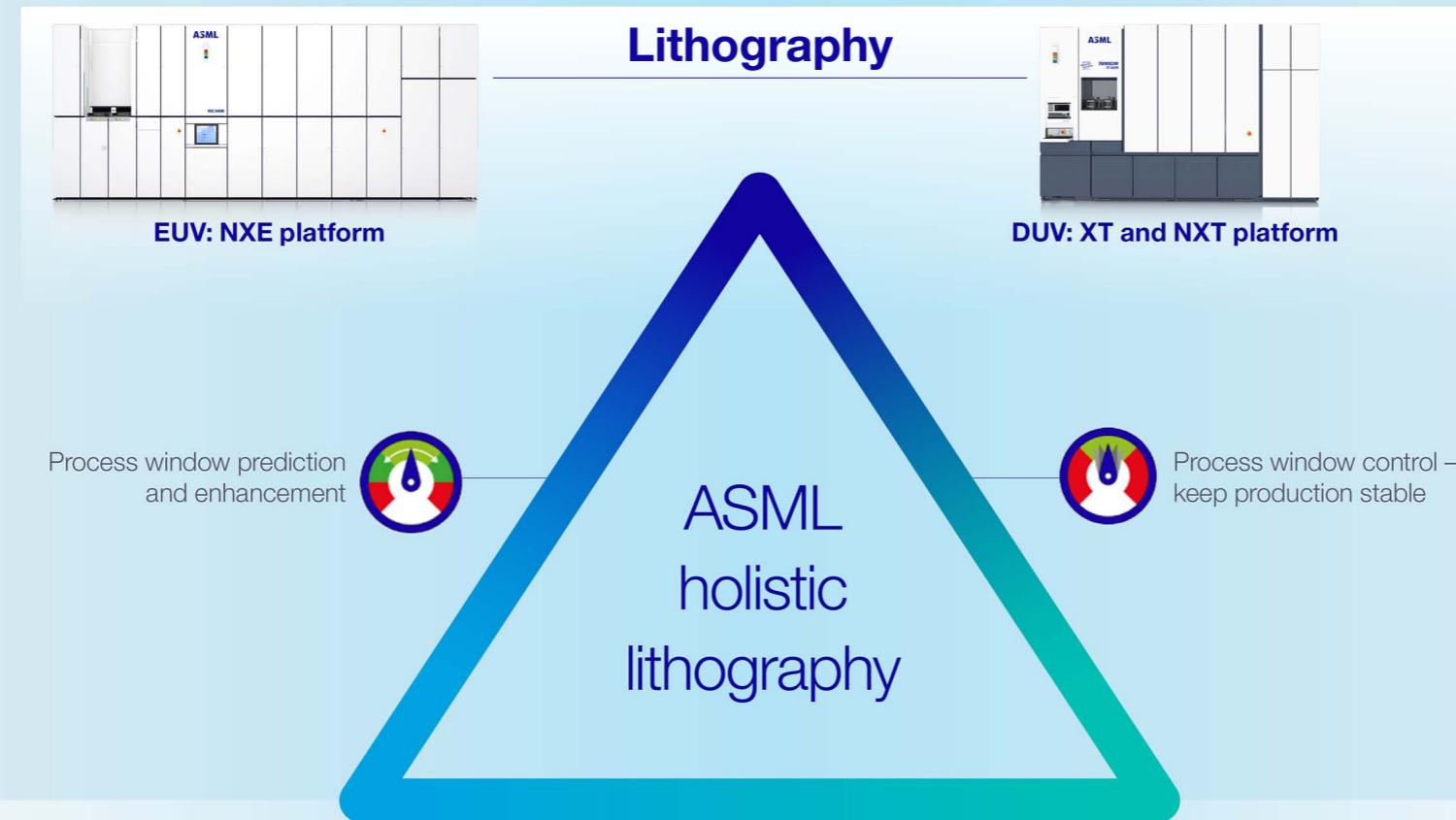
7. Removing photoresist

After the layer is ionized, the remainder of the photoresist coating that was protecting areas not to be etched is removed.

1 2 3 4 Creating value with our holistic approach

Our holistic approach is based on the intelligent integration of computational lithography, lithography systems and metrology and inspection. This enables shrink by optimizing setup and control of the system's process window during high-volume manufacturing – improving the availability of our lithography systems, reducing downtime and overall costs, and optimizing yield for our customers.

Our world-leading systems



Computational lithography

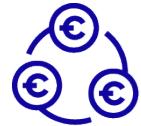
Computational lithography is used to predict and enhance the process window of our lithography systems by calculating the optimal settings, depending on the specific application. This takes place in the research and development phase, before a lithography system goes into high-volume manufacturing.

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 inline adjustments can optimize performance as part of the manufacturing process.

① ② ③ ④ The value we create for our stakeholders

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.



Shareholders

Our large and sustained investments in research and development help us execute our business strategy and enable us to maintain our position as a leader in holistic lithography. Our innovations contribute to the long-term growth of the semiconductor industry, which contributes to our solid financial performance and cash return policy by means of share buyback and paid dividends.

€4.6bn

Share buyback

€5.80

Proposed annualized dividend per share

€14.14

Earnings per share



Customers

We invest in innovations that enable our world-leading lithographic systems to continue to shrink microchips. With EUV 0.33 NA and the next-generation EUV 0.55 NA platform, we pursue the continuation of Moore's Law. This allows our customers to develop ever more powerful chips for new applications and devices. At the same time, we help our customers reduce costs and their environmental footprint.

€21.2bn

Total net sales

345

Lithography systems sold

#2

TechInsights Customer Satisfaction ranking of the 10 Best Large Suppliers of Chip Making Equipment



Suppliers

We innovate together with our strategic partnerships, sharing knowledge and tapping into each other's technology expertise to drive ever higher levels of complexity and capability.

We conduct our business in a sustainable and responsible manner, where long-term relationships, close collaboration and transparency with our suppliers are key to our success.

€12.4bn

Total sourcing spend

5,000

Number of suppliers (rounded)



Employees

ASML is a growth business providing employment opportunities around the world. With our headquarters in Veldhoven, Netherlands, we are a major employer in the community.

We invest in people's career development and well-being, and provide a diverse and inclusive environment where people can achieve their full potential. This results in both high employee engagement scores and low attrition.

78%

Employee engagement score

6.0%

Attrition rate

24%

Gender diversity – % females inflow



Society

Our continuous innovations enable new technology to support the growth and transformation of the semiconductor industry to help address society's needs. As a global technology leader and employer, we play an active role in the local communities we operate in. Our collaborative ecosystem nurtures innovation and benefits society. For example, we share our expertise with universities and

€11.5m

Community investment

€14.7m

Contribution to EU research projects

95%

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

research institutes, support young tech companies and promote STEM education worldwide. We also develop ground-breaking technology to minimize our own environmental footprint. We do this by seeking to minimize waste and maximize the value of the materials we use, and executing our carbon footprint strategy and product energy-efficiency strategy.

87%

Re-use rate of parts returned from field and factory

38.1 kt

Emissions from manufacturing and buildings (scope 1 + 2)

11.9 Mt

Indirect emissions from total value chain (scope 3)

Engaging with stakeholders

We develop our materiality assessment based on GRI, which includes the principle of stakeholder engagement, where we identify key topics to discuss with the relevant stakeholder group.

[Read more on page 71 >](#)

We think about our stakeholders as belonging to five groups: shareholders, customers, employees, suppliers and society. These groups can affect or be affected by our business, and we embrace continuous open dialogue and knowledge sharing for the benefit of all parties.



Shareholders

This group consists of current shareholders, potential active and passive investors, financial and ESG analysts. We aim to help them to understand our (long-term) investment opportunities. We communicate with them about our financial growth strategies and opportunities, financial performance and outlook and shareholder returns as well as our sustainability strategy.



How we engage

- Direct interaction with the Investor Relations department (e.g. calls, ESG performance surveys, email exchange, site visits – at ASML and/or at the investor)
- AGM
- Investor Day
- Company quarterly results presentations and press releases
- Various investor conferences and roadshows
- Various sustainability questionnaires, assessments and survey feedback

Main topics

- Financial results
- Cash return
- Market outlook
- Products and end market
- Customer adoption
- Geopolitics
- Business summary
- Company roadmap and product portfolio
- ESG targets and results: human capital development, carbon footprint, waste, recycling, energy consumption, social responsibility in supply chain
- Board diversity and remuneration

Engaging with stakeholders (continued)



Customers



How we engage

- Customer feedback survey
- Direct interaction via account teams and zone quality managers
- Voice of the Customer sessions
- Technology Review Meetings (between our CTO, product managers, other executives and our major customers)
- Executive Review Meetings (between ASML executives and major customers)
- Different technology symposia and special events

Main topics

- Products and technology
- Customer roadmap
- Innovation
- Customer support, cost of ownership and quality
- ESG: energy efficiency, integrating ESG sustainability in strategy and roadmaps, waste reduction and reuse of materials and safety awareness and behavior

Our customers are the world's leading microchip manufacturers.



Employees

How we engage

- Employee engagement survey
- Training and development programs, including employee evaluation/feedback
- ASML's Speak Up service
- Works Council
- Employee networks, such as Next, Women/WAVES, Seniors, Parents, Veterans, Green ASML, Atypical, SHADES and Proud
- Internal communication and awareness (e.g. intranet, Ethics program, department employee meeting, lunch with Board members)
- Onboarding program for new employees
- All-employee meeting and senior management meetings

Main topics

- Training and development
- Code of Conduct/Ethics
- Strategy
- Diversity and inclusion
- Labor conditions
- Vitality
- Human rights
- Sustainability target and performance

We want to provide a unified direction and anchor ASML's identity deep in the organization. To do this, we aim to help people embrace our values, familiarize themselves with our strategy and purpose and uphold our Code of Conduct principles. Employee engagement is important to the success of our company and employer brand enables us to attract talent. We are committed to good labor practice and respect human rights.



Engaging with stakeholders (continued)



Suppliers

We rely heavily on our supplier network to achieve the innovations we strive for. Our goal is to ensure we get the products, materials and services we need to meet our short- and long-term needs. To this end, we invest in developing our supply landscape to help suppliers meet our requirements with regard to quality, logistics, technology, cost and sustainability. We are committed to a responsible and sustainable supply chain.

How we engage

- ASML's Supplier Day
- Direct interactions via supplier account teams/procurement account managers
- Supplier audits
- Site visits
- Newsletter
- RBA self-assessment questionnaire (SAQ)
- ASML's Speak Up service



Main topics

- Products and technology
- Quality, logistics, technology, total cost and sustainability (QLTCS)
- Supplier performance and risk management
- IP/information security
- Business continuity
- RBA compliance (ethics, labor practice, health and safety, and environment)
- Scarce (natural) resources, 3TG, hazardous substances, etc.
- Circularity (re-use, recycling, refurb)
- Scope 3 carbon footprint



Society

We are committed to conducting our business in an accountable and caring way, for our employees and the wider communities we operate in. As a global technology leader and employer, we play an active role in the local communities in which we operate. We also develop ground-breaking technology to minimize our own environmental footprint. We do this by seeking to minimize waste and maximize the value of material we use, as well as executing our carbon footprint strategy and product energy efficiency strategy.



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, universities, media, NGOs and others
 - Website www.asml.com
 - Community engagement programs and events
 - Young high-tech community (HighTechXL, Make Next Platform, Eindhoven Startup Alliance)
 - Company visits
 - Press releases, interviews, engagement calls and meetings

Main topics

- Employee development
- Charity, sponsoring and donations
- Collaboration in innovation
- Strengthening innovation in the industry, in society and where we operate
- Social and environmental responsibility
- Promotion of science, technology, engineering and mathematics (STEM) education
- Local developments

ENERGY TRANSITION

Tiny connections, huge implications

The shift to renewables is helping deliver the clean, affordable energy the world needs to counter climate change. Semiconductors are absolutely central to this shift – harnessing, converting, transferring and storing energy as electricity, and ensuring that national power grids are both responsive and robust.

[Read more online](#)



Strong demand driving an outstanding performance

In conversation with our Executive Vice President and Chief Financial Officer

Roger Dassen



From a financial perspective, how did ASML perform in 2022?

This was an outstanding year for ASML, with a record €21.2 billion in net sales – an increase of €2.6 billion over 2021.

Our gross profit increased, mainly due to the volume increase in DUV, our NXE:3600D value proposition and continued growth in our installed base business. The overall gross profit, as a percentage of total net sales, decreased from 52.7% in 2021 to 50.5% in 2022, due to fast shipments, the current strong inflationary effects relating to increasing material, freight and labor and the increased factory costs required to ramp up production and keep up with customer demand. In addition, there were costs incurred due to the preparations for High-NA.

Our strong net income and continued working capital improvement initiatives resulted in net cash provided by operating activities of €8.5 billion in 2022. This allowed us to return cash to our shareholders through dividends and our share buyback programs.

In 2022 we repurchased shares for a total consideration of €4.6 billion and paid dividends totaling €2.6 billion.

What were the key drivers for these increases?

Our Logic system customers again saw strong demand for both advanced and mature nodes in support of the ongoing digital transformation, which includes secular growth drivers such as 5G, AI, virtual reality, gaming, simulation and visualization applications, and the intelligent cloud and edge that will be an integral part of the growing digital infrastructure. The rise in Memory system sales was driven by continued strong end-market demand for servers.

Growth in our service and field option sales was primarily driven by the continued scaling of customers' installed base, which resulted in increased service sales to support our systems used in their ongoing operations during the systems life cycle.

What were the year's main challenges?

As our CEO Peter Wennink explained in his message, our ability to meet customer demand was impacted by several issues in 2022, including the war in Ukraine and the aftermath of COVID-19.

“

We are increasing our output capability for EUV as well as DUV.”

Roger Dassen

Executive Vice President and Chief Financial Officer

Strong demand driving an outstanding performance (continued)

In conversation with our Executive Vice President and Chief Financial Officer

Roger Dassen

We are working hard to keep up with customer demand, for example by driving down our manufacturing cycle times across our entire product portfolio and by collaborating with our supply chain to increase our output capability for EUV as well as DUV. To address materials shortages, we are significantly expanding capacity together with our supply chain partners, although these shortages have already led to the late start of the assembly of a number of systems. As our tools are in high demand, our customers are frequently requesting fast shipments. A fast shipment process skips some of the testing in our factory. Final testing and formal acceptance then takes place at the customer site. This leads to a delay of revenue recognition for those shipments until formal customer acceptance, but does provide our customers with earlier access to wafer output capacity.

Additionally, I would like to highlight that safety is at the heart of our business. While we did not encounter any ASML work-related fatalities, regrettably two contracted workers had a fatal accident on ASML premises in Wilton in 2022. We are doing everything we can to minimize this risk and are working proactively at all levels to deliver on our mission to ensure injury-free and healthy working conditions.

Are the current financial uncertainties affecting capital investment plans?

Although the current macro environment is creating uncertainties, demand for our products continues to exceed supply, and we remain committed to our capital investment plans.

While we are aiming to meet demand in full, we are preparing for cyclicalities at the same time. We are looking to invest timely and sustainably in additional capacity while also embedding flexibility so that we can not only grow fast but also adjust rapidly in a down cycle.

Further, we will continue to make the investments required to ramp up our capacity in anticipation of the medium- to long-term growth of our industry. The expanding application space for semiconductors and secular trend is driving structural demand. We need to raise capacity and plan to further increase our EUV and DUV shipments to support our customers' productivity roadmaps.

What progress have you made in the project to transform the finance organization?

We are experiencing growth at an unprecedented rate, which creates an increasing demand for the finance organization to support the business. To set up our company and people for future success, we took a snapshot of the current state of our finance organization and created a vision for our future.

Our vision is to deliver a strong foundation and best-in-class integrated solutions. To embed the new vision and way of working, our organization is currently executing multiple projects to improve, automate and continuously monitor its end-to-end processes by using new digital tools and robotics.

What is the outlook for ASML, from a financial perspective?

There is clearly a lot of uncertainty in the current semiconductor market due to a number of global macro concerns such as inflation, declining consumer confidence and a real chance of a recession. As we have shown in the past, in such an environment we need to maintain flexibility in our supply chain, in our workforce and in our manufacturing capability. We aim to adjust our capacity to meet future demand, preparing for cyclicalities while fairly sharing risks and rewards with all our stakeholders. This also means we need to invest timely and sustainably in additional capacity to plan to meet demand. Clearly these investments could put pressure on the gross margin next year, but they are inevitable if we want to maintain the longer-term growth profile of the company.

€2.6bn

Net sales increase

50.5%

Gross margin

€4.6bn

Repurchased shares

€2.6bn

Dividends paid



We are experiencing growth at an unprecedented rate.”

Roger Dassen

Executive Vice President and Chief Financial Officer

Strong demand driving an outstanding performance (continued)

In conversation with our Executive Vice President and Chief Financial Officer

Roger Dassen

In the near term, fear of a recession could impact the demand for semiconductors. We are starting to see diverging demand dynamics across our market segments, with some customers running our systems at lower utilization levels, and others adjusting the desired timing of their demand to respond to near-term uncertainties. The vast majority of our customers, however, are still requesting shipment of their lithography systems as soon as possible. This is driven by the strategic nature of these investments in support of technology transitions, capacity additions that require time for wafer output to materialize, as well as governments' global investments in pursuit of technology sovereignty.

The current strong inflationary effects relating to material, freight and labor costs impact our suppliers and put pressure on our margins. In general, customers understand our request to share these extraordinary cost increases, and as such we expect to receive a reasonable level of inflation compensation over the course of 2023.

The scarcity of highly skilled people in the labor market is also leading to higher costs. To maintain our fast pace of innovation and ensure our long-term success as a company, we need to attract and retain the best talent – and this is requiring heavy investment in our hiring activities as well as in the provision of opportunities and an environment where employees can develop their talent, feel respected and thrive.

The uncertainties around geopolitics continue. Press reports indicate that steps have been taken by the US, Netherlands and Japan to further restrict the export of semiconductor manufacturing equipment to China. This would cover advanced lithography tools as well as other types of equipment. The terms of this agreement have not been publicly disclosed and remain confidential for now. We expect that it will take many months for the governments to write and enact new rules. While these rules are being finalized, ASML will continue to engage with the authorities to discuss the potential impact of any proposed regulation in an effort to ensure the impact on the global semiconductor supply chain is properly assessed. Given the timelines and current market situation, we do not expect these measures to have a material effect on our expectations for 2023.

While the current macro environment creates near-term uncertainties, we expect longer-term demand and capacity to generate healthy growth, fueled by the expanding application space and relentless innovation.

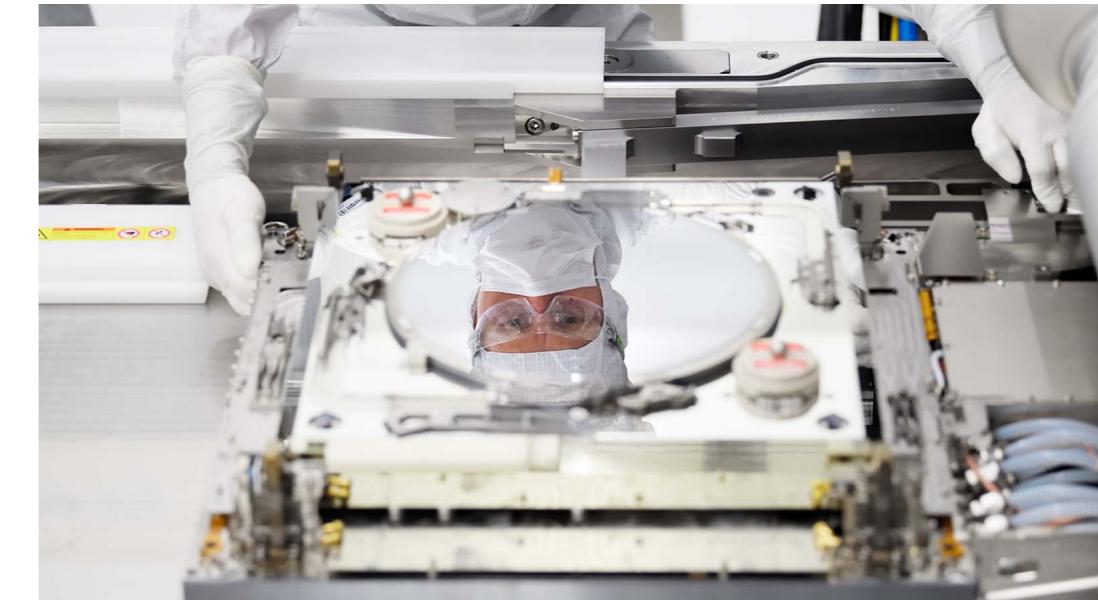
In conclusion, I believe ASML is well placed to deliver more record performances in the future – providing strong cash returns to shareholders, collaborating with our partners and suppliers, supporting our people and enabling our customers to manufacture technology that will continue to have a big impact on the future of our planet.



ASML is well placed to deliver more record performances in the future."

Roger Dassen

Executive Vice President and Chief Financial Officer



Performance KPIs

Sales

Total net sales

€21.2bn

2021: €18.6bn

Net system sales

€15.4bn

2021: €13.7bn

Net service and field option sales

€5.7bn

2021: €5.0bn

Sales of lithography systems (in units)¹

345

2021: 309

Immersion systems recognized (in units)

81

2021: 81

EUV systems recognized (in units)

40

2021: 42

Profitability

Gross profit

€10.7bn

2021: €9.8bn

% of total net sales

50.5%

52.7%

Income from operations

€6.5bn

2021: €6.8bn

30.7%

36.3%

Net income

€5.6bn

2021: €5.9bn

26.6%

31.6%

Earnings per share

€14.14

2021: €14.36

Liquidity

Cash and cash equivalents (year-end)

€7.3bn

2021: €7.0bn

Short-term investments (year-end)

€0.1bn

2021: €0.6bn

Net cash provided by operating activities

€8.5bn

2021: €10.8bn

Free cash flow²

€7.2bn

2021: €9.9bn

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 (2022: €8,486.8 million and 2021: €10,845.8 million) minus purchase of property, plant and equipment (2022: €1,281.8 million and 2021: €900.7 million) and purchase of intangible assets (2022: €37.5 million and 2021: €39.6 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 2022 compared to 2021

Year ended December 31 (€, in millions)	2021	% ¹	2022	% ¹	% Change
Net system sales	13,652.8	73.4	15,430.3	72.9	13.0
Net service and field option sales	4,958.2	26.6	5,743.1	27.1	15.8
Total net sales	18,611.0	100.0	21,173.4	100.0	13.8
Cost of system sales	(6,482.9)	(34.8)	(7,582.3)	(35.8)	17.0
Cost of service and field option sales	(2,319.1)	(12.5)	(2,891.0)	(13.7)	24.7
Total cost of sales	(8,802.0)	(47.3)	(10,473.3)	(49.5)	19.0
Gross profit	9,809.0	52.7	10,700.1	50.5	9.1
Research and development costs	(2,547.0)	(13.7)	(3,253.5)	(15.4)	27.7
Selling, general and administrative costs	(725.6)	(3.9)	(945.9)	(4.5)	30.4
Other income	213.7	1.1	—	—	(100.0)
Income from operations	6,750.1	36.3	6,500.7	30.7	(3.7)
Interest and other, net	(44.6)	(0.2)	(44.6)	(0.2)	—
Income before income taxes	6,705.5	36.0	6,456.1	30.5	(3.7)
Income tax expense	(1,021.4)	(5.5)	(969.9)	(4.6)	(5.0)
Income after income taxes	5,684.1	30.5	5,486.2	25.9	(3.5)
Profit from equity method investments	199.1	1.1	138.0	0.7	(30.7)
Net income	5,883.2	31.6	5,624.2	26.6	(4.4)

1. As a percentage of total net sales.

For a comparison of ASML's operating results for the year ended December 31, 2021, with the year ended December 31, 2020, please see Our performance in 2021 – Financial – Financial performance – Operating results of 2021 compared with 2020 of ASML's annual report on Form 20-F for the year ended December 31, 2021.

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

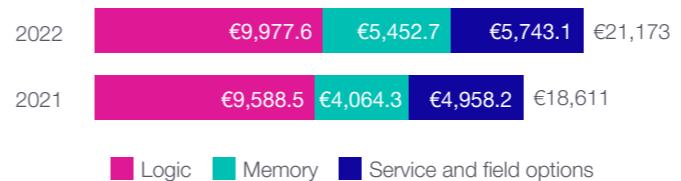
We achieved another record year in 2022, with total net sales increasing by €2,562.4 million, 13.8%, reflecting an increase in net system sales of 13.0%, and an increase in net service and field option sales of 15.8% compared to 2021.

Increase on previous year

13.8%

Net sales

Revenue growth from each of the Logic and Memory markets and our installed base (in millions)



■ Logic ■ Memory ■ Service and field options

We saw strong demand in both the Logic and Memory markets. Memory systems sales benefited from continued strong end-market demand for servers, while for Logic system sales we saw strong demand in advanced and mature nodes to support the digital transformation (5G, AI, VR, intelligent cloud solutions and simulation and visualization applications).

The global chip shortage in 2022 proved to be an accelerator for the service and field option sales. Our productivity enhancement packages enabled our customers to increase wafer capacity effectively and efficiently.

13.0%

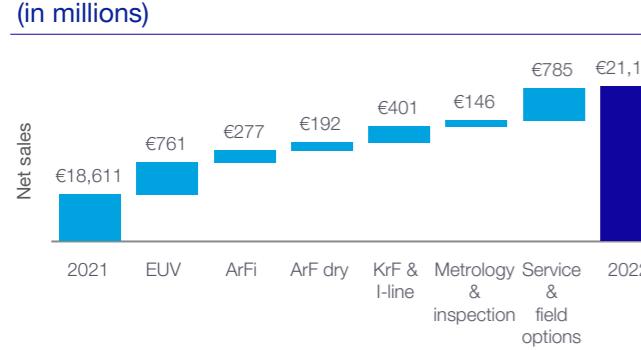
Net system sales

15.8%

Net service and field option sales

Performance KPIs (continued)

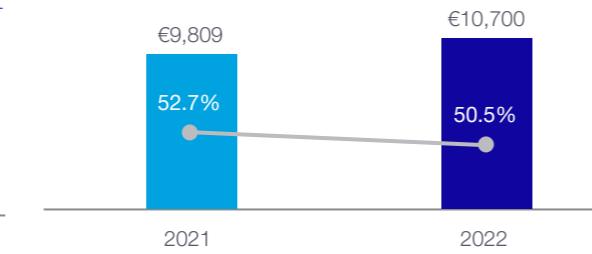
Increase in net sales driven by strong demand across all technologies



The increase in total net sales was driven by a strong increase in demand from our customers across all technologies. Our EUV sales increased as a result of the NXE:3600D system value proposition and DUV sales volumes increased to keep up with customer demand driven by the ongoing digital transformation and chip shortage. We recognized revenue for 40 EUV systems (all NXE:3600D) in 2022 compared with 42 EUV systems (16 NXE:3400 & 26 NXE:3600D) in 2021. Our system sales across our DUV technologies increased from 267 units in 2021 to 305 units in 2022.

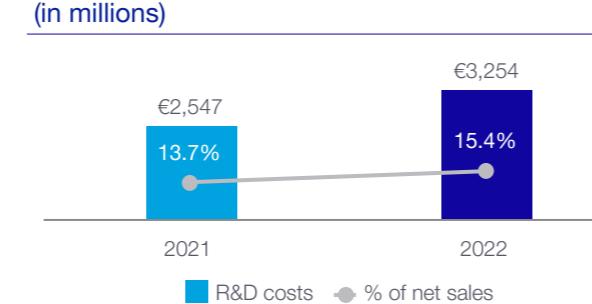
In addition to the growth in EUV and DUV system sales, net service and field option sales were also a key driver for our overall growth in net sales. The increase is mainly driven by an increase in service sales as a result of the continued scaling of our customers' installed base. EUV continues to contribute to net service and field option sales as our installed base continues to grow and our customers continue to run more EUV systems in their high-volume production.

Gross profit (in millions)



Gross profit increased as a result of an increase in sales. This is mainly due to the volume increase in DUV and the value proposition of the NXE:3600D system. The gross margin decreased from 52.7% in 2021 to 50.5% in 2022. Fast shipments, the strong inflationary effect related to increasing costs (material, labor freight) and ramp-up costs (increased factory costs) combined with the High-NA investment negatively impacted the gross margin.

Research and development costs



R&D costs were €3,253.5 million in 2022 compared with €2,547.0 million in 2021. The increase is across each of our EUV, DUV and Applications programs supporting our holistic lithography solutions, with the most significant efforts going toward our roadmap to continue enhancing EUV high-volume manufacturing, as well as our development of EUV 0.55 NA (High-NA). In 2022, R&D activities mainly related to:

- Continued investments in EUV high-volume manufacturing, finalizing the development of the NXE:3600D, investments in the development as well as shipment of the NXE:3800E and further improving availability and productivity of our installed base systems. In addition, our roadmap includes High-NA, our EUV 0.55 NA systems, to support our customers with future nodes for both Logic and DRAM.
- The introduction of our latest-generation immersion system NXT:2100i for the most critical DUV layers and the dry system NXT:870, which introduces breakthrough productivity in the KrF market. Continued developments for the next generation of scanners shipping in 2023 include NXT:1980Fi and XT:400M, increasing productivity for the mid-critical and i-line layers respectively. Furthermore, we are delivering productivity packages and introducing new value-based service models to improve 'good wafers per day' at customers' installed base.
- Continued investment in single-beam inspection, e-beam metrology and optical metrology (YieldStar ADI and IDM solutions). In addition, securing our multibeam inspection roadmap and continuously expanding our investment in the holistic software applications space.



€3.3 billion

R&D costs

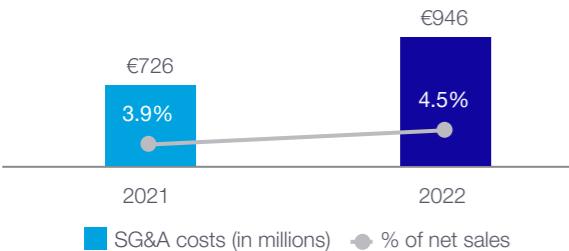
27.7%

Increase in R&D costs
on previous year

Performance KPIs (continued)

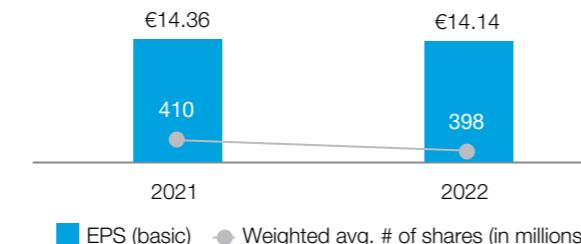
Selling, general and administrative costs

SG&A costs increased by 30.4% from 2021 to 2022, largely due to an increase in the number of employees, an increase in wages as well as investments in digitalization and cybersecurity.



Net income

Net income in 2022 amounted to €5,624.2 million, or 26.6% of total net sales, representing €14.14 basic net income per ordinary share, compared with net income in 2021 of €5,883.2 million, or 31.6% of total net sales, representing €14.36 basic net income per ordinary share. The decrease is mainly due to higher R&D and SG&A costs, lower profit from our equity method investment and the one-off net income in 2021 of €213.7 million related to the divestment of the Berliner Glas (ASML Berlin GmbH) non-litho business. This is partially offset by higher gross profit and lower number of shares.



Income taxes

The effective tax rate decreased to 15.0% in 2022, compared with 15.2% in 2021. The lower rate is mainly driven by adjustments of estimated tax positions for prior years following from final tax returns filed.



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 share buyback program and growing dividends. We were able to return a record amount of dividend to our shareholders.

Year ended December 31 (€, in millions)	2021	2022
Cash and cash equivalents, beginning of period	6,049.4	6,951.8
Net cash provided by (used in) operating activities	10,845.8	8,486.8
Net cash provided by (used in) investing activities	(72.0)	(1,028.9)
Net cash provided by (used in) financing activities	(9,891.7)	(7,138.3)
Effect of changes in exchange rates on cash	20.3	(3.1)
Net increase (decrease) in cash and cash equivalents	902.4	316.5
Cash and cash equivalents, end of period	6,951.8	7,268.3
Short-term investments, end of period	638.5	107.7
Cash and cash equivalents and short-term investments	7,590.3	7,376.0
Purchases of property, plant and equipment and intangible assets	(940.3)	(1,319.3)
Free cash flow ¹	9,905.5	7,167.5

1. Free cash flow is a non-GAAP measure and is defined as net cash provided by operating activities (2022: €8,486.8 million and 2021: €10,845.8 million) minus purchase of property, plant and equipment (2022: €1,281.8 million and 2021: €900.7 million) and purchase of intangible assets (2022: €37.5 million and 2021: €39.6 million).

Net cash provided by (used in) operating activities

The decrease in net cash provided by operating activities of €2.4 billion compared with 2021 is mainly due to a decrease in net income of €0.3 billion and an increase in inventory to prepare for the future ramp-up in order to facilitate the growing demand from our customers.

Net cash provided by (used in) investing activities

The increase in net cash used in investing activities of €1.0 billion compared to 2021 is mainly due to our continuous cash investment in capital expenditures, which increased by €0.4 billion, and the €0.2 billion loan issued to a related party, as well as a decrease in the net purchase and maturity of short-term investments of €0.1 billion. Additionally, in 2021 we had net proceeds from sale of subsidiaries of €0.3 billion, with no proceeds in 2022.

Net cash provided by (used in) financing activities

The decrease in net cash used in financing activities of €2.8 billion compared to 2021, is mainly due to a decrease in shares purchased through our share buyback program (€3.9 billion), offset with an increase in our dividend (€1.2 billion). In 2022, we had net proceeds from issuances of notes of €0.5 billion and we repaid an amount of €0.5 billion for a previous issued note that became due, with no note issuance or repayment in 2021.

As of December 31, 2022, management has determined that ASML has sufficient capital for the company's present requirements.

Long-term growth opportunities

Trend information

Despite uncertainties in the market, we expect 2023 to see continued growth with an expected net sales growth, of more than 25%. The expected growth is driven by increasing sales across all technologies, as well as growth in our installed base business. The industry momentum around innovation and expanding new markets further strengthens our confidence in the 2023 outlook and our 2025 growth scenarios.

Customers adopted EUV, and with increasing customer confidence in EUV, this is translating into more layers in their next nodes, for Logic production as well as the adoption in Memory. We expect to ship 60 EUV systems in 2023 and an expected sales growth of around 40%.

In our DUV and Applications business, we expect growth in both immersion and dry systems, as well as continued demand for metrology and inspection systems. For DUV we plan to ship 375 systems in 2023 of which around 25% will be immersion systems. For non-EUV systems, we expect a sales growth of around 30%.

For the Installed Base Management business we expect year over year revenue growth of around 5 percent. As we are coming off a strong growth year in 2022, we expect to see a bit lower demand in our upgrade business as customers adjust utilization.

Our expectations and guidance for the first quarter of 2023 can be summarized as follows:

- Total net sales between €6.1 billion and €6.5 billion
- Gross margin of between 49% and 50%
- R&D costs of around €965 million
- SG&A costs of around €285 million
- Annualized effective tax rate between 15% and 16%

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% 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 upward revised long-term growth opportunity for 2025 as well as 2030. We remodeled our previous sales scenarios in a low and high market due to the rapid evolution of end-market technology growth drivers technological sovereignty and foundry competition projects since our update in 2021.

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 main additional demand drivers behind the upward adjustments of our scenarios are the market-driven growth in both advanced and mature markets, technology (e.g. energy transition, 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.

Lastly, we seek to continuously improve our performance on ESG Sustainability. In 2022, we upgraded our ESG Sustainability strategy and KPIs to accelerate progress in close collaboration with our partners.

*Read more in:
Our business and ESG strategy.*

Our updated model for 2025 goes beyond our high-market scenario from CMD 2021



Market

High

	CMD 2021 Units ASML 2025	CMD 2022 Units ASML 2025	CMD 2022 Units ASML 2030
EUV High-NA 0.55	5	5	30
EUV Low-NA 0.33	70	80	80
ArFi (immersion)	78	105	115
Dry	189	385	425
Total	342	575	650

**Total sales opportunity (in €bn)**

	CMD 2021 Sales 2025	CMD 2022 Sales 2025	CMD 2022 Sales 2030
Systems (Litho and M&I ¹)	23	32	47
Installed Base Management ²	7	8	13
Total	30	40	60

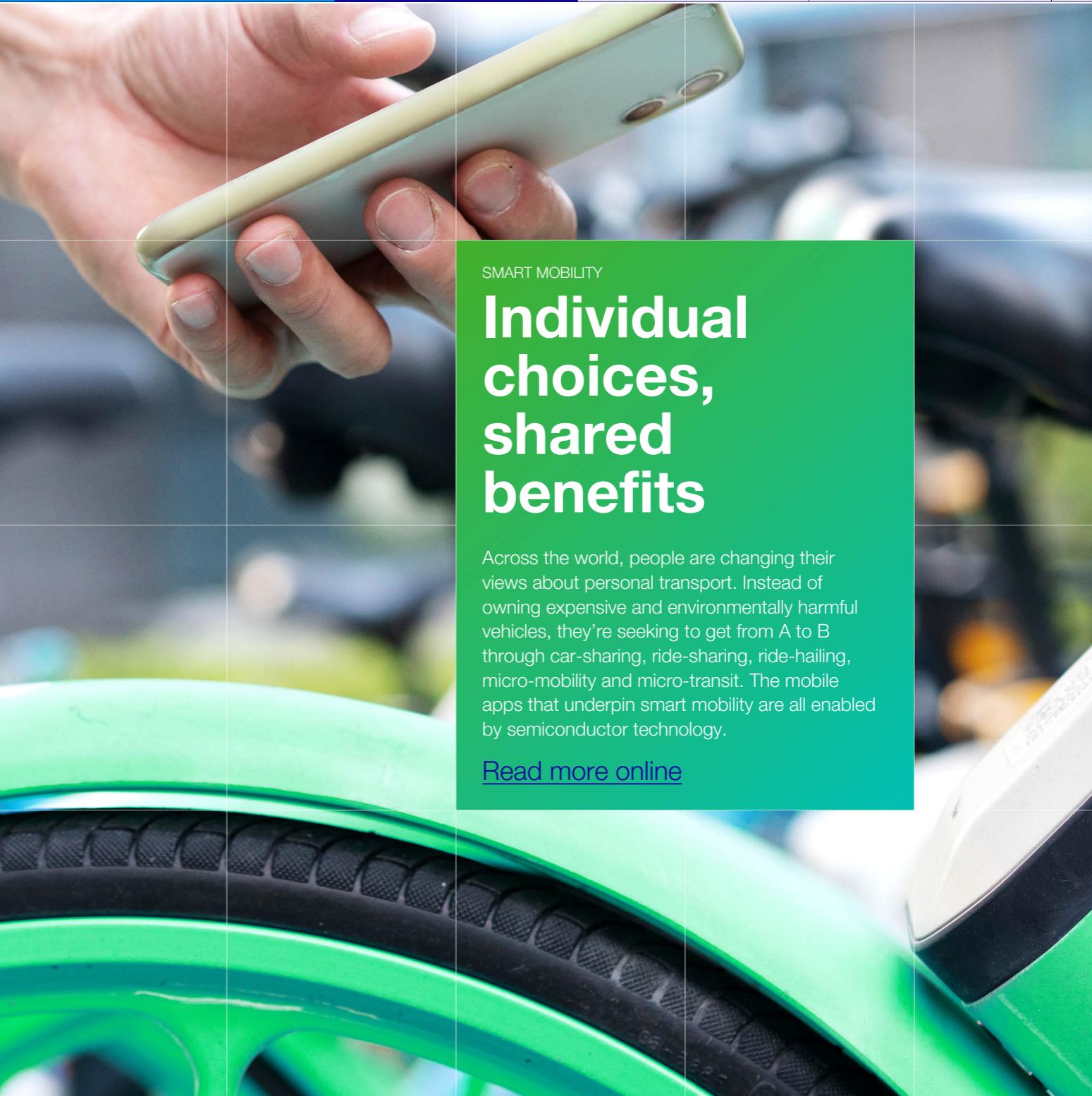
Low

	CMD 2021 Units ASML 2025	CMD 2022 Units ASML 2025	CMD 2022 Units ASML 2030
EUV High-NA 0.55	5	5	15
EUV Low-NA 0.33	48	65	65
ArFi (immersion)	63	75	85
Dry	124	180	250
Total	240	325	415

	CMD 2021 Sales 2025	CMD 2022 Sales 2025	CMD 2022 Sales 2030
Systems (Litho and M&I ¹)	18	23	33
Installed Base Management ²	6	7	11
Total	24	30	44

1. M&I: Metrology and inspection.

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



SMART MOBILITY

Individual choices, shared benefits

Across the world, people are changing their views about personal transport. Instead of owning expensive and environmentally harmful vehicles, they're seeking to get from A to B through car-sharing, ride-sharing, ride-hailing, micro-mobility and micro-transit. The mobile apps that underpin smart mobility are all enabled by semiconductor technology.

[Read more online](#)

How we manage risk

We use an Enterprise Risk Management (ERM) framework to integrate risk management into our daily business activities and strategic planning.

Enterprise Risk Management

Our ERM framework enables 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 also helps to identify opportunities that allow us to achieve our objectives and enable long-term sustainable growth.

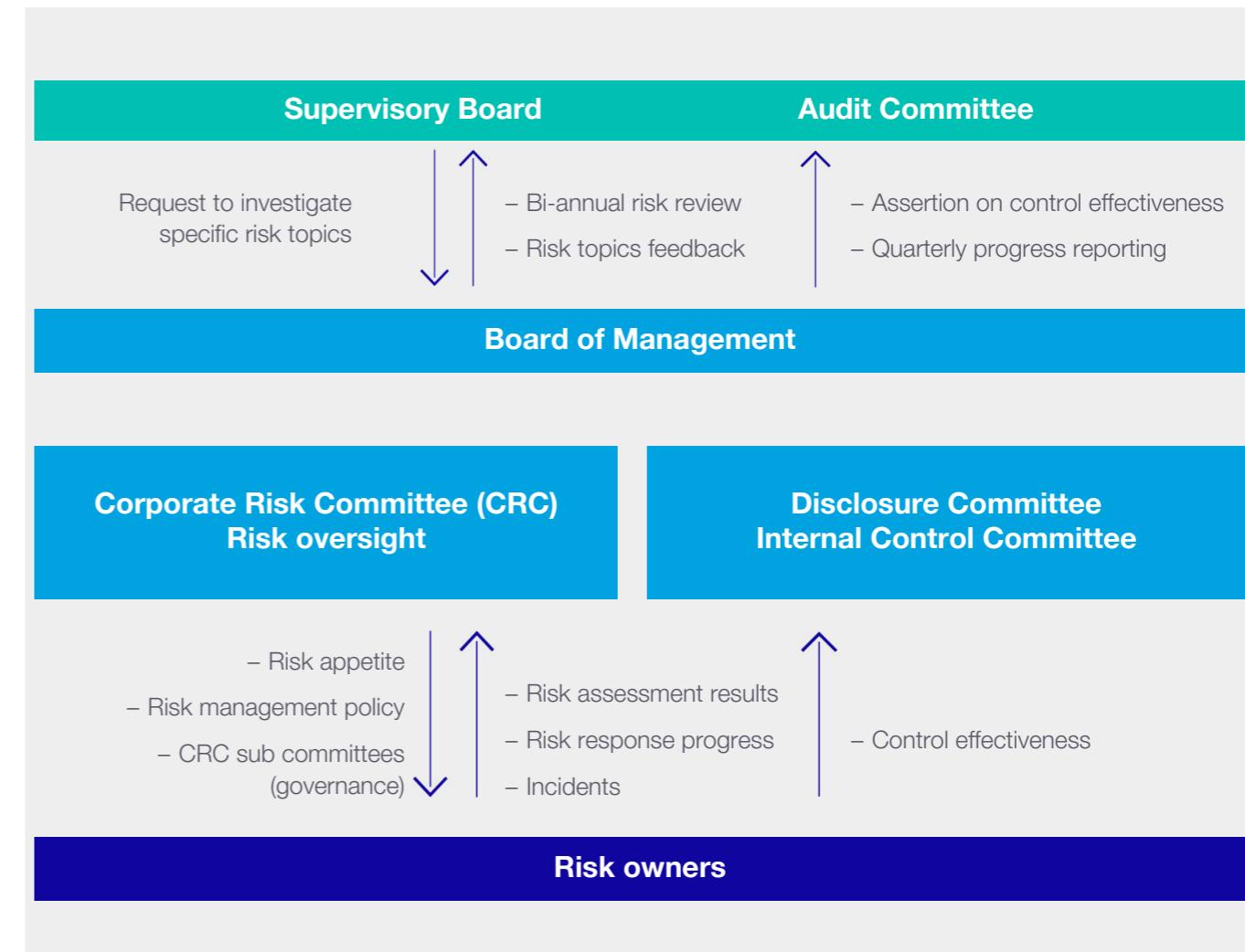
ERM is a continuous process. Its related activities are periodically repeated to identify and address risks in a timely fashion, and ensure that its results are relevant for decision-making purposes. Our Vice President of Risk and Business Assurance reports to the CFO and Audit Committee, and is responsible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



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

Geert Beullens
VP Risk and Business Assurance

Risk management governance structure



How we manage risk (continued)

Supervisory Board and Audit Committee

The Supervisory Board provides independent oversight on management's response to identifying and mitigating critical risk areas based on regular risk reviews. The Supervisory Board's Audit Committee provides independent oversight on 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 the internal and external risks related to our business activities and for making sure we comply with applicable laws and regulations.

Corporate Risk Committee

The Corporate Risk Committee is a 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 Corporate Risk Committee is chaired by the CFO and comprises senior management representatives across ASML, including the CEO and COO.



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

Roel Verstegen
Head of Enterprise Risk Management

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 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 in the ASML risk universe and drive risk response across ASML according to requirements that are defined by the Corporate Risk Committee.

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 2022 and consists of 35 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 in case of significant internal and/or relevant external developments.

ASML risk universe

Strategy and products

- Industry cycle risk
- Political risk
- Climate change risk
- Business model risk
- Merger and acquisition risk
- Competition risk
- Innovation risk
- Product stewardship risk
- Product roadmap execution risk
- Intellectual property rights risk

Finance and reporting

- Business planning risk
- Foreign exchange rate risk
- Liquidity risk
- Interest rate risk
- Capital availability risk
- Counterparty credit risk
- Shareholder activism risk
- Disclosure/external reporting risk
- Customer dependency risk
- Product/service quality risk
- Supplier strategy and performance risk
- Supply chain disruption risk

Partners

- Knowledge management risk
- Organizational effectiveness risk
- Human resource risk

People

- Product industrialization risk
- Process effectiveness and efficiency risk
- Environment, health and safety risk
- Continuity of own operation risk
- Security risk
- Information technology risk
- Manufacturing and install risk

Operations

Legal and compliance

- Contractual liability risk
- Violation of laws and regulations risk
- Violation of internal policies risk

How we manage risk (continued)

Enterprise Risk Management process

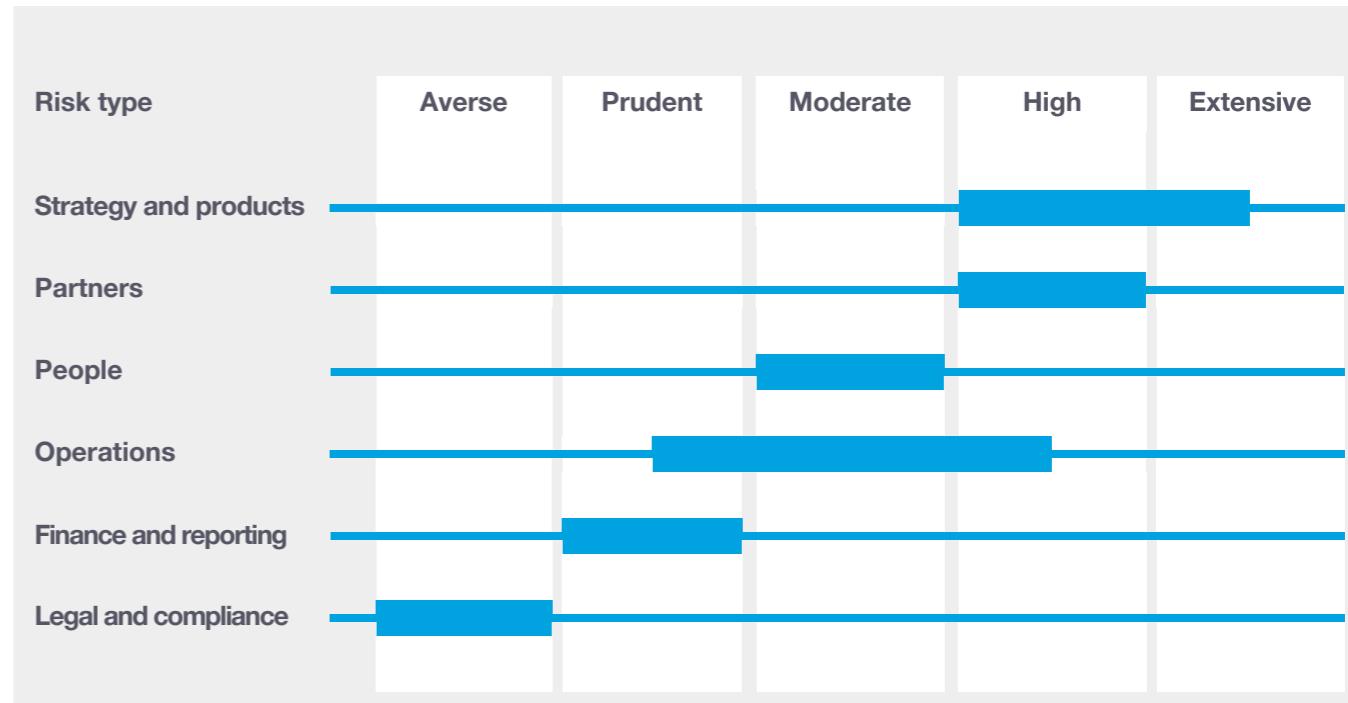
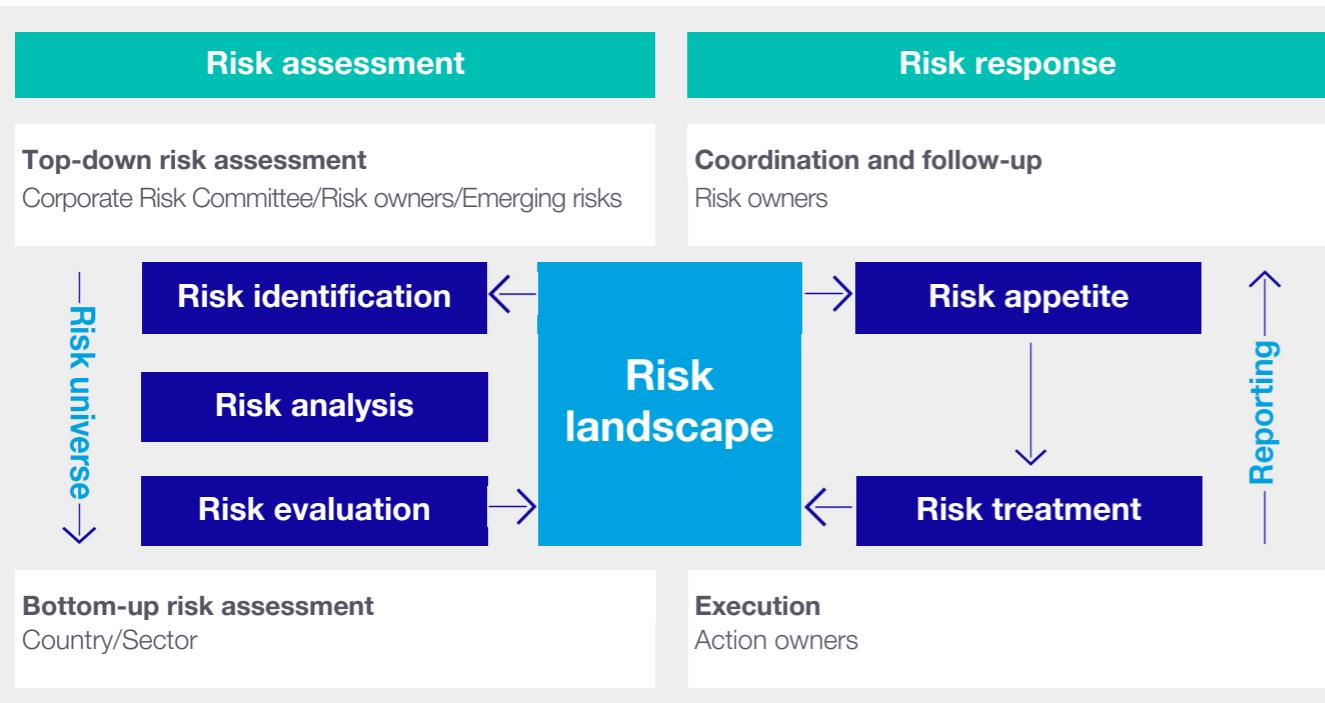
Our ERM process provides a holistic approach combining both top-down (company-level) and bottom-up (organization- and process-level) perspectives. This helps us to ensure that risk identification, evaluation and management are performed at the right level. We continuously seek to improve our ERM process.

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, updated and discussed by the Corporate Risk Committee each quarter. Risk assessments are carried out according to the risk management plan and any additional engagement is approved by the Corporate Risk Committee. We define strategies to address relevant risks and take these into account when we define our corporate priorities. Our risk responses aim to mitigate the risks up 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 – which 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 the risks to the level defined in our risk appetite.

Risk management process



How we manage risk (continued)

Risk developments

The table below shows examples of external developments that affected the exposure of a series of risk categories in 2022 and includes examples of our responses. The list of risks and risk responses below is not exhaustive.

Strategy	Risk categories	Risk developments	Risk responses
Continue innovating at pace to maintain technology leadership	Innovation Product roadmap execution IP rights Supplier strategy and performance Human resource Knowledge management Security Competition	<p>Intellectual Property (IP) technology leadership pressure</p> <ul style="list-style-type: none"> There is significant pressure on know-how and IP protection for ASML and its open innovation partners. ASML's existence is based on people and knowledge. Unauthorized disclosure of information of ASML, its customers or suppliers may benefit competitors, negatively affect ASML's ability to file patents or affect cooperation with customers and suppliers. We experience cyberattacks and other security incidents on our information technology systems, and our suppliers, customers and other service providers also experience such cyberattacks. 	<ul style="list-style-type: none"> Intellectual property portfolio management Patents and relevant technical publications monitoring Extensive investments in security program Awareness and training programs Cyber Defense Center
Advanced lithography solutions	Product industrialization Manufacturing and install Continuity of own operations Supplier strategy and performance Supply chain disruption Human resource Product and service quality Process effectiveness and efficiency Violations of laws and regulations Business model Competition Political Industry cycle	<p>Growth challenges</p> <ul style="list-style-type: none"> There is an increasing demand across all market segments and our product portfolio, which is an opportunity for us that also brings challenges. We face challenges to increase production capacity in our end-to-end supply chain to meet this demand. This is amplified by supply chain constraints. Hiring, onboarding and retaining the workforce in the current competitive market is increasingly challenging. Consistent pressure on our organization and people as a result of our growth may lead to well-being issues among our employees. The high demand we are continuing to experience could change customers' sourcing strategies to become less dependent on ASML. <p>Geopolitical tensions</p> <ul style="list-style-type: none"> Geopolitical tensions are rising and additional export control restrictions have been imposed during 2022. The risk of further restrictions on exports or investments is high, and as a consequence global trade is shifting from globalization to regionalization as China, US and many other countries strive for technological sovereignty. In particular, the tensions between China and the US may lead to a decoupled ecosystem and – in the longer term – overcapacity. Given the important role both countries play in the semiconductor supply chain, this can have a significant impact on our industry. Trade and export barriers have already impacted our ability to sell to and service systems for certain customers, and this is likely to continue to impact our business going forward. Changes in relations between Taiwan and the People's Republic of China could lead to additional trade restrictions and could impact our employees and the ability to utilize our manufacturing facilities and supply chain in Taiwan for our global customers, as well as our ability to service our customers in Taiwan. <p>Weakening global economy</p> <ul style="list-style-type: none"> Macroeconomic downturn fears are increasing, fueled by high inflation rates that are amplified by the energy crisis. Economic uncertainty has led to reduced consumer and business spending, and could cause our customers to decrease, cancel or delay their orders. A recession might also bring opportunities in the tight labor market. 	<ul style="list-style-type: none"> Increase of manufacturing capabilities, utilization rate and cycle-time reduction Fast shipments Support suppliers to increase move rate and mitigate material shortages Deployment of onboarding and well-being programs Shorten time to knowledge (learning operating model) Actively engage with governmental authorities about effectiveness, consequences and enforceability of regulations Collaborate with peers in global advocacy Scenario planning around potential geopolitical events Apply for export licenses as required Comply with applicable (existing and new) regulations Optimization of supply chain footprint Control costs and maintain flexibility Scenario planning around macroeconomic trends
Drive a more sustainable world	Product stewardship EHS Climate change Human resource Violation of laws and regulations Continuity of own operations Supply chain disruption	<p>Strengthening ESG regulations and increasing stakeholder expectations</p> <ul style="list-style-type: none"> Companies across all industries are facing increasing scrutiny relating to their ESG policies. Our 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. A global trend to transition to a lower carbon economy has resulted in the imposition of increased regulations and disclosure requirements. Failure to achieve our ESG objectives and meet the emerging ESG expectations of our stakeholders could negatively affect our brand and reputation. <p>Climate change fueling extreme weather</p> <ul style="list-style-type: none"> Climate change contributes to increasing severity and frequency of extreme weather events (such as cyclones and flood, fire stress, drought, heat and precipitation stress, rising sea levels) that can impact continuity of our operations and/or our supply chain. 	<ul style="list-style-type: none"> Stakeholder engagement and disclosures Deployment of ESG strategy in our organization and value chain Non-financial reporting in accordance with the Global Reporting Initiative (GRI) Universal Standards 2021 Deployment of business continuity plans Include extreme weather aspects in building upgrades and new designs Comply with (existing and new) regulations

Risk factors

We face many risks that have the potential to impact our business. It is important to understand the nature of these. We assess our 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 below are classified under these six risk types. Any of these risks and 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 of these risks may be intensified by global events such as the COVID-19 pandemic (including the China Zero-COVID policy), the Russia-Ukraine conflict, inflation, global measures taken in response to these events and 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 technologies, products and services, and in enhancing our existing products and services, depends on a variety of factors. These include the success of our and our suppliers' R&D programs and the timely and successful completion of product development and design relative to competitors, or more costly. 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 those developed by competitors. Our business will also suffer if our customers do not adopt technologies that we develop, or 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, remains dependent 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.

In addition, 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 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, leading to uncertainties on 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 on a timely basis. If they are unable to keep pace, whether due to technological factors, lack of financial resources or otherwise, this could prevent us from meeting 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 costs and time periods to develop new products and technologies have increased. We expect such costs and time periods to continue to increase. 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 to meet our and our customers' technology demands. Our suppliers may not be able or willing to invest the resources necessary to continue the (co-)development of the new technologies to the extent that such investments are necessary. This may 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 light of the high levels of customer demand, we may prioritize our resources toward increasing production over R&D programs.

Risk factors (continued)

We face intense competition

Risk category: Competition

The semiconductor equipment industry is highly competitive. Our competitiveness depends upon 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 further intensify 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, particularly if we are unsuccessful in developing new EUV technology, products and product enhancements in a timely and cost-competitive manner.

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, and the timing, duration and volatility are difficult to predict and can have a significant impact on semiconductor manufacturers and therefore ASML. Newer entrants to the industry, including Chinese semiconductor manufacturers, could increase the risk of cyclical in the future. Certain key end-market customers – Memory and Logic – exhibit different levels of cyclicity and different business cycles. Sales of our lithography systems, services and other holistic lithography products depend in large part upon 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 currently positively impacting our business, such as increasing capital expenditures by our customers, may not continue.

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 in the event of an industry downturn.

In addition, we are facing a weakening of the global economy. Economic uncertainty frequently leads to reduced consumer and business spending, and could cause our customers to decrease, cancel or delay their orders. The tightening of credit markets, rising interest rates and concerns regarding the availability of credit 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. Reduced demand, combined with delays in our customers' ability to obtain financing (or the unavailability of such financing) may adversely affect our product sales and revenues and therefore may harm our business and operating results.

If we are unable to timely and appropriately adapt 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 (345 units in 2022 and 309 units in 2021). 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 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 or find other third-party suppliers to provide them.

Risk factors (continued)

Failure to adequately protect intellectual property, trade secrets or other proprietary information 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 to be 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; and
- Third parties may be able to develop or obtain patents for our or similar competing technology.

In addition, 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, trade secrets, or other proprietary or confidential information. For example, we have experienced unauthorized misappropriation of data relating to proprietary technology, as described under *"Risk Factors – Cybersecurity and other security incidents, or other disruptions in our processes or information technology systems, could materially adversely affect our business operations"*. As a result of such incidents, third parties or others have or may, without authorization, obtain, copy, use or disclose our intellectual property, trade secrets or other proprietary information 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 in the past 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.

In addition, our customers or suppliers may 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 also may incur substantial licensing or settlement costs to settle claims or to potentially strengthen or expand our intellectual property rights or limit our exposure to intellectual property claims of third parties.

Patent litigation is complex and may extend for a protracted period of time, giving rise to the potential for both 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)

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

Risk category: Political

Global trade issues and changes in and uncertainties with respect to multilateral and bilateral treaties and trade policies, and international trade disputes, trade sanctions, export controls, tariffs and similar regulations, impact our ability to deliver our systems, technology and services internationally. In particular, 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, where our business has grown in recent years, and includes technologies that may be the subject of increased export regulations or policies.

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 trade restrictions, as well as the export regulation requirements and the implementation and enforcement of such regulations, has increased with the addition of certain entities to the Entity List, and more recently by the Additional Export Controls on Semiconductor Manufacturing Items imposing license requirements on US-origin parts and US persons destined toward fabs in China working on advanced technology nodes. The list of restricted customers is 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. Such developments have impacted and continue to impact our ability to obtain necessary licenses (among others from the Dutch government), including authorizations for use of US technology and for employees producing and developing such technology. 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.

Certain of our manufacturing facilities as well as our supply chain and customers are located in Taiwan. Customers in Taiwan represented 38.2% of our 2022 total net sales and 39.4% of our 2021 total net sales. Taiwan has a unique international political status. Changes in relations between Taiwan and the People's Republic of 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, which could have a material adverse effect on our business, financial condition and results of operations. Furthermore, certain of our facilities as well as customers are located in South Korea. Customers in South Korea represented 28.6% of our 2022 total net sales and 33.4% of our 2021 total net sales. In addition, there are tensions with the Democratic People's Republic of Korea (North Korea) which have existed since the division of the Korean Peninsula following World War II. A worsening of relations between those countries or the outbreak of war on the Korean Peninsula could have a material adverse effect on our business, financial condition or results of operations.

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

Risk category: Mergers & acquisitions

From time to time, we may acquire, or seek to acquire, businesses or technologies to complement, enhance or expand our current business or products or that might otherwise 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.

Furthermore, our ability to complete such transactions may be hindered by a number of factors, including potential difficulties in obtaining government approvals.

Any acquisition that we make could pose risks related to the integration of the new business or technology with our business and organization. We cannot be certain that we will be able to achieve the benefits we expect from a particular acquisition investment. Such transactions may also strain our managerial and operational resources, as 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 in the past and may in the future impose conditions on us, 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)

We may not be able to achieve our Environmental, Social and Governance (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 relating to their ESG policies. Investors, capital providers, shareholder advocacy groups, other market participants, customers and other stakeholders are increasingly focused on ESG practices and, in recent years, have placed increasing importance on the implications and social cost of their investments. 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 timely respond to enhanced regulations and disclosure obligations could negatively affect our brand and reputation, which may impede our ability to compete as effectively 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 resulted in and may result in new laws and regulations that may 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 in this regard, 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 the imposition of 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, required 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 the emission of carbon dioxide and other greenhouse gases. 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 in compliance with applicable regulations and guidance and other data which may not be required but which we nonetheless elect to disclose.

Such disclosure includes statements based on our expectations and assumptions, involving forecasts about costs and future circumstances, which may prove to be incorrect. In addition, our ESG Sustainability strategy may not have the intended results, and our estimates concerning the timing and cost of implementing and ability to meet stated goals are subject to risks and uncertainties, which could result in us not meeting our goals on expected timing or at all or within expected costs. In addition, 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, so we face risks in compliance 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: Liquidity, Interest rate, Counterparty credit, Foreign exchange

We are a global company and are exposed to a variety of financial risks, including those related to liquidity, interest rate, 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 and investments as well as our revolving credit facility

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 in particular 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 €5,252.8 million, or 78.6%, of accounts receivable and

finance receivables at December 31, 2022, compared with €3,855.2 million, or 83.7%, at December 31, 2021. 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 currently experiencing higher-than-normal inflation, which impacts our costs and margins to the extent 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, because the highly specialized nature of many of our components, particularly for EUV including 0.55 NA systems, means it is not economical to source from more than one supplier. Our sourcing strategy therefore (in many cases) 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, which could occur for a variety of reasons, such as disruptions experienced by our suppliers, including work stoppages, fire, energy shortages, pandemic outbreaks, flooding, cyberattacks, blockades, sabotage or other disasters, natural and otherwise, can 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 chip and material shortages. A 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, which could damage relationships with our customers and materially impact our business.

The number of lithography systems we are able to produce may be limited by the production capacity of one of our key suppliers, Carl Zeiss SMT GmbH, which 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 GmbH, and if they are unable to maintain and increase production levels, we could be unable to fulfill orders, which could have a material impact on our business and damage relationships with our customers. If Carl Zeiss SMT GmbH 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, particularly during periods of high levels of demand such as those we have experienced in 2022 and continue to experience. In 2022, we were impacted by delays and shortages in our supply chain, resulting in a late start on the assembly of a number of systems. In addition, due to high demand, we reduced cycle time in our factory to ship more systems. We have achieved this through a fast shipment process that skips some of the testing in our factory. Final testing and formal acceptance then takes place at the customer site. This provides our customers with earlier access to wafer output capacity but also leads to a delay of revenue recognition for those shipments until formal customer acceptance. 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 not continue to increase, which could result in overcapacity and loss of investment in increasing capacity.

In addition, most of our key suppliers, including Carl Zeiss SMT GmbH, 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, which can lead to delays in delivery of our systems and can 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 and 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)

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

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 €7,046.9 million, or 33.3% of total net sales in 2022, compared with €6,881.1 million, or 37.0% of total net sales in 2021. In 2022, 55.8% 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.

Risk category: Human resources, Knowledge management, Organizational effectiveness

Our business and future success depends significantly upon our ability to attract and retain employees, including a large number of highly qualified professionals. Competition for such personnel is intense and has intensified in the last year. Despite our ability to grow our employee base significantly, attracting sufficient numbers of qualified employees to meet our growing needs will remain a challenge. This 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 our R&D on a timely basis. Also, the loss of key employees for unexpected reasons such as resignation or long-term illness is a risk.

Moreover, 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. As a result, we have to educate and train our employees to work on our systems. Retention of those key employees is a critical success factor for us.

Furthermore, the increasing complexity of our products results in a longer learning curve for new and existing employees and suppliers, leading to an inability to decrease cycle times, and may result in significant additional costs. 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 deliveries of components to us.

In recent years, our organization has grown significantly. We may be unable to effectively manage, monitor and control our employees, facilities, operations and other resources. Our rapid growth in recent years, driven by strong customer demand, puts pressure on our organization and employees, which can negatively impact employee well-being. This may in turn negatively impact the efficiency of our operations, our ability to ensure compliance with laws and regulations as well as 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, reduced demand for our products and our customers being unable to meet planned wafer capacity.

Transitioning our newly developed products to full-scale production requires the expansion of our infrastructure, including enhancing our 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 reach high-volume production of newly developed products on a timely basis or at all.

In addition, when we are successful in industrializing new products, it can take years to reach profitable margins, as was the case for EUV 0.33 NA.

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, as new products may have higher cycle times, resulting in increased working capital needs. This impact on liquidity increases as our products become more complex and expensive.

The capability, capacity and costs associated with providing the required customer support function 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 is 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 (the Netherlands), Berlin (Germany), Wilton, San Diego (US), Pyeongtaek (South Korea), and Linkou and Tainan (Taiwan). These facilities may be subject to disruption for a variety of reasons, including work stoppages, fire, energy shortages, pandemic outbreaks, flooding, cyberattacks, blockages, sabotage or other disasters, natural and otherwise. We cannot ensure that alternative production capacity would be available if a major disruption were to occur. In 2022, we experienced a fire in our Berlin operations which required significant recovery efforts to secure our operations.

As our organization grows, we are not able to fully insure our risk exposure. In addition, not all disasters are insurable. As we are unable to duly insure against potential losses, we are subject to the financial impact of uninsured losses, which can have an adverse impact on our financial condition and results of operation.

Risk factors (continued)

We face challenges to meet demand

Risk category: Manufacturing and install, Human resources, Supplier strategy and performance

We have in recent years and are continuing to experience increasing demand across all our market segments and product portfolio because our systems play critical roles in meeting end-market demand. This high level of demand brings challenges. We have been and are continuing to increase production capacity in our end-to-end supply chain to meet this demand, but we face challenges in increasing capacity. For example, in order to increase our capacity, we depend on our suppliers increasing their capacity, 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; these may not be (timely) granted.

It is a challenge for ASML and our suppliers to hire and retain more employees in the current competitive labor market. Our processes and systems may not be able to adequately support our growth. In addition, our end-to-end supply chain is facing a shortage of materials which is hampering 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 which could result in customers changing their sourcing strategy to become less dependent on ASML, which impacts our market share in certain product offerings.

Where we are able to increase our capacity, we are subject to increased risk of a downturn, as it becomes more difficult for us to reduce costs in the event of an industry downturn.

The nature of our operations exposes 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, which 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. The failure to comply with current or future regulations could result in substantial fines being imposed on us, 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 continued 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)

Cybersecurity and other security incidents, or other 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 computer viruses and systems attacks, natural or man-made incidents, disasters or unauthorized physical or electronic access, and we have experienced some of these incidents.

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, for us, our customers, suppliers or other business partners – including R&D partners – 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 or 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, and 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. We have experienced unauthorized misappropriation of data relating to proprietary technology by a (now) former employee in China. We promptly initiated a comprehensive internal review. Based upon our initial findings we do not believe that the misappropriation is material to our business. However, as a result of the security incident, certain export control regulations may have been violated. ASML has therefore reported the incident to relevant authorities. We are implementing additional remedial measures in light of this incident. In addition, any system failure, accident or security breach could result in business disruption, theft of our intellectual property or trade secrets (including our proprietary technology), 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, computer viruses or other malware may harm our systems and software and could be inadvertently transmitted to our customers' systems and operations, which 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 be required to 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, our customers, partners and our 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, as described above, which could harm our customers. Furthermore, we have increased the level of remote working within our organization, which increases the risks of cybersecurity incidents.

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 these new systems as planned without disruption to our operations. For example, we are currently implementing a new ERP system and infrastructure. As a result of this system implementation or otherwise, we have and could continue to experience disruptions in our operations.

Read more in: Governance - Responsible business - Information security.

Risk factors (continued)

6. Legal and compliance

We are subject to increasingly complex regulatory and compliance obligations

Risk category: Violation of laws and regulations

In recent years, our business has grown significantly in terms of sales, operations, employees and our business infrastructure. As a result, compliance with laws and regulations, including with as well as our internal policies and standards, such as without limitation, the ASML Code of Conduct, has become more complex. Furthermore, as we operate in different countries in the world, we have become increasingly subject to compliance with additional laws and regulations in such jurisdictions, including but not limited to export control, anti-corruption, anti-bribery, antitrust and ESG regulations, which can be complex. We may also be subject to investigations, audits and reviews by authorities in such jurisdictions regarding compliance with laws and regulations, including tax laws.

In addition, the existing laws and regulations that we are subject to, including regulations relating but not limited to trade, national security, tax, export controls, reporting, product compliance, anti-corruption laws, antitrust, human rights, data protection, spatial planning and environmental laws, are becoming more complex and the trade and national security environment has resulted in increasing restrictions. Trade and security regulations limit our ability to sell our products and services in certain jurisdictions and we face the risk of further restrictions. We have experienced delays in permits for shipments as well as restrictions on shipping certain products or components to certain customers.

Such changes in the regulations that apply to our business can increase compliance costs and the risk of non-compliance. Non-compliance could result in fines and penalties, business disruption, reputational harm and additional regulatory scrutiny measures. Furthermore, additional regulations could impact or limit our ability to sell our products and services in certain jurisdictions.

Changes in taxation could affect our future profitability

Risk category: Violation of laws and regulations

We are subject to income taxes in the Netherlands and the 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 OECD, as well as any change in approach to tax by tax authorities. All 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 in jurisdictions where we operate 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 foreign derived intangible income deduction/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, which can also affect our worldwide effective tax rate and impact our net income.

Risk factors (continued)

7. Other risk factors

COVID-19 or other pandemics may impact our operations

The COVID-19 pandemic and the measures implemented to address this pandemic globally may continue to impact our business, our suppliers and our customers. Pandemics can have significant impact on the global economy, which can potentially affect our end markets.

The COVID-19 pandemic has increased the level of remote working within our organization, which impacts productivity and may delay our roadmap, increase the risks of cybersecurity incidents and/or impact our control environment. In addition, as we are dependent on our suppliers, disruptions to their operations as a result of the COVID-19 pandemic impact us and our ability to produce, deliver and service tools. Market demand for semiconductors and therefore our products and services can also be impacted by the COVID-19 pandemic and measures taken to address it. Further, an important part of our business involves installing and servicing tools at customer premises around the globe, and this could be impacted by travel restrictions and vaccination requirements.

There is uncertainty as to how the COVID-19 pandemic could develop and the impact on global GDP, end markets and our manufacturing capability and supply chain. The impact of the pandemic on ASML will depend on future developments, including the continued severity of the pandemic, and the actions of the Dutch and other foreign governments to contain outbreaks or address their impact, which are outside of our control.

Restrictions on shareholder rights may dilute voting power

Our Articles of Association provide that we are subject to the provisions of Dutch law applicable to large corporations, called '*structuurregime*'. These provisions have the effect of concentrating control over certain corporate decisions and transactions in the hands of our 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 our Supervisory Board than if we were not subject to the '*structuurregime*'.

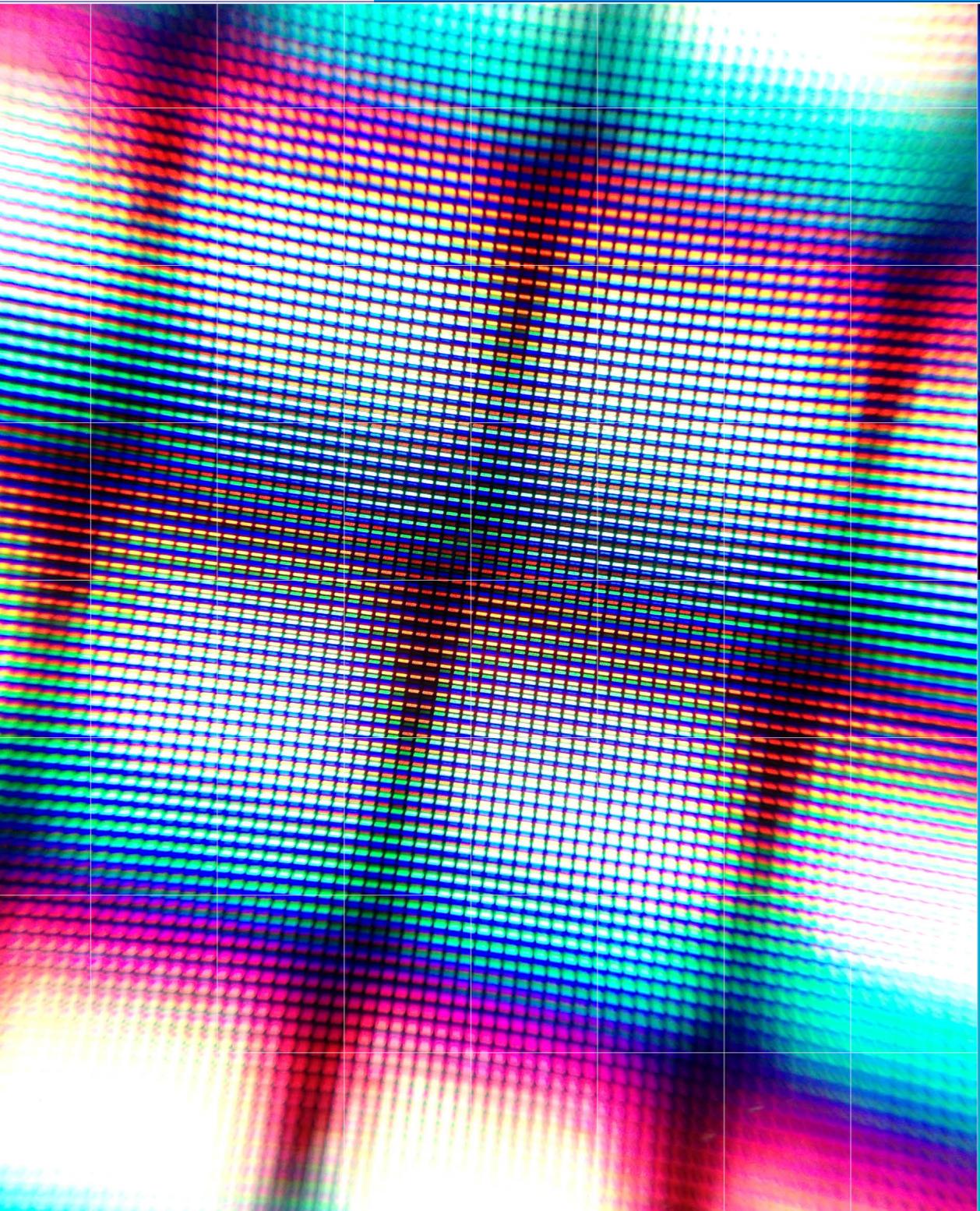
Our authorized share capital also includes a class of cumulative preference shares, and we have granted Stichting Preferente Aandelen ASML, a Dutch foundation, an option to acquire, at the nominal value of €0.09 per share, such cumulative preference shares. Exercise of the Preference Share Option would 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 will be subject to the availability of distributable profits, retained earnings and cash, and may 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 income tax and corporate laws. The Board of Management may decide to propose 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.

We may be impacted by the Russia–Ukraine conflict

Although we do not currently have operations in Russia or Ukraine, the impact of the military action in Ukraine creates uncertainty in the macroeconomic environment. This military action, including sanctions and other measures taken in response, have and could further adversely affect the global economy, the financial markets and supply chain, which therefore may impact customer demand, delivery of products and services to clients, as well as our ability and the ability of our supply chain to obtain parts, components and gas supply. In addition, the conflict amplifies the surge in energy prices, commodity prices, transportation costs, inflation and cyberattacks.



VIRTUAL AND AUGMENTED REALITY

Virtual reality, unreal opportunities

There's more to virtual reality (VR) and augmented reality (AR) than gaming. At ASML, these technologies are helping us design, build and maintain some of the world's most complex machines. Through VR and AR, our teams are able to manipulate designs and learn how to maintain systems – in some cases, many years before the machines themselves physically exist.

[Read more online](#)

ESG at a glance

We aim to be a leader in sustainability, and to continue driving progress toward inclusive and sustainable growth for all.

Our vision

Our vision at ASML is to enable ground-breaking technology that solves some of humanity's toughest challenges.

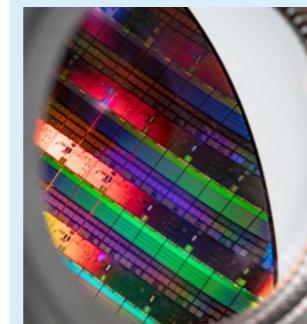
Our contribution to a digital, sustainable future



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



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

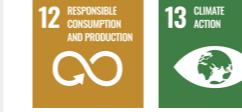


We commit to act on our responsibilities and fully anchor them in the way we do business through our focus on integrated governance, engaged stakeholders and transparent reporting.

How we report on our ESG progress

SDGs we align with

Environmental 75



ESG Sustainability chapters

– Energy efficiency and climate action

[Read more on page 76 >](#)

– Circular economy

[Read more on page 85 >](#)

Social 96



– Attractive workplace for all

[Read more on page 97 >](#)

– Our supply chain

[Read more on page 109 >](#)

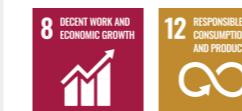
– Innovation ecosystem

[Read more on page 118 >](#)

– Valued partner in our communities

[Read more on page 124 >](#)

Governance 133



– Managing ESG sustainability

[Read more on page 134 >](#)

– Responsible business

[Read more on page 135 >](#)

– Our approach to tax

[Read more on page 147 >](#)

Our material ESG sustainability topics

We aim to create long-term value for our stakeholders and to shape a sustainable future. To achieve these aims, we must focus our strategy on the ESG sustainability topics that matter most.

Our material topics represent our most significant impacts on the economy, environment and people, including their human rights. We update our materiality annually based on ongoing engagement with stakeholders, developments within ASML and the context in which we operate.

The process for determining material topics consists of four steps which are based on the guidance provided by the Global Reporting Initiative (GRI). Our 2022 materiality assessment process is based on the standard 'GRI 3: Material Topics 2021'.



Key changes in the sustainability topics list from 2021 to 2022 (Step 2: Identify impacts)

	2022 topics	2021 topics
Environmental	<ul style="list-style-type: none"> – Circular economy 	<ul style="list-style-type: none"> – Waste management – Circular economy: Re-use – Circular economy: Recycling
Environmental	<ul style="list-style-type: none"> – Energy management and carbon footprint: Supply chain – Energy management and carbon footprint: Operations – Energy management and carbon footprint: Product use and downstream 	<ul style="list-style-type: none"> – Energy management operations – Energy management products
Environmental	<ul style="list-style-type: none"> – Biodiversity 	(none)
Social	<ul style="list-style-type: none"> – Innovation ecosystem 	<ul style="list-style-type: none"> – IP protection – Innovations management – Innovation partnership
Social	<ul style="list-style-type: none"> – Talent attraction, employee engagement and retention 	<ul style="list-style-type: none"> – Talent attraction and retention – Employee engagement
Social	<ul style="list-style-type: none"> – Responsible supply chain and product stewardship 	<ul style="list-style-type: none"> – Responsible supply chain – Product stewardship
Social	<ul style="list-style-type: none"> – Diversity and inclusion – Occupation health and safety – Responsible supply chain and product stewardship 	– Human rights

Our material ESG sustainability topics (continued)

Step 1: Understand the context

Key to our materiality assessment process is understanding the stakeholders that are affected or could be affected by us. We have five stakeholder groups: shareholders, customers, employees, suppliers (including contractors) and society. We continuously engage with these stakeholders to understand their concerns and how we may impact their interests. Through stakeholder engagement we also identify improvement actions and receive feedback on our performance and progress.

Read more in:

Our business model - Engaging with stakeholders.

We also monitor the sustainability context of our activities and business relationships by reviewing relevant sources of information. These sources include international standards and (upcoming) legislation, industry and peers, media and ESG rating agencies.

Step 2: Identify actual and potential impacts

We identified an initial list of topics and impacts based on insights from stakeholder engagement and relevant sources of information. The list of topics includes positive and negative, actual and potential, and short- and long-term impacts. Actual impacts are those that have already occurred, and potential impacts are those that could occur but have not occurred yet. The assessment aims to cover all impacts likely to be relevant across our value chain and business relationships and considers the relevant GRI Topic Standards.

While our 2022 list of topics includes topics from the 2021 materiality assessment, it also includes a number of changes, with some topics merging to bundle strongly connected impacts. The table on the previous page shows key movements across our material issues.

Step 3: Assess the significance of the impacts

We assessed the significance of actual negative impacts by their severity (scale, scope and irremediable character) and the significance of actual positive impacts by their scale and scope. For potential impacts we also assessed likelihood. Negative and positive impacts were assessed separately, as these cannot always be compared, and negative impacts cannot be offset by positive impacts.

Based on ASML subject matter experts' assessment, the topics were ranked, initially based on scale, scope, and remediability, and in case of an equal ranking also on likelihood. The ranking of topics was also subject to review by internal representatives of stakeholder groups, to ensure the concerns and interests of all stakeholders were sufficiently considered.

Step 4: Prioritize the most significant impacts

The most significant impacts are prioritized for strategy and reporting. The outcomes of the materiality assessment are used to shape our strategy and long-term targets, with the aim of long-term value creation for all our stakeholders. The Board of Management sets this strategy.

The table below shows the material topics, the impacts included in the definition of each topic, whether these impacts are positive or negative, actual or potential and where in the value chain they occur.

Compared with 2021, the criteria for prioritizing topics in the GRI standards have changed, which affects comparability between the 2021 and 2022 material topics. The following changes occurred in 2022:

- 'Community engagement' emerged as a new material topic, covering (potential) negative impacts on the availability of housing, talent and infrastructure in the region and positive impacts from job creation and community programs.
- 'Human capital development' is no longer a material topic, although the assessment shows that ASML has a positive impact by providing training and career development opportunities for employees.
- 'Customer intimacy' is no longer a material topic now that impact is the sole criterion for materiality in the updated GRI standards.

Our material ESG sustainability topics (continued)

Material topics 2022¹

Topic name	Topic definition (impacts covered)	Positive or negative impact	Actual or potential impact	Impact area value chain
Energy management and carbon footprint – Product use and downstream	a) Energy-efficiency products (EUV, DUV) b) Energy consumption (EUV, DUV) c) Scope 3 downstream emissions	Negative	Actual	Downstream customers and society
Energy management and carbon footprint – Supply chain	a) Energy management supply chain b) Scope 3 upstream emissions	Negative	Actual	Upstream suppliers and partners
Energy management and carbon footprint – Operations	a) Energy use within and management of own buildings and factories b) Reduction of energy consumption c) Use of renewable energy for our operations d) Resulting scope 1 and 2 GHG emissions	Negative	Actual	Own operations
Circular economy	a) Waste generated through operations (e.g. waste from parts, packaging, construction, hazardous waste and other waste directed to disposal) b) Use of non-renewable materials and resources c) Use of renewable materials and resources d) Measure to reduce and manage waste from operations (e.g. recycling, re-use and waste diverted from disposal) e) Measure to reduce the use of materials and move to circulation of products and material	Negative Positive	Actual Actual	Entire value chain Entire value chain
Diversity and inclusion	a) Workforce gender diversity b) Diversity of governance bodies c) Workforce inclusiveness d) Pay equality, i.e. the ratio of basic salary and remuneration of women to men e) Diversity (age, gender, cultural background, etc.) of new hires, promotions and turnover	Positive	Actual	Own operations
Talent attraction, employee engagement and retention	a) New employee hires and employee turnover b) Working conditions, including working time, rest periods, holidays, dismissal practices, maternity protection, support for collective bargaining to determine wages, etc. c) Remuneration practices, including how these relate to legal and industry minimums, whether they enable employees to meet their basic needs, how overtime is compensated, etc. d) Other benefits, including life insurance, healthcare, disability and invalidity coverage, parental leave, retirement provision, etc.	Positive	Actual	Own operations
Occupational health and safety	a) Work-related injuries, ill health and well-being b) Work-related hazards and risks, including the identification, assessment and measures taken to manage these risks c) Safety culture, including worker participation, consultation, communication and training on occupational health and safety	Negative	Potential	Own operations
Responsible supply chain and product stewardship	a) Social impacts (e.g. health and safety, working conditions, child labor, etc.) in the supply chain and actions taken b) Environmental impacts (e.g. pollution, water use, etc.) in the supply chain and actions taken c) Supplier ESG standards and screening d) Supplier ESG performance e) Impact on environmental and social aspects in the supply chain from product design and engineering	Negative	Potential	Upstream suppliers and partners

Our material ESG sustainability topics (continued)

Topic name	Topic definition (impacts covered)	Positive or negative impact	Actual or potential impact	Impact area value chain
Innovation ecosystem	a) Innovation partnerships b) Innovation pipeline c) In-kind support startups and scaleups d) EU public-private R&D innovation projects e) Knowledge management	Positive	Actual	Entire value chain
Community engagement	a) Local community impacts, including housing, talent pipeline (region), mobility and infrastructure, social cohesion, neighbor (local) impact b) Local community impacts, including economic growth, local tax contribution and job creation c) Philanthropy, including local community engagement and development programs	Negative Positive	Actual Actual	Own operations Own operations

1. Although Biodiversity was added as a topic in the 2022 materiality assessment, our impact on this topic was assessed and in comparison to other topics it was not considered material.

Contributing to the UN's Sustainable Development Goals

Adopted by all member states in 2013, 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.

We have developed the work streams of our ESG program to support the 2030 ambition as defined by the UN's Sustainable Development Goals (SDGs), focusing on six particular SDGs where we can have the greatest impact. Our ambitions, commitment and programs for these SDGs are explained more fully at the start of each ESG chapter of this report. In brief, they are as follows:

In our **Environmental** pillar, we focus on SDG 13 (Energy efficiency and climate action) by addressing our energy efficiency in our operations, and on SDG 12 (Responsible consumption and production) via our circular economy work streams.

In our **Social** pillar, we focus on 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. Our support for 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 support SDG 11 (Sustainable cities and communities) by working with our community outreach partners to make cities and other human settlements inclusive, safe, resilient and sustainable. SDG 12 (Responsible consumption and production) is addressed by our work with suppliers and in our supply chain.

In our **Governance** pillar, we focus on SDG 8 (Decent work and economic growth) by ensuring that we eradicate all types of forced labor, protect labor rights and promote a safe and secure working environment for everyone. In addition to being covered under our Environmental and Social pillars (see above), SDG 12 (Responsible consumption and production) is also supported under our Governance pillar by our work to achieve environmentally sound management of chemicals and all wastes throughout their life cycles, in accordance with agreed international frameworks.

We believe that increasing digitalization opens the way to a society that is more environmentally and socially sustainable.

Environmental at a glance

We are committed to reducing our environmental footprint both from our operations and the use of our products and services.



What we do

We develop lithography technology that enables manufacturers to make more energy-efficient microchips. Reducing our environmental footprint and managing our waste – both from our operations and in the use of our products and services – is key to our ESG practices.

Our aims

As the world continues to increase its dependence on technology to solve some of its most pressing challenges, our role is to help make this happen by expanding the availability of the necessary computing power.

Our ambition is to achieve carbon neutrality with net zero emissions in our operations (scope 1 and 2) by 2025. We aim to achieve net zero emissions in our supply chain (scope 3) by 2030, and net zero emissions from the use of our products by our customers (scope 3) by 2040. In addition, our goal is to have zero waste from operations to landfill or incineration by 2030.

We focus on energy efficiency – not only in our business but also by addressing the amount of energy that semiconductors require in operation. We are also working hard to manage our own waste streams and improve the circularity of our value chain.

Our actions are closely aligned to two SDGs in particular – SDG 13 (Energy efficiency and climate action) and SDG 12 (Circular economy).

Energy efficiency and climate action

[Read more on page 76 >](#)



SDG 13

Take urgent action to combat climate change and its impacts by regulating emissions and promoting developments in renewable energy

- Energy management and carbon footprint: Operations (Scope 1 and 2)
- Energy management and carbon footprint: Supply chain, business travel and commuting (Scope 3)
- Energy management and carbon footprint: Product use at our customers (Scope 3)

Circular economy

[Read more on page 85 >](#)



SDG 12

Ensure sustainable consumption and production patterns

- Reduce waste in our operations
- Re-use parts and materials
- Refurbish mature products
- Water management

Energy efficiency and climate action

We are committed to lowering our carbon footprint wherever we can to achieve net zero emissions across our operations and in our supply chain. As well as increasing the productivity of our products, we are also working toward reducing their absolute energy consumption.


38.1 kt

 Scope 1 and 2 CO₂e emissions
(2025 target: net zero)

1.11 kt

 Scope 3 CO₂e emissions intensity (per €m gross profit)
(2025 target: 1.02)

0.56 kt

 Net scope 3 CO₂e emissions intensity (per €m revenue)

11.9 Mt

 Scope 3 CO₂e emissions
(2040 target: net zero)

8.27 kWh

NXE energy use per exposed wafer pass (NXE:3600D, measured in 2021) (2025 target: 5.1 kWh)

IN THIS SECTION

- 78 Our overall performance in 2022
- 79 Energy management and carbon footprint: Operations (scope 1 and 2)
- 81 Energy management and carbon footprint: Supply chain, business travel and commuting and product use at our customers (scope 3)

Our approach

Climate change is a global challenge that requires urgent action by everyone, including us. While the benefits our industry brings to society are considerable, these come at a cost, through the consumption of considerable energy and resources. We have identified energy management and carbon footprint as material topics for our business across three distinct areas – in our own operations, throughout our supply chain and in the use of our products and downstream.

In recognition of the importance of following a science-based pathway to limit global warming to 1.5°C, we are signatories to the Science Based Targets initiative (near term SBTi). Our aim at ASML is to achieve net zero emissions along our value chain by 2040.

We have set out the following milestones and focus areas to help us achieve this:

1. Energy management and carbon footprint – Operations (scope 1 and 2): net zero emissions by 2025
2. Energy management and carbon footprint – Supply chain (scope 3): reduce net scope 3 upstream emissions to zero by 2030 and net zero scope 3 emissions from business travel and commuting by 2025
3. Energy management and carbon footprint – Product use at our customers (scope 3): net zero scope 3 emissions from product use by 2040

In this section, we will elaborate on our approach and explain how we aim to achieve our targets in the context of our focus areas.

Alongside our efforts to lower our own carbon footprint, we are committed to using our innovations and digital technologies to enable the industry to reduce its environmental footprint. For example, our EUV systems allow customers to fabricate advanced chips more efficiently, using fewer process steps and fewer resources.



Energy efficiency and climate action



SDG target

SDG target 13.1

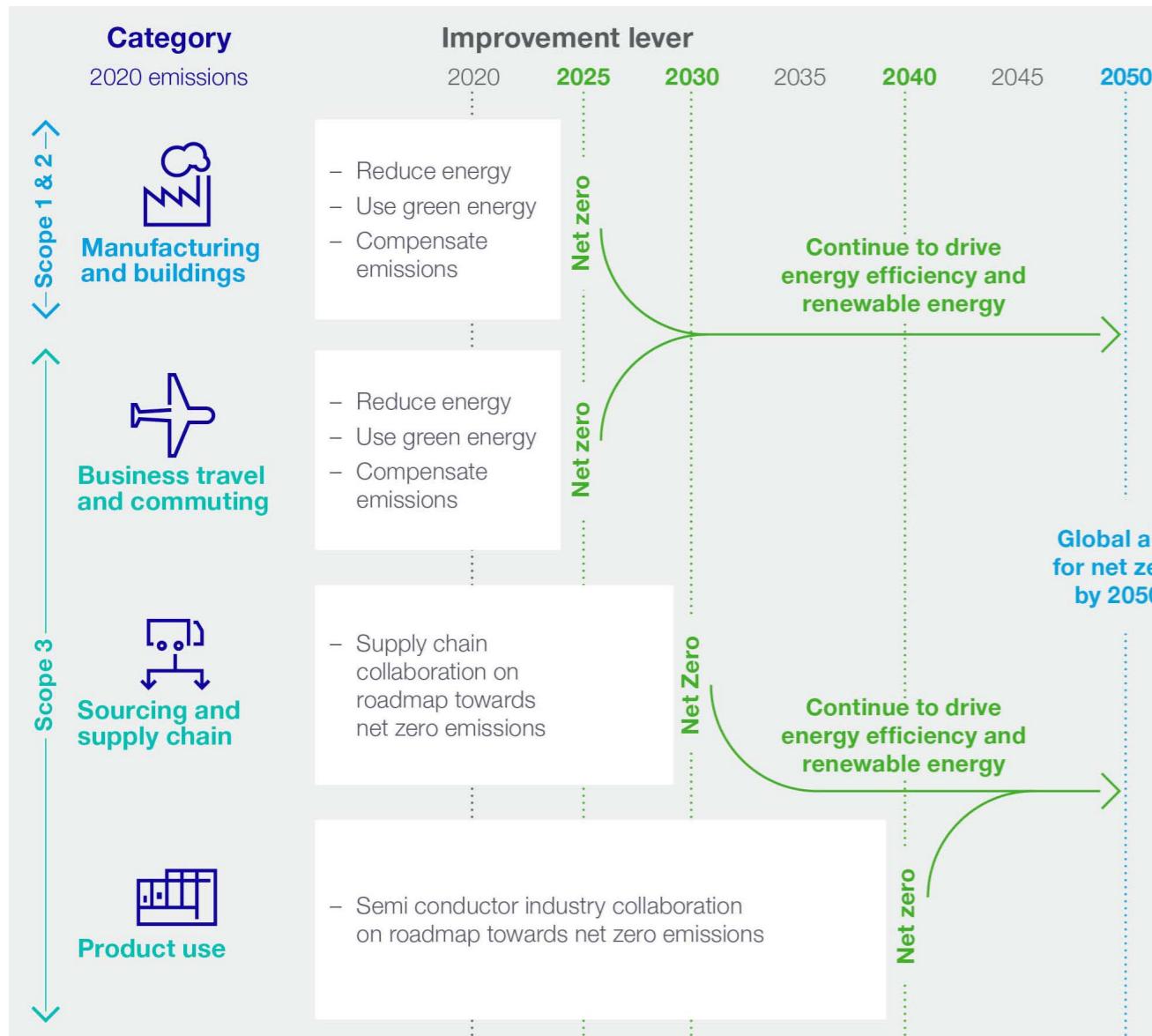
Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries

How we measure our performance

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

Energy efficiency and climate action (continued)

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



Our journey to net zero emissions in our value chain

Our goal is to achieve the following milestones in our journey toward net zero emissions in our value chain by 2040, for each of our impact areas:

- 2025: Net zero scope 1+2 emissions
- 2025: Net zero scope 3 emissions from business travel and commuting
- 2030: Collaborating with our suppliers, reduce net scope 3 upstream emissions to zero
- 2040: Collaborating with our customers and peers, reduce net scope 3 emissions from product use to zero

Our approach to achieving net zero emissions is based on four pillars:

1. Analyzing energy use and greenhouse gas (GHG) emissions to learn about improvement options
2. Innovating in energy efficiency, and redesigning our assets, products and processes to minimize environmental impact

Our environmental management system

To measure our journey, we have an Environmental Management System (EMS) in place to help us monitor our energy use and emissions, improve performance and enhance efficiency. The EMS is integrated into our Environmental, Health and Safety (EHS) management system. All our facilities operate on the basis of this system – and the HMI locations in Tainan (Taiwan) and San Jose (US) have now been successfully integrated. Our system is ISO 14001 certified and structured in accordance with ISO 45001 requirements.

3. Aiming to lead on the shift toward 100% credible, renewable energy

4. Compensating residual emissions to achieve our targets if no reasonable other improvement actions are available

We recognize that we cannot do any of this alone, which is why we collaborate closely with our employees, suppliers, customers, peers and society.

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 on www.asml.com.

This certification gives our stakeholders confidence in our commitment to achieving our environmental goals.

Our participation in the annual assessment by the Carbon Disclosure Project (CDP), a non-profit global disclosure program, also helps steer our environmental initiatives. Our score in the most recent CDP Climate Change 2022 questionnaire is B, which is above the global average of C.

Energy efficiency and climate action (continued)

On track or met target ●
Ongoing focus area ■

Our overall performance in 2022

Topic	Target 2025	Performance indicator	Progress tracking			Status
			2020	2021	2022	
Climate action 	Net zero	Scope 1 – Direct emissions from fossil fuels in our operations (kton)	15.4	19.3	17.3	●
	Net zero	Scope 2 – Indirect emissions from energy consumption (kton) [market-based] ²	0.0	20.1	20.8	●
	Net zero (2040)	Scope 3 – Indirect emissions from total value chain (kton)	8,800.0	11,400.0	11,900.0	●
	Total footprint (in kton)¹			8,815.4	11,439.4	11,938.1
	n/a	Scope 3 CO ₂ e emissions intensity (per €m revenue)	0.63	0.61	0.56	n/a
	1.02	Scope 3 CO ₂ e emissions intensity (per €m gross profit)	1.29	1.16	1.11	●
	n/a	Reduction in GHG emissions from projects (kton)	n/a	n/a	2.6	n/a
Energy efficiency 	5.1	Products – NXE energy use per wafer (in kWh)	9.64 (NXE:3400C)	8.27 (NXE:3600D)	8.27 (NXE:3600D)	●
	n/a	Products – NXT energy use per wafer (in kWh)	0.45 (NXT:2050i)	0.48 (NXT:1980Ei)	0.46 NXT:2100i	n/a
	n/a	Energy consumption (in TJ)	1,412	1,689	1,633	n/a
	100 TJ	Energy savings worldwide through projects (in TJ) ³	113.9	12.7	19.0	●
	100%	Renewable electricity (of total electricity purchased)	100%	92%	91%	●
	(10)%	Energy consumption (NXE) (reduction in % of baseline 2018 1.4 MW)	(6%) (NXE:3400C)	(6%) (NXE:3600D)	(6%) (NXE:3600D)	●
	n/a	Throughput (in wph) (NXE)	136 (NXE:3400C)	160 (NXE:3600D)	160 (NXE:3600D)	n/a
	(60)%	Energy use per exposed wafer pass (NXE) (reduction in % of baseline 2018)	(26%) (NXE:3400C)	(37%) (NXE:3600D)	(37%) (NXE:3600D)	●

1. The guidance from the Greenhouse Gas 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 1 and scope 2 CO₂e emissions in kt.

2. We report the market-based emissions after purchase of EACs. ASML currently does not offset any of the remaining emissions, resulting in no differences between our gross and net emissions.

3. In 2021 we started a new masterplan period for 2021-2025, with a target to achieve 100 TJ energy savings by the end of 2025. The figure from 2020 is related to the masterplan 2016-2020. The savings reported are cumulated compared with the base year; therefore, they are not comparable.

Read more in:

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

Energy efficiency and climate action (continued)

Energy management and carbon footprint: Operations (scope 1 and 2)

Our approach

Scope 1 emissions

Our main direct CO₂ emissions come from fossil fuels – mainly natural gas in our operations. The vast majority of natural gas consumption is used for heating our buildings and the humidification of our cleanrooms.

Scope 2 emissions

Purchased electricity accounts for 80% of the energy we use at ASML. Most of our electricity consumption relates to the manufacturing of chipmaking equipment – from assembly to testing lithography and other systems – and maintaining consistent climate conditions, such as constant 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

Our target is to achieve net zero scope 1 and 2 emissions by 2025. This target is consistent with reductions required to keep global warming to 1.5°C and is approved by the SBTi – under the ‘near-term’ category.

Our performance in 2022

Scope 1 emissions

Our gross scope 1 emissions decreased from 19.3 kt in 2021 to 17.3 kt in 2022, despite our sales growing by 13.8%.

Scope 2 emissions

In 2022, our indirect emissions from energy consumption were 20.8 kt (20.1 kt in 2021). We report market-based emissions after purchase of energy attribute certificates (EACs). ASML currently does not offset any of the remaining emissions, resulting in no differences between our gross and net emissions.

Our electricity consumption has increased compared with 2021, along with our scope 2 emissions. The share of renewable electricity decreased slightly to 91% from 92% in 2021 due to higher electricity consumption in Taiwan (where we are currently not yet buying renewable electricity).

One of the most important challenges for us in achieving our net zero emissions target is the procurement of credible renewable energy in Taiwan and South Korea.



Energy efficiency and climate action (continued)

Our actions in 2022

1. Reducing energy consumption and use of natural gas

We aim to reduce our energy consumption through direct annual savings of 100 TJ (or 3 kt CO₂e) by executing more than 80 projects in the energy-saving masterplan which covers each of our five large industrial sites. The main components of this masterplan are reducing the use of natural gas and electricity, adding renewable production of energy on our sites, purchasing credible renewable electricity and optimizing the use of BREEAM (Building Research Establishment Environmental Assessment Method) certified offices.

Out of over 80 projects, the six key projects and the expected annual energy savings are shown below.

Energy savings are achieved mainly by using more energy-efficient technical installations and improving our overall production processes. Our efforts have focused on recovery of exhaust heat and reduction of the energy consumption of our cleanrooms, where maintaining the right conditions is energy intensive.

One of our goals is to reduce the use of natural gas. Based on our plans and calculations, we expect that the use of natural gas in Veldhoven will be reduced from around 4.4 million m³ to around 1.3 million m³ in the next three years, driven by the energy grid in combination with other energy-saving measures.

We have a multi-year project to implement an energy grid to re-use waste heat from our factories in offices on our site in Veldhoven, the Netherlands. The energy grid is a two-pipe loop that makes waste heat available for heating in winter and energy-efficient cooling in summer.

As we grow as a company, we strive to optimize our real-estate portfolio. As 95% of our scope 1 and 2 emissions are related to our buildings, optimizing the use of every square meter in our portfolio contributes to reducing our environmental footprint – each square meter saved is one we do not need to heat, cool, ventilate or light up.

When building new offices and manufacturing sites, we seize the opportunity to make them as environmentally sound as possible. Several of our existing buildings have been assessed for sustainability performance using BREEAM guidelines. We achieved a score of 'Excellent' for our newly built logistics center. We expect to have the results of the assessment for the other buildings in early 2023. With an eye on future growth, our new campus in Veldhoven is also being designed with a strong focus on sustainability. For 2025, we strive to implement the most suitable green building certifications in new constructions – such as BREEAM, LEED (Leadership in Energy and Environmental Design) and G-SEED (Green Standard for Energy and Environmental Design) – in the countries where we operate.

In 2022, the key projects executed in the Netherlands, Wilton and Taiwan resulted in ~19 TJ savings:

- 2.9 TJ per year through further operationalization of the 4,846 m² solar panels installed on our campus in Veldhoven
- 11 TJ savings in 2022 in the Netherlands through the completion of our largest project. This will result in annual savings of around 11 TJ in the years ahead
- 3 TJ savings in Wilton by replacing chillers with new high-efficiency variable-speed chillers which reduce energy consumption

- 3 TJ savings in Hsinchu, Taiwan, by optimizing the use of air-conditioning systems through time-outs.

2. Using renewable energy

Our ambition is to increase the share of direct green energy purchases (so-called bundled renewable electricity) from renewable electricity produced close to our premises.

In the Netherlands, we are now in the second year of a 10-year purchase agreement for green electricity for our installations which will enable us to achieve our goal of using 100% renewable electricity in the country. We also achieved 100% renewable energy in the US in 2022. For much of Asia, while our goal is to use renewable energy whenever possible, we faced challenges in Taiwan and South Korea procuring credible renewable energy.

3. Compensating for CO₂ emissions

We aim to use renewable energy as much as possible. Where this is not feasible, we would purchase voluntary emission reduction certificates (VER).

Action plans for 2022-2025

We will continue our work to procure renewable energy in Taiwan and South Korea and will make use of offsetting as a fallback option to reach our net zero target. We are on track and see no reason to adjust our current targets. In the coming years, we plan to expand the use of solar panels on our sites in EMEA, the US and Asia.

The table below includes six key projects that support the masterplan and will help to realize savings between 2021 and 2025:

Key projects	Location	Total estimated energy saving – annual (TJ)	Estimated natural gas reduction (TJ)	Estimated electricity reduction (TJ)
Energy grid	Veldhoven	50	40	10
Implement adiabatic humidification and elimination of steam generation	Veldhoven	12	12	0
Renewable energy generation (solar panels)	Veldhoven	3	0	3
Onsite renewable electricity generation (solar panels)	San Diego	8	0	8
Replacement of chillers	Wilton	3	0	3
HVAC energy consumption and improving (set points)	Taiwan	3	0	3
Total		79	52	27

Energy efficiency and climate action (continued)

Energy management and carbon footprint: Supply chain, business travel and commuting (scope 3)

Our approach

We recognize that environmental impact goes beyond our operations. In general, most of the environmental impact in our value chain (scope 3) comes from the greenhouse gas (GHG) emissions of our suppliers (upstream) and the use of our products at our customers (downstream).

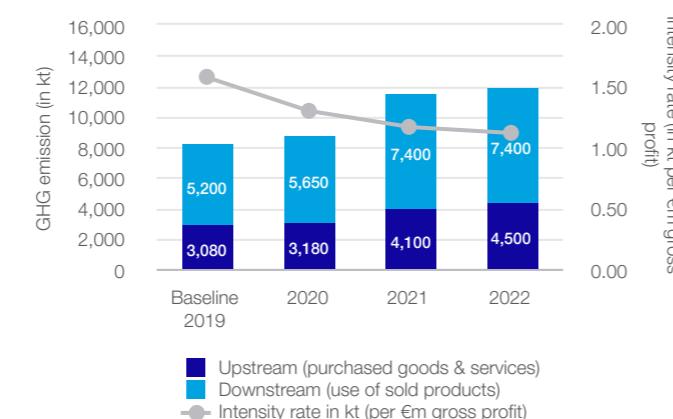
Our targets

Our overall scope 3 target is to reduce the intensity level (in line with our SBTi commitment) to 1,016 tons CO₂e per € million gross profit, by 2025. This represents a 35.3% intensity reduction by 2025 compared with 2019. The intensity is measured by the total scope 3 emissions (in tonnes CO₂e) normalized to the total gross profit (in €, millions).

We are working toward reducing our upstream emissions toward net zero by 2030. An element of this target is business travel and commuting, for which we have set a net zero target by 2025.

Our performance in 2022

Our scope 3 intensity for 2022 was 1,110 tonnes CO₂e per € million gross profit (similar to 2021). Our results indicate that the indirect scope 3 emissions from upstream and downstream value chains account for 11.9 Mt or 99.7% of the total emissions footprint (scope 1, 2 and 3). Of this 11.9 Mt, 7.4 Mt are indirect emissions ‘downstream’ in the value chain (use of sold products at our customers’ sites) and 4.5 Mt are ‘upstream’ emissions (mainly related to the goods and services we buy).



Our actions in 2022

Improving our scope 3 emission data quality

We calculate our scope 3 emissions using guidance from the Greenhouse Gas Protocol – the organization that provides widely used international standards for emissions reporting. We continuously seek to improve the data quality of our scope 3 calculations. In past years, we have reported scope 3 emission data with a one-year lag, but in 2022 we made efforts to collect the emissions data in a more timely manner. For 2022, we are now able to report nine months of actual data and three months of estimated data. In the 2023 reporting year, we will adjust the 2022 figure reported with full-year actual 2022 data.

The next step in improving our data quality is to include actual supplier emissions data in our calculation for scope 3. This will enable us to obtain more reliable scope 3 emission data, because for supplier data we currently use the spend-based methodology for calculating emissions. In 2022, we made progress by requesting CO₂e emission data directly from our suppliers through our Supplier Sustainability Program. That data was not used in the emission calculations for 2022. Recognizing that we depend on our suppliers, we also encourage our value chain partners to work with us to jointly reduce our carbon footprint.

Improving access and mobility

We have also been looking at mobility. For example, with more than 50% of employees at our Veldhoven campus living less than 30 minutes away by bike, our Access & Mobility (A&M) program is focused on developing sustainable commuting options, and we are working with employees to encourage, incentivize and support changing commuting habits. We offer a mix of options, including cycling incentives, free public transport, car-pooling and shuttle buses, all supported by various online apps.

Action plans for 2022-2025

We remain on track to achieve our overall scope 3 target. Our Supplier Sustainability Program is a key enabler in our efforts to further reduce scope 3 emissions.

Energy efficiency and climate action (continued)

Energy management and carbon footprint: Product use at our customers (scope 3)

Our approach

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

The EUV light source is the key focus area of our current engineering efforts to reduce energy consumption because it requires the larger portion of an EUV system's total energy consumption. Our roadmap includes optimizing the sequence of the CO₂ laser to produce the plasma for creating EUV light, for example by turning the CO₂ laser off when the system is in idle mode and reducing the firing intensity of the laser between exposures. Our longer-term goal is to eventually stop the CO₂ laser firing between exposures altogether. Following a feasibility study from our research team and our suppliers, we know that keeping the laser beam stable will require corrective hardware that will be part of the baseline configuration of the next generation (NXE:3800).

Working with our suppliers, we have also identified ways to use cooling water of a higher temperature to remove the heat in the EUV source and electronics cabinets. To do this, we need to make sure that modules such as the drive laser can operate at a higher cooling water temperature – this project is currently in development, in collaboration with our suppliers.

By enabling EUV optics to deal with higher intensities, higher productivity can be achieved for the same energy input, thereby increasing efficiency. That is why we are developing materials and coatings that can deal with higher EUV intensities, and improving the heat management of optical components. This includes the wafer itself, which heats up through the exposure to EUV light during the production process.

We recognize that tackling all these challenges requires ongoing innovation and collaboration within our innovation ecosystem of customers, suppliers and knowledge institutions.

Our targets

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

Our actions in 2022

We have been working on making the reduction of energy consumption an integral part of our product generation process (PGP). When designing new systems, reducing the use of energy is becoming an ever more important aspect, together with cost, performance and availability.

In 2022, 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 believe we are on track to achieve our targets of 10% EUV system energy consumption reduction by 2025 and 60% reduction in energy use per exposed wafer with NXE:4000.

In 2022, 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 2023, this will be introduced to the market as the NXE:3600 PEP-D package.

We have begun 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.

Regarding our scope 3 product use initiative of net zero emissions in 2040, we are one of the founding members of and active contributor to the Semiconductor Climate Consortium, founded in November 2022 and focused on speeding up industry value chain efforts to reduce greenhouse gas emissions.



Energy efficiency and climate action (continued)

The table below provides an overview of the system achievements in terms of output and energy-efficiency improvements to achieve this output.

Platform ¹	DUV immersion					
	NXT:1980Di	NXT:2000i	NXT:2050i	NXT:1980Ei	NXT:1960Bi + PEP-B	NXT:2100i
Year of energy measurement	2015	2017	2020	2021	2021	2022
Energy consumption (in MW)	0.14 MW	0.14 MW	0.13 MW	0.14 MW	0.13 MW	0.14 MW
Throughput (wph)	275	275	295	295	250	295
Energy use per exposed wafer pass (in kWh)	0.51 kWh	0.51 kWh	0.45 kWh	0.48 kWh	0.51 kWh	0.46 kWh

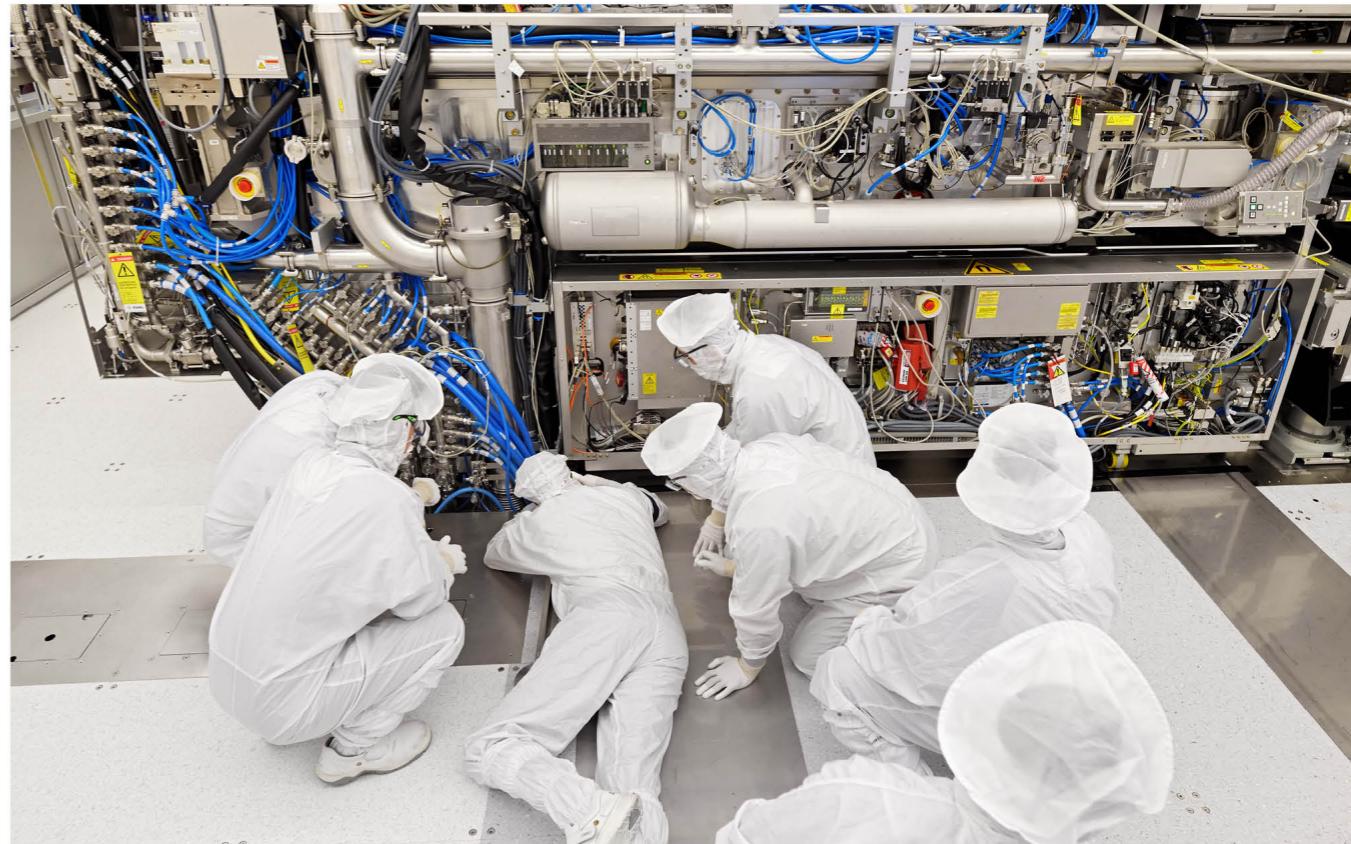
Platform ¹	DUV Dry						YieldStar	
	XT:860M	XT:1460	NXT:1470	XT:860N	NXT:870	YS350E	YS375F	YS-380
Year of energy measurement	2017	2020	2020	2022	2022	2017	2019	2020
Energy consumption (in MW)	0.07 MW	0.06 MW	0.11 MW	0.06 MW	0.12 MW	0.01 MW	0.01 MW	0.01 MW
Throughput (wph)	240	209	277	260	330	n/a	n/a	n/a
Energy use per exposed wafer pass (in kWh) ¹	0.28 kWh	0.27 kWh	0.38 kWh	0.24 kWh	0.36 kWh	n/a	n/a	n/a

Platform ¹	EUV 20 mJ/cm ² dose		EUV 30 mJ/cm ² dose		
	NXE:3350B	NXE:3400B	NXE:3400C	NXE:3600D	
Year of energy measurement	2015	2018	2020	2021	
Energy consumption (in MW)	1.15 MW	1.40 MW	1.31 MW	1.32 MW	
Throughput (wph)	59	107	136	160	
Energy use per exposed wafer pass (in kWh)	19.49 kWh	13.08 kWh	9.64 kWh	8.27 kWh	

1. Dose energy in mJ refers to the energy required per expose per cm².

Action plans for 2022-2025

In 2023, we will continue to work on the energy efficiency of our systems and other product families. We are still on track to achieve our overall scope 3 target. However, taking into account the change in product mix (an increase in the number of EUV systems sold) and the fact that our output in terms of product units manufactured is expected to increase, the overall emissions in the entire value chain are expected to rise. At the moment, we see no reason for adjusting our 2025 targets regarding the energy consumption of our systems.

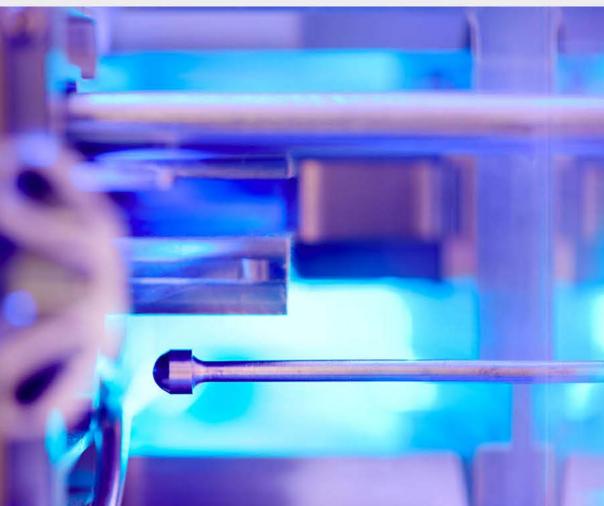


Energy efficiency and climate action (continued)

Advanced patterning with EUV helps to limit growth in energy and water use and GHG emissions

More advanced microchips mean smaller features, which need shorter wavelengths in lithography to manufacture them. With a single exposure of DUV light at 193 nm, for example, the smallest feature of the image of a microchip pattern reaches its physical limit around 40 nm. However, by using two or more exposures of the same pattern – so-called multiple patterning – it is possible to image details at 20 nm with two exposures, or at 10 nm with four exposures and additional process steps.

Over the past decades, multiple patterning with DUV has become mainstream in semiconductor manufacturing, at the cost of having to go through the same process steps multiple times, which increases production cycle time and environmental impact.



Compared to DUV, EUV at 13.5 nm enables a more efficient chip-manufacturing process. Because of the higher resolution of an EUV system, several exposures and process steps can be replaced by a single exposure and fewer process steps to pattern a certain layer of a chip. According to a study conducted by imec, EUV enables the number of non-lithography processing steps for some critical layers to be reduced by up to three to five times – and this significantly reduces production cycle time. The fab also benefits from reduced energy and water usage, resulting from the lower number of deposition, etching and cleaning steps.

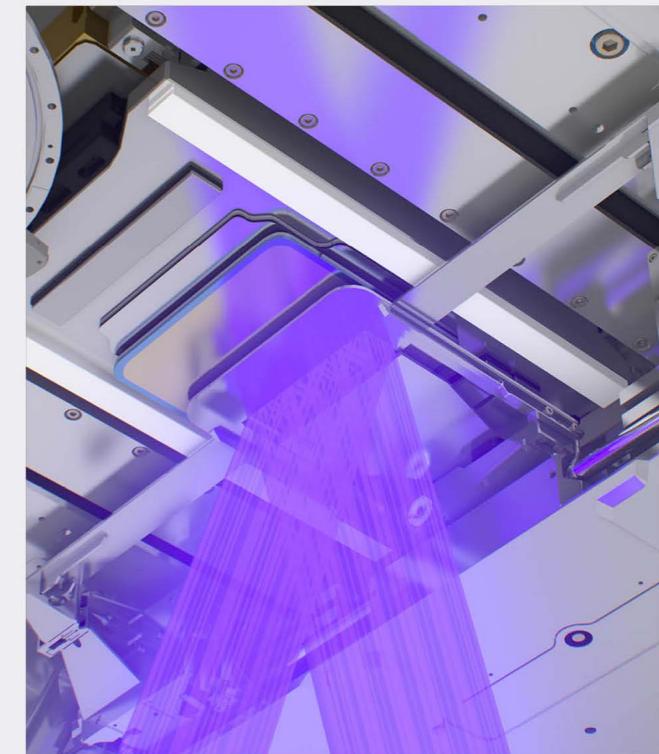
The increasing productivity of our EUV systems allows more advanced and more energy-efficient microchips to be created faster. Energy consumption of the total patterning process per wafer will thus be lower using EUV lithography, compared with using the complex multi-patterning strategies required for DUV-only patterning.

Our next-generation EUV system, EUV 0.55 NA (High-NA), will enable further shrink and partly eliminate double-exposure schemes, again replacing multiple 0.33 NA exposures with a single 0.55 NA exposure. With EUV 0.55 NA, the number of non-lithography processing steps can therefore again be kept within limits. This will effectively further limit the total energy consumption of the patterning process per wafer.

Source: M. Garcia Bardon et al., DTCO including Sustainability: Power-Performance-Area-Cost-Environmental score (PPACE) Analysis for Logic Technologies, IEDM2020.

Creating EUV light

The greatest portion of an EUV system's energy is used to operate the laser-produced plasma source to create EUV light. Molten tin droplets of around 25 microns in diameter are ejected from a generator. As they move, the droplets are hit first by a lower-intensity laser pulse. Then a more powerful laser pulse vaporizes the flattened droplet and ionizes the vaporized tin atoms to create a plasma that emits EUV light. This conversion process from laser to EUV light using tin droplets takes place 50,000 times per second, and is the most energy-intensive step. By increasing conversion efficiency, we can decrease an EUV system's energy consumption at constant wafer output. Making this happen, while ensuring that this will not negatively affect other functionalities of the EUV system, is a key challenge for our R&D teams.



Circular economy

Minimizing waste and maximizing resources to extract the greatest value from the materials we use, and repurposing our products across their life cycles



315 kg

Waste generated per €m revenue (2025 target: 209 kg)



95%

% of systems sold in the past 30 years still active in the field (2025 target: >95%)



87%

Re-use rate of parts returned from field and factory (2025 target 95%)



6,675 t

Total waste from operations (excluding construction)



75%

Recycling rate (excluding construction) (2025 target: 90%)



€0.8bn

Savings from re-used parts



€232m

Value of scrapped parts and packaging

Our approach

At ASML, we believe the circular economy is vital to ensure the future success and competitiveness of the semiconductor industry. Our commitment to a circular economy is intended to ensure that any materials we use can retain and generate as much value as possible for us and for our partners in the ecosystem. Our strategy is to eliminate waste to avoid negative impacts on the planet and also to generate business value. We do this by aiming to:

- Reduce waste in our operations
- Re-use parts and materials
- Refurbish mature products

While continuously innovating with our products, we work to ensure the increasingly sustainable use of materials across our processes and value chain. Our overarching goal is twofold: firstly, we aim to close the learning loop on our parts performance, and secondly, we aim to eliminate waste – whether that's the waste of energy or the materials we need in our operations at every level. This approach is part of the fabric of our company, and fully in line with our values and culture.

Our impact on the use of materials and resources (in weight) was identified as a new material topic in our materiality assessment conducted in 2022 – a process to formally manage this is currently under development.



€781 million

Savings from re-used parts

Circular economy



SDG target

SDG target 12.2

By 2030, achieve the sustainable management and efficient use of natural resources

How we measure our performance

- Recycling rate
- Supplier spend covered with commitment to sustainability (LOI)

SDG target 12.5

By 2030, substantially reduce waste generation through prevention, reduction, recycling and re-use

- Reduction in waste
- Increase in re-use of parts
- Decrease in scrapped parts and packaging
- Lifetime extension of systems still active in the field

IN THIS SECTION

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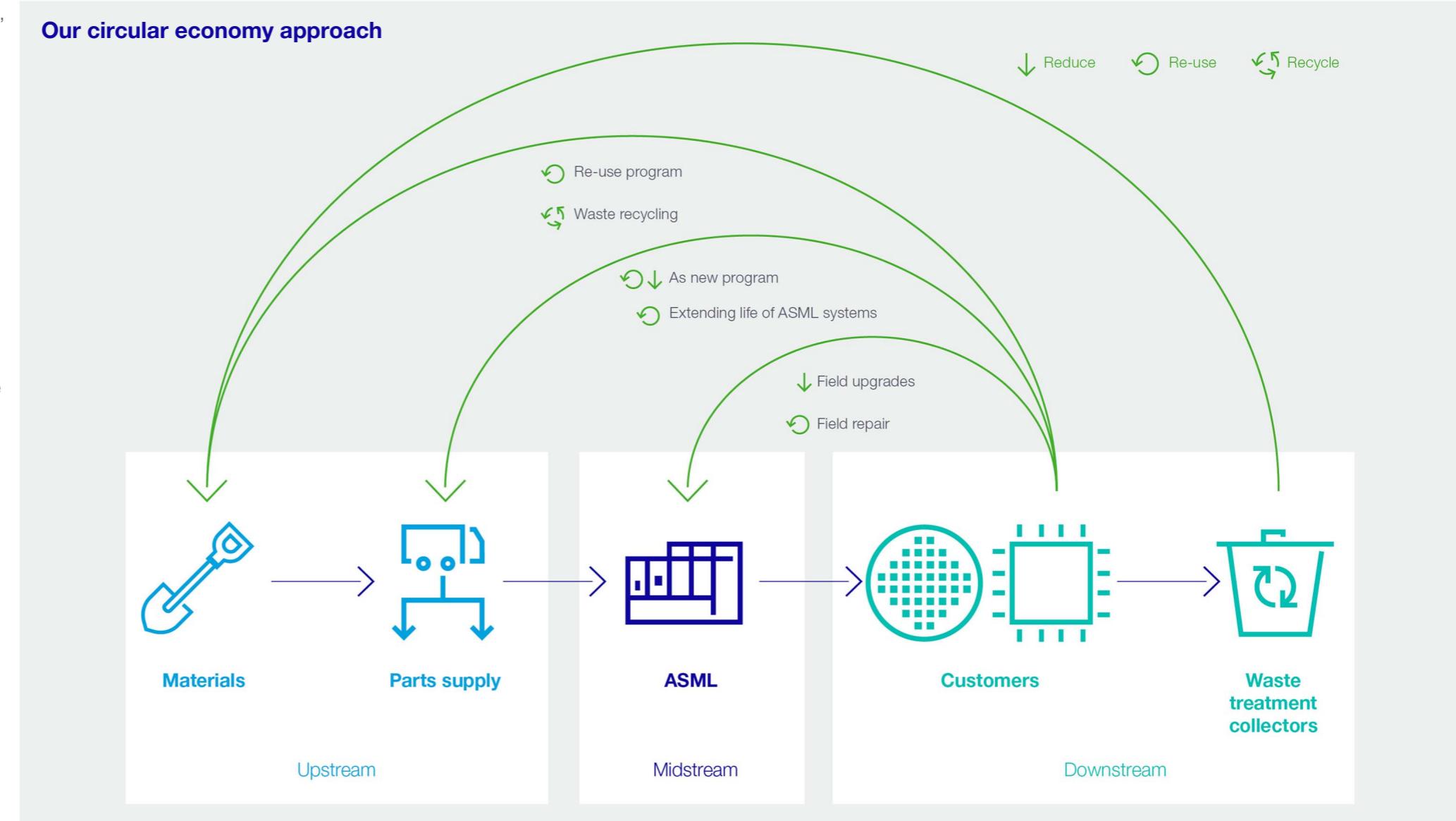
95 Water management

Circular economy (continued)

To execute our Circular strategy and achieve our targets, we have defined a set of principles that guide us in our increasing efforts to reduce waste in our operations, re-use parts and materials from our installed base and recycle mature products through refurbishments:

- We learn to improve our understanding and data around resources and waste flows.
- We rethink designs and processes to avoid environmental impact.
- We extend the lifetime and productivity of systems to maximize resource value.
- We re-use resources within our own value chain, to minimize our waste streams.
- We recycle materials to give resources a new life, if we can no longer re-use those resources ourselves.

The following diagram illustrates our circular economy approach.



Circular economy (continued)

On track or met target ●
Ongoing focus area ■

Our overall performance in 2022

Topic	Target 2025	Performance indicator	Progress tracking			Status
			2020	2021	2022	
Circular economy 	>95%	% of systems sold in the past 30 years still active in the field	n/a	94 %	95 %	●
	95%	Re-use rate of parts returned from field and factory	n/a	85 %	87 %	●
	No target	Savings from re-used parts (€, in millions) ^{1,2}	551	686	781	n/a
	No target	Value of scrapped parts and packaging (€, in millions) ²	n/a	269	232	n/a
	209 kg/€m	Total waste from operations (excl. construction) normalized to revenue	360	305	315	●
	90%	Recycling rate (excl. construction)	85 %	77 %	75 %	■
	No target	Total waste from operations (excl. construction) ³	5,026	5,679	6,675	n/a

1. This reporting indicator follows the principle of prior-year indicator 'Value of parts re-used (in € millions): however, there has been a modification in the methodology and scope:

– For the re-used parts, the value component has been modified from 100% standard cost price to 100% standard cost price less standard reconditioning costs.

Due to the expansion in scope for this indicator, the comparative figures have been recalculated to reflect fair presentation.

2. A limited portion of data is not readily available, therefore the figures in the table are best estimates that contain some uncertainty.

3. Construction waste is excluded from the calculation of this indicator, because this waste is not resulting from the daily operations at ASML. The amount of construction waste tends to fluctuate over the years and can therefore make the trend of the indicator unclear.

For more on our performance indicators (PIs) and related results, please read:

Non-financial statements – Non-financial indicators – Circular economy.

Circular economy (continued)

Reduce waste in our operations

Our approach

Managing waste from our operations is a complex issue and 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. Disposal is carried out by waste vendors, in compliance with local legislation. All our waste vendors are certified by local authorities for waste disposal, and in our contracts we state they need to comply with local legislation. We aim to further improve the way in which we monitor these vendors' compliance with local legislation. Waste data is managed through our myEHS system, whereby information from our waste vendors in our locations is entered into the system along with the relevant supporting documentation (invoices). The data entered is checked internally and by an independent party against the supporting documentation.



Our targets

We have set two ambitious targets to reduce waste in our operations:

- By 2025 we aim to have halved waste generation (209 kg waste generated per €m revenue as compared with a 2019 benchmark of 417 kg waste generated per €m revenue).
- By 2030 we aim to send zero waste from operations to landfill or incineration.

Our performance in 2022

In 2022, we generated 6,913 tonnes of waste from our operations overall (including construction waste), with 75% of this being recycled (77% in 2021). After a significant decrease in the recycling rate in 2021, the recycling rate decreased two percentage points in 2022. This slight decrease is largely due to the impact of improved data on our waste streams.

Compared with 2021, the total amount of waste increased by nearly 18% (from 5,878 tonnes in 2021 to 6,913 tonnes in 2022). This is mainly due to more people working onsite worldwide, following the lifting of COVID-19 measures and our production increase.

Total amount of waste (excluding construction) was 6,675, up 18% from 5,679 in 2021. Over the years 2019-2021, our waste intensity showed a downward trend. In 2022, our waste intensity was 315 kg per €m revenue, slightly up from 305 kg per €m revenue in 2021 but still below the waste intensity pre-COVID-19 waste intensity (417 kg per €m revenue in 2019, 360 kg per €m revenue in 2020). However, 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.

Our waste from operations to landfill or incineration was 25% of the total waste from operations (compared with 2021: 23%). We need to redouble our efforts in order to reach our ambitious target of zero waste from operations to landfill or incineration.

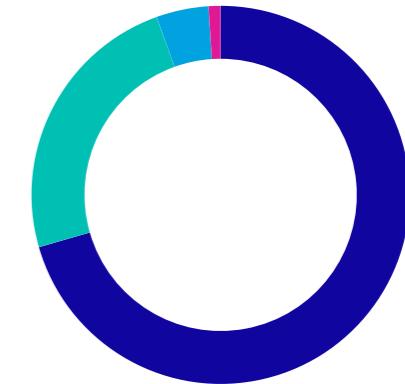
The reduction of our waste is explained below in more detail, via the different waste streams.

Understanding our waste flows

Within our operations, the main waste streams are:

- 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, resulting from building activities.
- Hazardous waste, such as the chemicals we use in our manufacturing processes.

Distribution of waste streams (total: 6,913 tonnes)



Non-hazardous waste recycling	71 %
Non-hazardous waste disposed	24 %
Hazardous waste recycling	4 %
Hazardous waste disposed	1 %

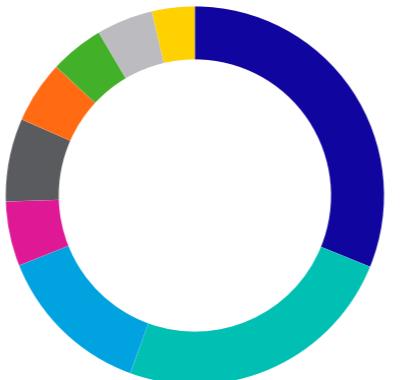
Circular economy (continued)



Our non-hazardous waste performance in 2022

Non-hazardous waste accounted for 95% (2021: 93% (5,483 tonnes)) of our total waste in 2022, of which the vast majority was recycled (75%).

Distribution of non-hazardous waste (total: 6,533 tonnes)



95%

of our total waste in 2022 was
non-hazardous waste

Wood	31 %
General waste	24 %
Paper and cardboard	13 %
Electronics	6 %
Metals	7 %
Other non-hazardous waste	5 %
Plastic	5 %
Organic waste	5 %
Construction waste	4 %

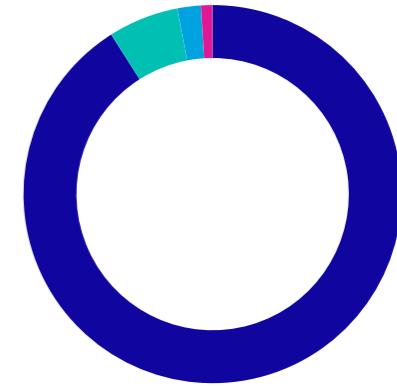
Our hazardous waste performance in 2022

The production and operation of our products and systems requires the use of hazardous substances. Hazardous waste can include lamps, batteries, hazardous liquids, empty packaging from hazardous materials, and cleaning wipes and filters. Liquids, including acetone and sulfuric acid, comprise the majority of our hazardous waste streams.

The use of hazardous substances means that we are subject to a variety of governmental regulations relating to environmental protection as well as employee and product health and safety. These include the transport, use, storage, discharge, handling, emission, generation and disposal of hazardous substances.

In 2022, hazardous waste accounted for 5% (380 tonnes) of our total waste generated, compared with 7% (395 tonnes) in 2021. Of this, 81% was recycled.

Distribution of hazardous waste (total: 380 tonnes)



Hazardous liquids	91 %
Other hazardous waste (e.g. packaging, filters, lamps, etc.)	6 %
Cleaning wipes	2 %
Batteries	1 %

Circular economy (continued)

Our actions in 2022

Non-hazardous waste

We worked to reduce non-hazardous waste through several ongoing programs, such as:

- Cross-sector re-use program, which added €400 million of re-usable parts value in our circular flows in 2022. We plan to add a further €450 million in 2023.
- Circular IT life cycle: After four years of use, we give all functioning computers and laptops used in our organization a second life. In the case of defective computers, we recycle clean, separated streams of recycled plastic, iron, steel, copper, aluminum, glass and precious metals.
- Flexible cleanrooms: These are cleanrooms that can be moved between locations and assembled quickly, while providing the same standards and performance as our current fixed cleanrooms. More than 95% of the materials used in the flexible cleanroom setup are reusable, with a lifespan of more than 30 years.
- Construction waste: As we expand our operations, we try to make sure that waste from ASML's construction activities are recycled wherever possible. Construction waste accounted for 3% (238 tonnes) of our total waste generated in 2022 (compared with 3% in 2021), of which 67% was recycled. In our real-estate portfolio management, we apply BREEAM standards that emphasize sustainability through the circular use of materials.
- In Wilton, local teams in cooperation with suppliers and waste vendors initiated a recycling program whereby personal protective equipment (for example gloves, hair nets, face masks, etc.) are now recycled instead of being disposed of.

Improving data on our hazardous and non-hazardous waste streams

In 2022, we made adjustments to our waste stream figures in Taiwan, as formal reporting was not in line with our own definition of waste streams. This has led to a decrease in our 2022 overall recycling rate (75%, from 77% in 2021).

We improved the accuracy of our waste reporting by increasing actual measurements of the amounts of waste in our main production site in Veldhoven. We are also investigating ways to improve data quality in our sites in the US and Asia.

In the context of improving data, in 2023 we aim to include ASML waste generated by third-party warehouses as a first step toward including downstream waste – we are already preparing the required processes to enable the relevant data collection for this. On our campuses we aim to ensure maximum waste separation onsite (in order for waste vendors to more easily recycle) and we are working on getting agreements included in contracts with waste vendors to maximize recycling.

Action plans for 2022-2025

Despite our many waste reduction and/or increasing recycling rate initiatives, we are still not on track to achieve our waste recycling goals. This is mainly due to data improvement processes and more reporting locations compared with 2020. In order to achieve our goals, we are currently investigating the impact of our waste on the environment, cooperating with suppliers and waste vendors, and ensuring that new contracts with waste vendors include sustainability requirements. We currently see no reason to adjust our targets.



Circular economy (continued)

Re-use parts and materials

Our approach

We are committed to re-using system parts, packaging and tools in our value chain to reduce and prevent waste while also reducing costs. We believe that re-use is a learning opportunity: by re-using, we learn more about the performance of parts and how existing processes affect them. By implementing those learnings in design and processes, we can then improve parts and system performance for all of us in the value chain. It is important that we continue to work closely on this with our customers and suppliers.

Our targets

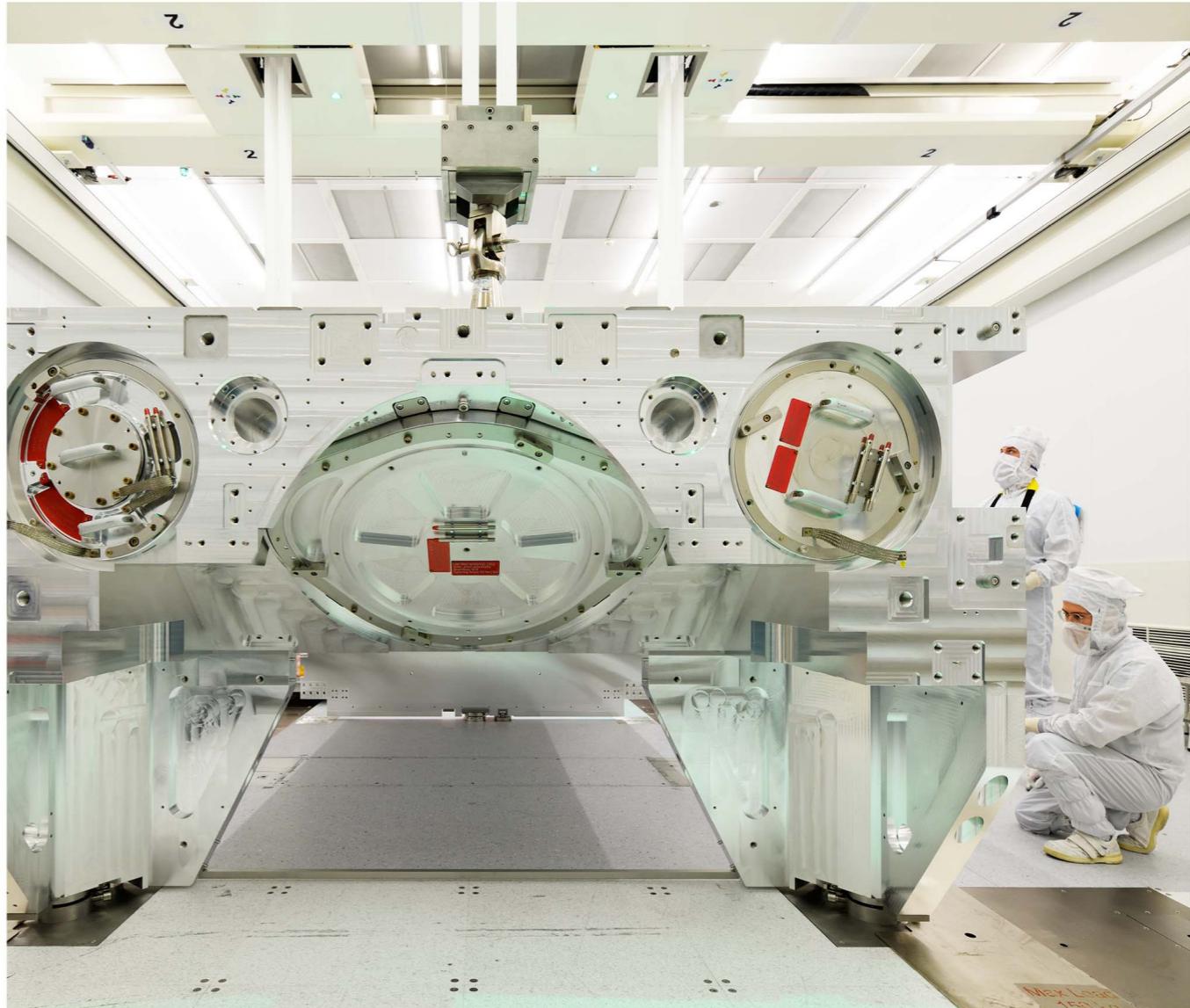
Our overall target is to increase our rate of re-use of defective parts in ASML factories and in the field to 95% by 2025.

To achieve our ambition, we focus on:

- Design for re-use by focusing on more robust and repairable designs at an early stage of development
- Return of transportation packaging and materials for shipments to our customers, for re-use
- Repair at local repair centers to improve parts repair yields by reducing cycle time of root-cause analysis and repairs
- Remanufacture modules and parts that return from the field to as-new quality, also to use in new build systems
- Harvesting of end-of-life parts through disassembly to re-use subcomponents

Our performance in 2022

In 2022, our re-use rate of defective parts was 87% (85% in 2021). Our savings from re-used parts amounted to €781 million and the value of scrapped parts and packaging was €232 million.



Circular economy (continued)

Our actions in 2022

Design for re-use

In 2022, we continued to further integrate re-use into our existing design methodologies and tools, such as in our Product Generation Process (PGP). This key element of preventing waste will help us meet our long-term goals.

Re-use requirements are now part of the core product design strategy and specifications. For example, through the modular design of our products and their components, we make sure that future upgrades, worn parts and components can be replaced as a single unit. By ensuring commonality in the parts design process, a part can be used in multiple contexts in a product and even in future product generations.

Managing reverse flows for re-use

In 2022, we set up a dedicated reverse logistics team to drive waste reduction in our ‘reverse flows’ – materials coming back to us or to our suppliers both from the field and from the factory. The goal of this team is to help support our drive to re-use, reduce reverse logistics and repair lead times, and increase the overall re-use rate.

We are continuing to work to resolve bottlenecks in the execution of re-use and to clarify direction, guidelines and re-use rules across the business.

Return for re-use of transportation materials

When modules and systems are shipped, either from our suppliers to our factories or from our factories to our customers, many transportation materials are used – such as packaging, locking and plug materials – to ensure that the products arrive safely. Instead of being thrown away, these are re-used. Before these parts are returned for re-use, they undergo an identification process and quality check, followed by the logistical and financial processes required to bring them back in 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 re-use of packaging, locking and transport materials from the field and factory, and aim to return and re-use 80% or more in the next installation or relocation.

Local repair centers

We are extending the number of local repair centers for refurbishing, repairing or cleaning service parts, packaging and tools, and we are setting up global repair centers for factory materials. The value handled by our local repair centers increased fourfold in 2022, and we expect it will increase three times again in 2023. Our goal for 2025 is that 10% of our parts sent to the field should be repaired locally.

Currently we have local repair centers in South Korea and China, and we are rolling out plans for all our customer regions to eventually have one or more in place. A global repair center has been opened in Linkou and additional global repair centers will be established at each of our factory hubs in Wilton and San Diego (US) and Veldhoven (the Netherlands).

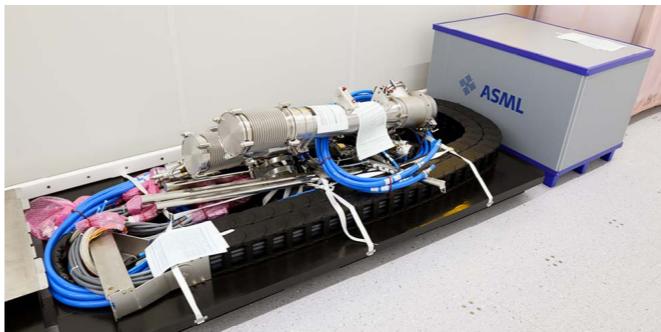
Our repair centers partner with local material suppliers and specialized repair partners, creating a local ecosystem. By enabling repair and re-use activities and taking ownership of repairs in the field close to our customers, we are able to reduce logistics time, the costs of stocking parts and our environmental impact (by reducing scrap and waste and greenhouse gas emissions). Our customers benefit from reduced service costs and improved material availability.

A single quality standard for both new and re-used parts

When a part is re-used, our customers expect it to be as good as, or better than, the original new part. We have a single qualification standard and requirement in place that ensures that the same specifications, performance requirements, warranties, and so on, are applicable to both new and re-used parts. We expect our suppliers to be fully engaged in meeting this standard as well.

87%

Re-use rate of defective parts in 2022



Circular economy (continued)

Our achievements on re-use in 2022

We have streamlined our scrap approval process. Firstly, every e-scrap request is accompanied by a proposal from the re-use team outlining which parts are still reusable, to be assessed by the initiator before the request is approved. Secondly, an automated validation step makes sure the right follow-up actions are in place, which reduces the lead time in the scrap process. We have already implemented this process in Veldhoven and are creating a roll-out plan for other locations.

Re-use is recognized as a key contributor in our ability to ramp up our capacity to cope with strong customer demand. By retrieving parts from inventory or through repair or harvesting, we have been able to execute a large amount of extra module build starts in our work centers, which in turn helps accelerate our efforts to embed re-use across our company.

For example, in 2022, we successfully demonstrated that our external interface module (EIM), built by our supplier Lamers (part of Aalberts Advanced Mechatronics) in the Netherlands, can be remanufactured, requalified and used again in a newly built system with as good as new or better than new quality. EIMs are used for regulating the flow or pressure of the gas supply into our TWINSCAN XT and NXT systems. In this case, re-use saves around 200 kg of waste and between €40k and €50k per EIM.

We have also created and implemented a process for re-use of tin catch buckets, modules that are used in the light source of our EUV systems. We retrieve them, disassemble them and drain the tin for re-use. After that, the cleaned module is as-new, ready for re-use in our EUV systems.

Another pioneering re-use example is the EUV reticle masking module (REMA) that blanks off not-used parts of the reticle. Older versions of these modules that return from our customers are harvested for parts that are used to build new REMA modules. This has helped to lower the pressure on our supply chain, secure supplier output for these modules and reduce waste and carbon footprint. Learnings from this project are captured and embedded in our development way of working.

We have also started re-using electronic cabinets that we retrieved as leftovers from system upgrades in the field which would normally have been scrapped. A refurbished electronic cabinet has as-new quality and can therefore be integrated into new systems for our customers.

The Wilton EHS overseas CRE Re-use program is another example of how re-use can deliver key benefits. When an employee or department has a piece of equipment or furniture that is in good condition and can be re-used onsite, a picture of the item is placed on the CRE Re-use Wilton SharePoint page. If an ASML employee sees something they can use, they reach out to CRE EHS and our technicians will deliver the item. So instead of scrapping work benches, cabinets or machines, we are re-using these items onsite.

We further embedded our re-use commitment by enhancing our Supplier Sustainability Program.

Read more in:
Social - Our supply chain.

Re-use challenges and roadmap

In 2022, we continued to make good progress on re-use and remain committed to further reducing our waste streams. Building a re-use mindset and embedding it into normal ways of working is critical to achieving re-use and preventing scrap. For example, by replacing scrap bins in our factories with what we now call 're-use collection corners', we encourage employees to think of used parts as having potential rather than being seen as waste.

However, to fully embed our re-use vision, we recognize that there are several challenges to overcome and processes to be defined. These include:

- Configuration control: To re-use as-new parts in a system requires traceability of those parts. This means we need to be able to trace a part's history, where it comes from, and know how many times it was used and repaired.
- Organization: Across our operations, there are a variety of separate processes related to return and re-use. We need to align these to an overall end-to-end re-use process flow.
- Repair engineering and processes: Part of our new focus is creating awareness regarding design for re-use, and defining processes around how to include re-use in redesigns and engineering changes.

As a next step, we have started building a dedicated global re-use center in Veldhoven (Netherlands) that will facilitate various repairs and harvesting activities. We anticipate a bigger re-use inflow from a bigger installed base. This is part of our strategy to move from re-use activities as part of build work centers – which can be very distracting and confusing for teams that are building modules – to making dedicated re-use centers, which will help us to create even more re-use output.

Action plans for 2022-2025

This year we determined our targets for 2025 in more detail. With the action plans above, we see no reason to adjust our 2025 target. Going forwards, we aim to also include packaging data to our 'Savings from re-used parts' indicator.



4x

the value handled by our local repair centers in 2022

Circular economy (continued)

Refurbish mature products

Our approach

Our approach is to have more than 95% of systems sold in the past 30 years, still active in the field.

A well-maintained ASML lithography system can last for decades and can be used by more than one fab. Many ASML lithography systems start out in cutting-edge fabs. Once that fab needs to upgrade, the lithography systems are given a new lease of life in a fab where the manufacturer requires comparatively less sophisticated chips, such as accelerometers or radio-frequency chips.

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, which is key to the extended lifetime service we offer for our systems. We provide our customers with a guaranteed service roadmap until at least 2030. This means that all support and the necessary services and spare parts they need to maintain their systems are expected to be available through at least 2030 and beyond.

For the 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 as long as possible on a best-effort basis.

Our performance in 2022

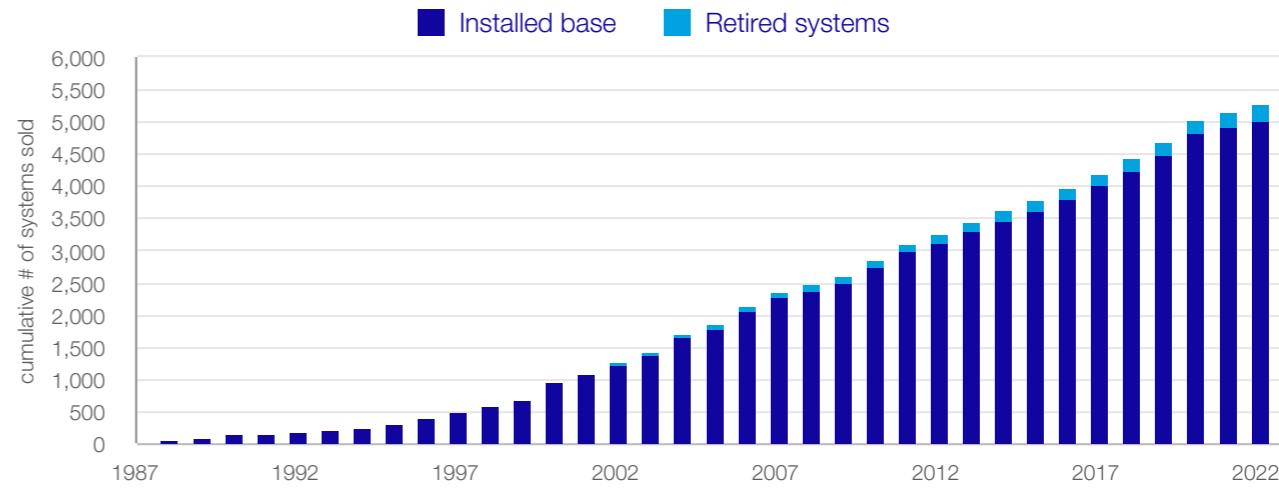
Our Mature Products and Services (MPS) business focuses on the refurbishment of the following product families: PAS 5500 (with around 1,800 systems at customer sites worldwide), TWINSCAN XT systems and, as of 2021, NXT:1950-1980 systems. By the end of 2022, we had refurbished and resold well over 540 lithography systems. Some 95% of systems sold in the past 30 years are still active in the field, and we have a target to achieve more than 95% by 2025. We are on track to meet this target.

Our actions in 2022

We are making significant investments to ensure continued supply of more than 2,000 service parts for our PAS platform, either through redesigns, a parts harvesting strategy or finding an alternative with the same form, fit and function. In instances where this does not work, 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. Over time, when a part is no longer available, we redesign parts.

We track the spare parts we have in our portfolio, see how they are being used, and identify when we expect to run out of these parts. For PAS systems, we use this information to update our priorities for redesigning parts. For TWINSCAN AT systems, we aim to continue supplying parts by harvesting them from systems that are decommissioned by our customers.

95% of all systems sold in the past 30 years still active in the field



To secure the availability of spare parts into the next decade, we need to replace many unavailable parts that were designed with technology from the 1980s and 1990s with parts based on state-of-the-art technology. This involves a complete overhaul of these parts. For the coming years, we have identified and plan to execute more than 100 redesign projects for nearly 300 parts. This is especially relevant for electronic parts, for which the evolution of technology has been faster than in any other field.

Action plans for 2022-2025

No additional actions, as we are on track to meet our target of 95%.

Circular economy (continued)

Water management

Water management

Semiconductor manufacturing processes use a great deal of water. Due to climate change, droughts have become more extreme and more unpredictable, which may lead to water becoming a scarce resource in specific locations. Although water is an essential resource in our customers' semiconductor manufacturing processes, water use in our own operations is limited. ASML's products use water mainly in three ways. First, water is used to remove heat loads, to keep the system on a constant temperature. These internal cooling circuits are all designed as 'closed-loop' (recycling) systems. Second, these heat loads are ultimately removed by cooling towers, using evaporation of (lower-quality) water. Third, DUV systems use ultrapure water in the immersion hood – this water is currently only partially recycled.

Water consumption at ASML is only a fraction of the water consumption of most companies in the semiconductor industry. Nevertheless, we promote the responsible use of water throughout our company. Our water consumption in 2022 increased to 1,161,850 cubic meters, up from 1,041,000 cubic meters in 2021. This increase can primarily be attributed to more cooling water being used in Veldhoven due to higher power consumption, driven by an increase in the number of systems produced and warmer weather in 2022. In addition, more people were working in the office and factory compared with 2021. In San Diego, the HVAC cooling tower water cleanliness set point was modified, resulting in an increased automated flushing of the system.

While disruptions in access to water may represent a significant risk for some of our customers, water-related risk for ASML is limited. We have seven manufacturing sites located in Veldhoven (Netherlands), San Diego (US), Wilton (US), Linkou (Taiwan) and Tainan (Taiwan).

Read more in:

[Our TCFD Recommendations – Climate-related disclosure, available on \[www.asml.com\]\(http://www.asml.com\).](#)

Social at a glance

We aim to have a positive role in society for our employees, the communities around us and everyone involved in our innovation ecosystem and supply chain.



What we do

As a multinational technology company, we impact many people's lives, both directly and indirectly. We want to have a positive role in society – for our employees, our supply chain, everyone involved in our innovation ecosystem and the communities around us.

Our aims

We work closely with our stakeholders, collaborating to achieve the ambitions of our four focus areas.

Our goal is to ensure that responsible growth benefits everyone. To maintain our fast pace of innovation and ensure our long-term success as a company, we need to attract and retain the best talent and provide the best possible employee experience. We aim to be a valued and trusted partner, improving the quality of life for all and supporting people in disadvantaged communities.

Through our focus areas, we support five different SDGs in a range of ways.

Attractive workplace for all



SDG 4 and 8

Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all/Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all

[Read more on page 97 >](#)

- Inspiring a unified culture
- Best employee experience
- Enabling strong leadership
- Ensuring employee safety

Our supply chain



SDG 8 and 12

Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all/Ensure sustainable consumption and production patterns

[Read more on page 109 >](#)

- Supplier performance and risk management
- Responsible supply chain

Innovation ecosystem



SDG 9

Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation

[Read more on page 118 >](#)

- Partnerships for research and development
- Supporting startups and scaleups

Valued partner in our communities



SDG 4 and 11

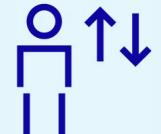
Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all/Make cities and human settlements inclusive, safe, resilient and sustainable

[Read more on page 124 >](#)

- Education
- Arts & culture
- Local outreach

Attractive workplace for all

Empowering individuals for the collective good to ensure our employees are proud to work for us and engaged with our ambitions as a company.



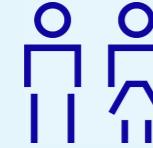
6.0%

Attrition rate
(2025 target: <7%)



37,643

Total employees (FTE)¹
EMEA 21,267
Asia 8,871
US 7,505



24%

Gender diversity (% females' inflow)
(2024 target: 23%)



143

Nationalities

IN THIS SECTION

98 [Our overall performance in 2022](#)

99 [Inspiring a unified culture](#)

101 [Best employee experience](#)

106 [Enabling strong leadership](#)

107 [Ensuring employee safety](#)

Our approach

Our engaged, diverse and highly skilled employees are critical to the performance of our organization and our long-term success as a company. We work hard to attract the world's top talent and focus on helping them reach their full potential.

ASML's people vision sets out our ambition for the future, supporting our values 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 in this vision, but we need an environment and tools that support collaboration, knowledge sharing and autonomy in more diverse and interdependent teams. We must also continue to deliver on our commitments to our stakeholders and manage our day-to-day challenges to attract, onboard, develop and retain talent.

To deliver on our long-term people vision, we focus on three key areas:

- Inspiring a unified culture;
- Providing the best possible employee experience; and
- Enabling our leadership to bring out the best in our people.

Across the business, we drive various programs that provide our people with more autonomy in steering their development and career aspirations in a safe environment, while enabling our leaders to support the growth of the company.

Our approach to foster an attractive workplace for all is set out in the following pages.

1. This FTE number excludes Berliner Glas (ASML Berlin GmbH).

Attractive workplace for all



SDG target

SDG target 4.3

By 2030, ensure equal access for all women and men to affordable and quality technical, vocational and tertiary education, including university

How we measure our performance

- Employee training and development indicators

SDG target 8.1

Sustain per capita economic growth in accordance with national circumstances and, in particular, at least 7% gross domestic product growth per annum in the least developed countries

- Financial performance

SDG target 8.2

Achieve higher levels of economic productivity through diversification, technological upgrading and innovation, including through a focus on high value-added and labor-intensive sectors

- Employee engagement score

SDG target 8.5

By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value

- Workforce data including diversity and inclusion
- Fair remuneration pay ratio

SDG target 8.6

By 2020, substantially reduce the proportion of youth not in employment, education or training

- Employee attrition rate
- New hires

SDG target 8.8

Protect labor rights and promote safe and secure working environments for all workers, including migrant workers, in particular women migrants, and those in precarious employment

- Employee safety indicators

Attractive workplace for all (continued)

On track or met target ●
Ongoing focus area ■

Our overall performance in 2022

Topic	Target 2025	Performance indicator	Progress tracking			Status
			2020	2021	2022	
Attractive workplace for all 	Be on par with benchmark target: 2% below benchmark of top 25% performing companies NL top 10 Taiwan top 20 S Korea top 20 US top 75 China top 100 0.16 (2022) Target is relative to the score of the top 25% of performing companies by +/-3% (2024) 23% (in 2024)	Employee engagement score	80 %	78 %	78 %	●
		No target Employee growth (new hires and rate)	1,932 (8%)	4,373 (15%)	7,130 (21%)	n/a
		<7% Attrition rate	3.8	5.4	6.0	●
		20% (in 2024) Gender diversity – % females inflow job grade 13+	n/a	12%	35%	●
		12% (in 2024) Gender diversity – % females job grade 13+	n/a	8%	10%	●
		Attractiveness to talent (employer brand score) ¹	NL 10 Taiwan 22 S Korea 24 US ³ 177 China 168	NL 6 Taiwan 6 S Korea ² 14 US ³ 177 China 148	NL 4 Taiwan 6 S Korea n/a US 159 China 188	■
		Recordable incident rate	0.18	0.17	0.18	■
		Inclusion index	73 %	83 %	85 %	●
		Inflow % female	23 %	21 %	24%	●
		No target Total employees	Total 26,481 Male 83% Female 17% Asia 6,057 EMEA 14,714 US 5,710	Total 30,842 Male 82% Female 18% Asia 7,430 EMEA 17,230 US 6,182	Total 37,643 Male 80% Female 19% Unknown 1% Asia 8,871 EMEA 21,267 US 7,505	n/a
		No target Number of nationalities	120	122	143	n/a

1. Employer brand ranking from Universum: engineering students.

2. 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.

3. The methodology for the US was changed, which results in a restatement for 2020/2021, so the comparative figures have been revised based on the overall brand ranking. This results in an increased score of 177 versus the previously published rankings of 99 in 2020 and 133 in 2021.

As ASML has continued to grow strongly, we have managed a large increase in our workforce in recent years, benefiting from a more diverse employee base. However, this rapid growth brings its own challenges, as the organization becomes more complex, and the expectations of our customers and stakeholders grow.

For more Attractive workplace for all related performance indicators (PIs), see:

Non-financial statements – Non-financial indicators – Attractive workplace for all.

Attractive workplace for all (continued)

Inspiring a unified culture

Our approach

We are anchoring ASML's identity deep in the organization, to help people embrace our values and to provide a unified direction that enables people to familiarize themselves with our company strategy and purpose.

Our company values – challenge, collaborate and care – ensure we are all working from a commonly understood base that applies equally across the organization. They help us make choices that keep us true to ourselves, and allow teams to discuss natural areas of friction when they occur. They also ensure we balance the traits that have brought ASML this far (persistence, a 'can do' attitude and a belief that anything is possible) with the right degree of care).

Building on these core values, our six people principles guide and inspire us in our decision-making to bring the best out of our employees. These principles are: clarity and accountability, continuous learning, inclusion, an enabling environment, personal growth and trust.

We recognize that our success is driven by our unique and diverse teams. As an equal opportunity employer, we are cultivating a diverse and inclusive workforce to drive innovation and accelerate creativity within our business. We strive to maintain an environment where all feel valued and respected and can fully contribute. That has helped us to build a culturally diverse organization, with our employees representing 143 different nationalities. Even with this wide range of diverse talent on our team, we still have opportunities to be more inclusive. Our goal is for our workforce to be representative of the available qualified talent pool.

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 diversity and inclusion roadmap is integrated in our people strategy and focuses on three key areas within ASML: leadership, culture and talent. These pillars strengthen our connection with ASML's wider community. Through activities centered around talent, culture and leadership, we engage with our communities in a sustainable, mutually beneficial way that demonstrates our care and commitment to diversity and inclusion.

We know it's important to nurture the connection between employees' expectations and perspectives with the global D&I strategy. ASML employee networks – such as Atypical for neurodivergent employees and Proud for the LGBTQIA+ community – play an important role in this, and we encourage participation from everyone.

Our Diversity and Inclusion Strategy

Our roadmap focuses on three key areas:

Talent

Attract and retain employees by ensuring that they are valued, supported with feedback and can grow their careers



Leadership

Enabling our leaders to demonstrate commitment, accountability and role-model behavior to advance inclusion within their teams



Our people strategy



Culture

Cultivate and promote an inclusive culture that equips employees to challenge norms and increase collaboration

Attractive workplace for all (continued)



24%
of our new hires were women in 2022

85%
2022 inclusion score

Our targets

We must hold ourselves accountable in our efforts to grow an inclusive workplace which drives innovation and creativity. Therefore, we have set a number of targets which will allow us to measure the effectiveness of our approach. These targets are:

- Reach 23% women new hires by 2024
- Reach 12% women at leadership levels by 2024
- Reach 20% inflow of women to leadership levels by 2024
- Score on par +/- 3 percentage points with the top 25% of top-performing global companies on our inclusion employee survey score in 2024. Our goal is to meet or increase this level of inclusion on an ongoing basis.

More information about the diversity of our Supervisory Board and Board of Management can be found in:
[Corporate Governance - Other Board-related matters - Diversity](#).

Our performance in 2022

In 2022, we made progress in gender diversity at all levels, including individual contributors and senior leaders. Female employees now make up 19% of our workforce worldwide, an improvement of one percentage point compared with last year. We aim to continue this upward trend as we move toward 2024.

To do this, we are focusing on the growth of our existing team members and expanding the diversity of our talent pool. In 2022, 24% of new hires were female.

The current representation of women at leadership level is 10%, while our ambition is to reach 12% by 2024. To make this tangible, we have set a goal to increase the hiring and promotion of female leaders, from 12% in 2021 to 20% in 2024. In 2022, the % inflow of female leaders was 35%.

This talented pool of female employees will be 'role models', paving a path for more to follow. We believe that promoting more 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.

Overall, the global STEM (science, technology, engineering and math) talent pool is thinly populated, and it is even more challenging to recruit female talent. Our R&D workforce is 16% female. Nearly 90% of our job positions are STEM-related, whereas peers in the high-tech industry have more non-STEM-related job positions. ASML is highly motivated to see more women pursuing careers in engineering and science now and in the future. The highly specialized nature of our industry means achieving this balance is a long-term process.

We@ASML, our internal employee survey, measures inclusion levels each year. In 2022, our inclusion score was 85%, 1 percentage point above the benchmark of top-performing global companies. Our goal is to meet or increase this level of inclusion among our employees on an ongoing basis.

Our actions in 2022

To promote diversity and inclusion in our workforce, we are building and implementing programs that lead to measurable and actionable results. During 2022, we:

- Facilitated over 20 D&I internal training sessions for approximately 1,000 employees, managers and leaders globally, both virtually and in person.
- Worked toward broadening our talent pipeline to be more diverse and inclusive in all areas of demographics, and having an employee base that is representative of the available qualified workforce. To help achieve this goal, we participated in national engineering conferences in the US

such as the National Society of Black Engineers (NSBE), Society of Hispanic Professional Engineers (SHPE), Out in Science Technology Engineering, and Mathematics (oSTEM), and Society of Women Engineers (SWE).

- Collaborated with universities and organizations dedicated to building diversity and creating opportunities for professional development and engagement. New global partners include Out & Equal Workplace Advocates and Disability:IN.
- Actively engaged with multiple educational programs to grow the talent pipeline, deploying multiple initiatives to promote STEM education among the future female talent pool.
- Executed global D&I engagement activities, such as International Women's Day, LGBTQIA+ Pride Month and Global Diversity Month.
- Held nine D&I events with keynote speakers which were held alongside observances such as Black History Month, Pride Month, Juneteenth, Hispanic Heritage Month and Global Diversity Awareness Month, each with an average live attendance of 460 employees.
- Supported employee networks giving back locally in their community through mentoring programs such as American Corporate Partners, partnering with local Pride organizations, fundraising events, and donating goods.

Action plans for 2022-2025

In 2022, we had a strong performance with a 24% female inflow. Due to this result and recognizing that we want to continue this ambitious inflow, we have defined a 2025 target of 24% (which is at the same level as our 2022 performance, but higher than the original 2024 target of 23%).

Attractive workplace for all (continued)

Best employee experience

Our approach

We want to offer our people the best possible employee experience at all our sites, enabling them to develop their talent, feel respected and work to the best of their abilities – this allows us to attract and retain the best talent.

Employee experience is the sum of all experiences an employee gains through the interactions with the company at each stage of the employee life cycle, from attracting and onboarding talent to attrition. To this end, we focus on employer branding and employee engagement.

Likewise, employee engagement depends on a wide variety of factors and activities, such as talent attraction and retention, onboarding experience, learning and development, diversity & inclusion, labor practices such as fair remuneration and labor conditions, and leadership.

The overall impact of these programs on the total employee experience is measured by our We@ASML employee engagement survey.

Employer branding

With the demand for top-tier talent increasing year-on-year, employer branding is a vital strategy to ensure ASML gets its share of this talent. Our strong growth means we need to hire large numbers of employees. Highly skilled people with a technical background are scarce in the labor market and competition is growing. We recognize that top-tier talent select their employer of choice, not the other way around. In light of this general trend for employees to choose their future employer, it is important that a potential employer has a strong value proposition.

Within the recruitment funnel, we continuously seek to raise awareness, consideration and conversion to jobs. We aim to improve and professionalize how we attempt to achieve this by understanding our target audiences and their preferences in an employer. We use this information to improve our candidate experience and drive communications, programs and campaigns which enable our talent acquisition teams to hire top talent with speed.

Onboarding and developing our people

Once our people are on board, it's vital to strengthen and continuously invest in them to anticipate evolving business requirements and developments in the labor market. We empower our employees to take responsibility for their own personal development, pursue their career ambitions and to thrive, offering tailor-made training and development programs.

Supporting careers at ASML

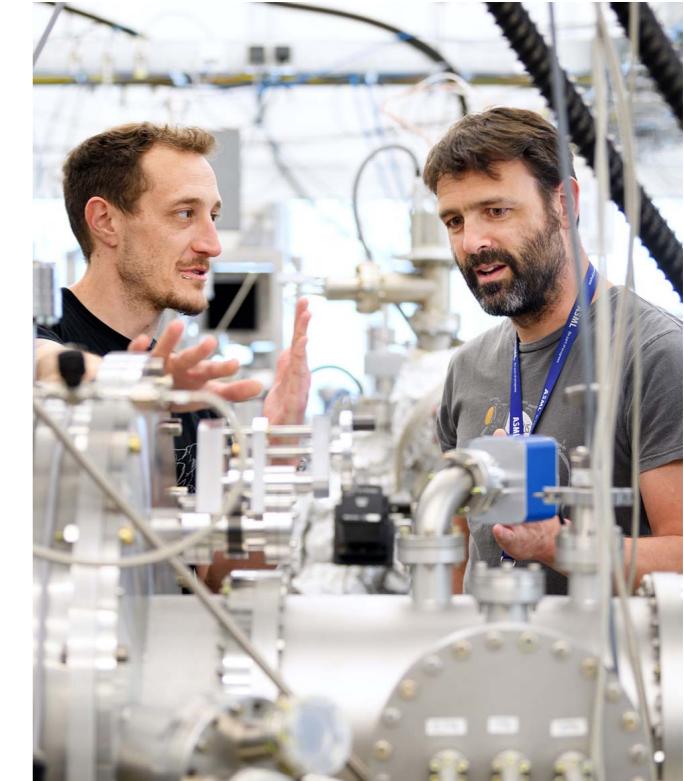
We are always looking for ways to improve how we can help employees identify opportunities for professional development within ASML. We offer a wide range of career paths and have various tools in place to support our employees' career navigation.

Employee engagement

Employee engagement is critical to the performance of our organization and our long-term success as a company.

We measure the overall impact of our activities on the total employee experience using our we@ASML employee engagement survey. This annual survey is a crucial tool for collecting and measuring employee feedback. It provides insights that enable us to improve the employee experience and refine our policies and processes.

To measure the degree to which 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'.



We want to offer our people the best possible employee experience at all our sites, enabling them to develop their talent, feel respected and work to the best of their abilities.

Attractive workplace for all (continued)



We support our employees in maintaining a healthy, productive and balanced life.

Working practices and remuneration

We want to provide fair labor conditions and social protection for all our employees, regardless of their location and whether they are on fixed or temporary contracts. We support the principles of the International Labor Organization (ILO) and we 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.

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 legislations 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. In these conversations, 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.

When it comes to remuneration, our approach is to be fair and balanced. In our Remuneration Policy, we are committed to gender equality and we strive for global consistency while respecting what is 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.

Remote working

Following the pandemic, we recognize that patterns of work have changed, and we want to continue to have a positive impact on the well-being, productivity and work – life balance of our people. We aim to provide ASML employees and their managers with clear guidance and help them to make the right choices between working remotely and working in the office. Remote working is neither mandatory nor an entitlement. As a global guideline, employees may work remotely up to two working days per week if the job allows. There may be exceptions for certain jobs or departments.

Fundamentally, ASML is convinced that employees themselves can best manage their own work. At the same time, managers are responsible for efficiently organizing the way the team and the company is working. This means that employees and managers have joint responsibility for the choices to be made under our Remote Working Policy.

Well-being

Care is central to who we are at ASML. In terms of well-being, this means ensuring we support our employees in maintaining a healthy, productive and balanced life. After all, we only thrive as an organization when everyone can give their best. In a time of unprecedented demand, it is even more important to take care of each other and ensure the well-being of all our colleagues. This means building and maintaining an environment where we can work together with positive energy. Our well-being framework brings together all our well-being activities but also allows us to drive our initiatives region by region to meet local needs. Within ASML, we look at well-being from a holistic perspective and we strive to integrate well-being into everyone's day-to-day work. We have identified four well-being dimensions – mental, physical, social and financial well-being – and have defined and created our programs, tools and resources accordingly. We also have specific resources and initiatives in place for teams and managers to get the right conversations going.

Our offerings include general support for employees, training and masterclasses, well-being events, and physical and mental health checks. In Veldhoven we have a dedicated health & well-being center that provides several health & well-being employee services including an in-house physiotherapist, psychologist, career center, indoor gym, yoga room and a running track. We currently have more than 165 well-being ambassadors globally, and the network is still expanding, helping us to spread well-being across our global organization.

Attractive workplace for all (continued)

Our targets

Employer brand

We measure our employer brand for the main locations where we operate – the Netherlands, the US, China, Taiwan and South Korea. We measure how ASML is perceived by external audiences – and potential employees in particular – by monitoring our position in an independent external employer-branding ranking.

We have defined targets for our ranking in the different local labor markets by 2025 – the Netherlands top 10, the US top 75, China top 100, Taiwan top 20 and South Korea top 20.

Employee engagement

We want to compare ourselves and grow toward the top performer category. Our target for 2025 is to be within a 2% range of the top 25% performing companies benchmark for our employee engagement survey.

Retention

While attrition can open up a knowledge gap in the company, we also view it as an opportunity to bring in new talent and enhance existing talent. We strive for a healthy attrition rate (the percentage of employees leaving our company), aiming for an annual rate of 3-8% for 2022 and for an attrition rate below 7% in the future.

Our performance in 2022

We hired 7,130 new payroll employees in 2022, compared with 4,373 in 2021, growing our workforce to 37,643 full-time employees (FTEs) at the year end (with a new hires rate of 21%, up from 15% last year). In addition, we employ 1,443 FTEs in our ASML Berlin entity, which is not fully integrated yet in our reporting, which increases our total

workforce to 39,086 FTE. Our workforce has more than doubled since the end of 2015.

Employer brand

During 2022, we were ranked #4 in the Netherlands, #6 in Taiwan, #159 in the US, #188 in China with ranking unavailable in South Korea.

We continue to create greater understanding of what we do and what we stand for as an employer. In 2022, we saw significant improvement in the Netherlands, our headquarters, by moving up two points into the top five of most attractive employers for students and top 10 for professionals. In Taiwan, we also increased awareness and consideration among students and professionals, especially within our engineering/IT target group. In the Netherlands and Taiwan, we significantly increased awareness among women in this group. In China, we are still struggling to position ourselves, as this remains an extremely competitive and fragmented market for top-tier talent. We are currently known in 81% of the country among our target group for students, but are not yet considered an employer of choice. Similar to China, the US is a fragmented market in which it is extremely difficult to reach everyone. We therefore focus our employer-branding efforts on targeting specific states where we operate and specific target groups. In order to have a consistent method to measure our employer brand, we use the Universum research data in those markets.

Unfortunately, Universum stopped providing their services in South Korea from 2021. Therefore, we are not able to obtain comparable data. However, according to a local survey, ASML was recognized as the top ideal employer among the semiconductor equipment companies operating in South Korea. We are also certificated as the 'Best Employer' by the South Korean government.

Employee engagement

In our 2022 we@ASML employee engagement survey, we again saw good results and a high participation rate of 84% (in line with previous years) and received valuable feedback for improvement. The engagement survey score was 78% in 2022, in line with 2021 – 4 percentage points above our external global benchmark of 74%, which decreased by 2% from 2021.

Against the benchmark of the top 25% performing companies, our 2022 engagement score was four percentage points lower. Our target for 2025 is to be within a 2% range of the top performing companies benchmark, and therefore we have more work to do in enhancing our engagement score. Overall, we conclude that ASML has a highly engaged population. People are proud to work for ASML and would recommend ASML to others.

We improved in nine out of the 15 categories in the survey versus last year and only saw a slight decrease from the 2021 score in two categories related to intention to stay and quality. These two categories scored above the global benchmark in 2022.



7,130

New payroll employees in 2022 (4,373 in 2021)

21%

Rate of new hires in 2022 (15% in 2021)

Attractive workplace for all (continued)

We have seen improvement on all key action topics compared to 2021: clarity of expectations, enabling processes, cross-team collaboration and well-being. Even though we have made good progress, there is still work to do, as these topics are still behind the external benchmark with the exception of well-being, which is 6% above the external norm.

We introduced ESG as a new theme in the 2022 survey in order to set a baseline for our step-up in internal ESG engagement. 74% of our employees are proud of our efforts to have a positive impact on the world, but only 39% indicated that they have the opportunity to contribute to ESG, which is significantly below the external benchmark. We therefore plan to improve awareness and opportunities for employees to contribute to ESG Sustainability efforts.

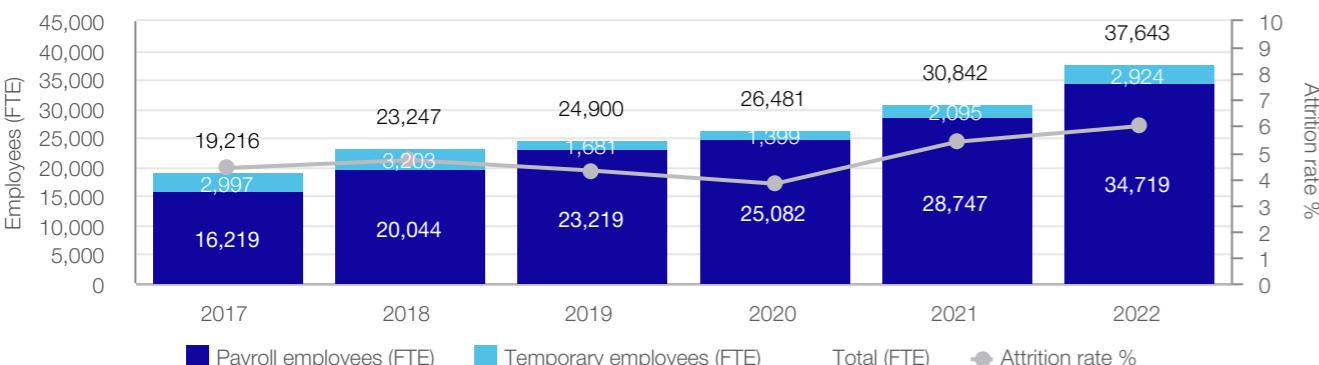
Retention

With an overall attrition rate in 2022 of 6.0%, up from 5.4% in 2021, we are well within our target range and below the industry average in every country in which we operate. We attribute the increase to the effects of the global shortage of employees across many industries, and a booming semiconductor industry that is providing plenty of job opportunities. Nevertheless, we believe that our efforts to create a unique employee experience, our employee engagement programs and our onboarding of new employees are paying off.

Onboarding and developing our people

With our fast-growing global workforce, a positive onboarding experience is vital to building a sense of connection, and helping employees fit in quickly. We measure the quality of this onboarding experience through pulse surveys and, on average, 87% of new hires indicated that they had a positive experience in 2022, with good support from their managers.

Our workforce trend¹



Our actions in 2022

Attracting and retaining the best talent

In 2022, travel restrictions were lifted and we were again able to engage in a personal way with students and professionals in our countries, both in person and virtually. There was an increasing focus on living the brand from the inside out, by asking our employees to share their stories on why they join and stay, and supporting these ambassadors in sharing their stories with their networks. This credible way of messaging helps us to target talent within earned media and drive awareness and referrals – a high-quality source of hires.

We continue to research the expectations of our key target audiences in order to match them with who we are as an employer. A big challenge is understanding how expectations have changed since the pandemic, especially in areas such as hybrid working and work – life balance. We recognize that potential employees have a choice, and in the highly competitive global labor market we are challenged to differentiate ourselves even more in the coming years, while retaining the unique culture and values that have helped us get to where we are today.

We launched the ASML Academy to ensure our people have the right knowledge and expertise to maintain our technological leadership and the pace of innovation our industry demands. The Academy unites all learning and knowledge management within ASML, enabling our people to easily access the knowledge, skills and expertise they need to perform well in their roles. The launch of our new Learning eXperience Platform (LXP) further enables our people to drive their own development and learn from each other, and intuitively connects them to best-in-class learning content from ASML and external learning content providers.

Overall, we aim to provide the best possible employee experience by ensuring that learning and knowledge management takes place on the job, guided by the 70-20-10 approach for learning: 70% on-the-job learning, 20% coaching and 10% training courses.

87% of new hires indicated that they had a positive onboarding experience in 2022, with good support from their managers.

¹. The 2020 to 2022 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)

Supporting careers at ASML

We have reviewed our whole performance management approach and philosophy to align it better with our culture and values. We worked hard on reshaping our performance management processes and to embedding them in the new tooling, and this went live in January 2022. Our new 'develop and perform' methodology allows for both formal and 'natural' moments of connection, feedback and recognition to support ongoing development and performance.

Fair pay for our employees

At ASML, we are committed to meeting adequate living-wage requirements, meaning 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, but we also provide some discretionary income. Our company has a predominantly highly educated workforce with relatively high levels of remuneration. On average, our salaries are significantly above 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.

Each year, we analyze paid salaries for gender disparity. In 2022, as in previous years, we found no major differences in these salaries.

Action plans for 2022-2025

From the results of the we@ASML engagement score, priority areas have been agreed and will be worked on in the coming year by the departments responsible, which will define actions that address the specific situation and needs of the department. At the moment, we see no reason to adjust our 2025 targets.

Future ASML CLA

In the Netherlands, we continue to aim for dispensation from the Metalektro Collective Labor Agreement (CLA) in order to develop our own CLA. Our unique position in the global market, our size and growth as well as our very unique group of employees and the large range of competencies and activities we bring together to deliver our products have created a need for our own approach to labor conditions. The purpose of a future ASML CLA is to offer a set of labor conditions that match the diversity and needs of all our employees.



Attractive workplace for all (continued)

Enabling strong leadership

Our approach

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 great opportunities for all of us to contribute to ASML's success and make an impact, while also presenting a challenge for our leaders. As our company grows, so does the need for clarity around roles and expectations. Leaders need to play a part here in providing role clarity for employees, as well as being clear about their own roles and responsibilities. We continue to strive to formulate and capture this more clearly so our people can understand what is expected of them.

Launched in 2020, our Leadership Framework outlines and clarifies a leader's role in business leadership, role-modeling the values within the company, and what it means to be a people manager and coach for employees. Leadership is all about people.

As our company grows, so does the need for clarity around roles and expectations.

Our actions in 2022

In 2022, we continued deploying behavioral competencies training, coaching programs and a practical guide to inspire and enable personal development. We have leadership programs that fast-track the careers of our most promising managers, for example our Potential Acceleration Program. These programs ensure our managers are aware of what's expected of them, and help them to develop the skills and competencies they need to become better leaders.

The impacts of these programs are most visible in employees' responses to our 2022 we@ASML survey, where all four dimensions of our leadership framework were evaluated: 81% of our employees see their manager as a role model, 80% as a coach, 77% as a business leader and 82% as a people leader.

Leadership framework

Role model

- Live the values
- Self-developing and renew
- Show courage
- Personal well-being

Coach

- Connect
- Enable
- Develop
- Trust

Business leader

- Own your content
- Self-developing and renew
- Show courage
- Personal well-being

People leader

- Create the setting
- Adapt the situation
- Share vision and set direction
- Make it happen



Attractive workplace for all (continued)

Ensuring employee safety

Our approach

Safety is an integral part of our daily work. More than just a priority, it is central to everything we do. We work to ensure we provide injury-free and healthy working conditions for everyone on our premises by eliminating hazards and reducing safety risks.

That includes employees, contractors, suppliers, customers and visitors. We count on each other – every one of us working at and for ASML – to share this commitment, because only by working together to common standards can we keep each other safe.

Naturally, we follow all government guidelines and safety measures, and where appropriate we go further.

We believe that all work-related injuries and occupational illnesses are preventable. As such, we are working toward a long-term ambition of zero injuries and work-related illnesses.

While it is impossible to completely eradicate risk, we are working proactively at all levels to identify potential issues or concerns in the workplace and develop measures toward reducing them. We do everything we can to minimize risk, and it is our responsibility to provide our people with the right protection, procedures and processes to keep them safe.

Our ongoing ambition is zero recordable incidents, and this drives our continuous improvement in processes, working conditions and employee behavior. To achieve this, we focus on an Environment, Health and Safety (EHS) management system, safety culture and training.

We are committed to a well-established EHS management system. We work to the highest possible professional standards, with continuous improvement as a key principle. Our EHS management system is based on the ISO 45001 standard and complies with its requirements. The EHS reporting system is assessed against the ISO standard as part of its yearly internal audit, although it is not certified or audited by an external party. We have implemented our EHS management system worldwide at 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 ASML.

Our Corporate EHS Committee, chaired by our Chief Operations Officer, oversees and approves ASML's EHS strategy. Our line managers are responsible for day-to-day EHS management and performance. Our EHS Competence Center (EHS Experts) brings together best practices, defines the EHS standards for ASML and supports our managers to implement these standards in the workplace.

Our commitment to employee and product safety is captured in our Sustainability Policy, which applies to ASML colleagues worldwide. Our ASML EHS Guide is also an invaluable resource, providing practical, useful and essential information for our employees, contractors and any other parties working for us. The guide, which was redesigned in 2022 to create awareness and ownership, explains our aims and objectives, and clearly describes how employees can contribute to a safe and healthy workplace with minimum impact on the environment.

Incident and risk management are key elements of our EHS management system. An incident report is required to 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 are then able to take appropriate action to mitigate these risks. We also ensure continuous improvement through internal EHS audits. These are complemented by regular 'Safety Gemba Walks', where managers visit the employees' workplace, helping to increase safety performance and strengthen our safety culture.

To improve our EHS performance, we encourage our employees to speak up whenever they encounter safety risks. Every employee is empowered to stop working if they feel unsafe. Together with their manager and EHS expert, a safe way of working will subsequently be identified, so the work can resume.

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 and to raise awareness around these. Training ensures that our people are prepared and informed about these safety requirements.

All new employees joining ASML are required to complete our EHS Fundamentals (EHS basics) e-learning module – with this training refreshed for all employees on an annual basis. The engineers in our cleanrooms receive more extensive training upon joining ASML and annually thereafter through our EHS Cleanroom Fundamentals module, which explains how to recognize hazards and prevent injuries.

We have company doctors or external health services available on all our sites.



Attractive workplace for all (continued)



Our targets

Our goal is to prevent occupational health and safety incidents. To benchmark our performance against industry standards, we use a targeted recordable incident rate of 0.16, which represents world-class performance.

Our performance in 2022

Strengthening our safety culture

Following our first safety culture measurement in 2019, using the Bradley maturity model, we repeated this measurement in 2022. We launched a Safety Perception Survey early in 2022 to 25,000 employees in Operations, Development and Engineering and our business line organizations. The feedback was analyzed within the different sectors and rolled up to company level, and revealed a significant growth on the maturity curve compared with the 2019 starting point. The implementation of life-saving rules company wide, safety leadership programs for managers and safety awareness campaigns throughout the company in the past three years has paid off.

Our safety record

We register EHS-related incidents in line with the US Occupational Health and Safety Act. Our recordable incident rate increased from 0.17 in 2021 to 0.22 in 2022. Our recordable incident rate (for our own employees) is 0.18 in 2022, higher than our 2022 desired benchmark of 0.16. The increased rate is due to an increased number of small injuries at our campus and in our offices compared with 2021 as more people returned to the office. The recordable incident rate is the number of cases that required more than first aid in a year per 100 FTE. As in previous years, we did not encounter any ASML work-related fatalities. We reported two injuries in which the employees were away from work for >180 days. Regrettably, two contracted workers (in two separate occurrences) had fatal accidents on ASML premises in Wilton. Although they were not working under supervision of ASML, we thoroughly investigated these accidents together with the contracted agencies and the local authorities to understand the root cause and take corrective action. These incidents were formally reported to the local authorities by the contracted companies, in line with OSHA guidelines.

Our actions in 2022

The rapid growth of ASML presents us with significant challenges – with a large number of new employees every month, we have to make sure people are informed, instructed and also supported while doing their work.

Safety extends beyond procedures, rules and the right equipment to include human mindset, behavior, attitude and habits. Following the five safety rules, we deployed various department-specific awareness programs. For example, we extended the hein® safety campaign to all sectors to secure a common safety language and dialogue. This was supported by workshops and training

sessions that saw many interesting discussions and insights into our safety behaviors.

In 2022, we started separating those incidents related to injuries from those related to ill health. We analyzed the most common root cause for illnesses experienced by our employees and identified that this is related to ergonomics. Based on this finding, we developed a new industrial ergonomics training for our employees, and this will be rolled out in 2023 to our operations teams, supported by ergonomic workplace assessments and improvements where needed. We hope to see a reduction in illness related to ergonomics in future years.

To address the high number of near-miss reports in prior years as a result of incorrect use of lifting equipment, a new 'lift' training module was introduced in 2022 for all engineers performing lifting activities.

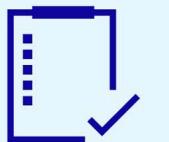
Action plans for 2022-2025

In response to the increased recordable incident rate in 2022 from 2021, we are deploying a global safety awareness campaign in 2023 for all employees.

We have agreed on a new ambition to move to the next level on the Bradley safety culture measurement maturity curve by 2025. Improvement plans at corporate and sector levels have been identified and will be 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.

Our supply chain

Setting the bar higher for our world-class supplier network to achieve the innovations we strive for, by ensuring we conduct our business in a sustainable and responsible manner.



59%

% supplier spend covered by commitment to sustainability (LOI) (2025 target: 80%)

IN THIS SECTION

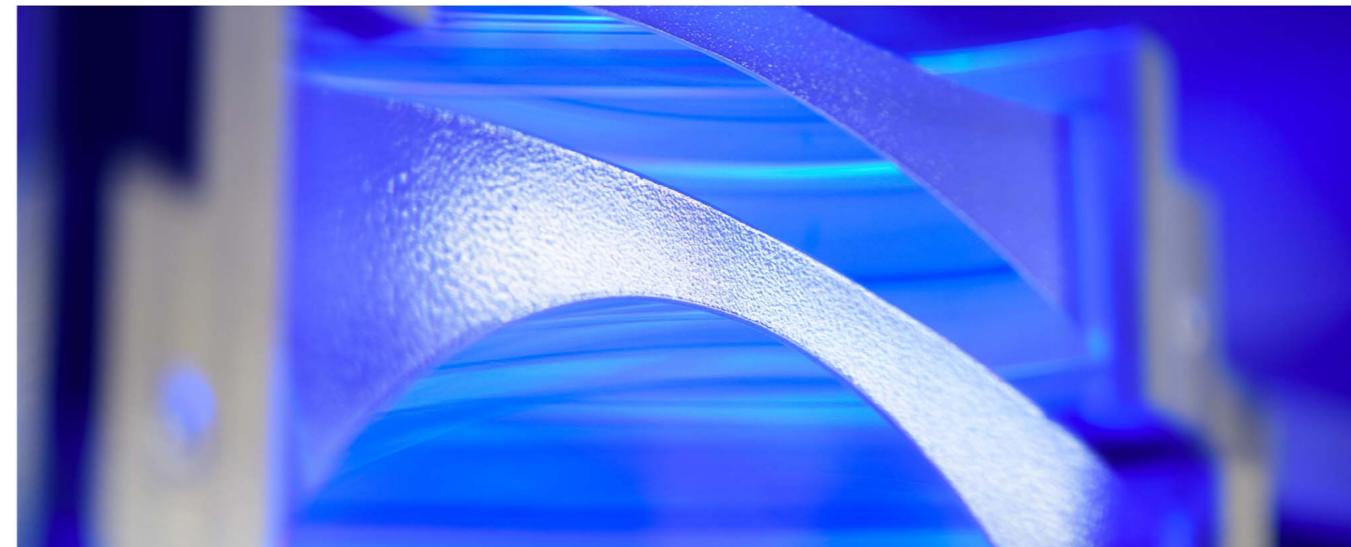
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- 113 Responsible supply chain

Our approach

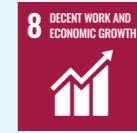
At ASML, we rely heavily on our supplier network to achieve the innovations we strive for. Our suppliers are a critical extension of our value chain. With around 5,000 suppliers in our total supplier base, we distinguish between product-related and non-product-related suppliers.

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 250 of these suppliers as 'critical suppliers', accounting for roughly 92% of the product-related spend. Critical suppliers supply a unique part and/or are single sourced, those that have switching time to an alternative supplier of over 12 weeks or suppliers who 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 4,200 suppliers, this group represents 84% of our total supplier base.



Our supply chain



SDG target

SDG target 8.8

Protect labor rights and promote safe and secure working environments for all workers, including migrant workers, in particular women migrants, and those in precarious employment

How we measure our performance

- Compliance with RBA Code of Conduct
- RBA self-assessment questionnaire completion
- Suppliers with high risk on sustainability elements evaluated and follow-up agreed

SDG target 12.2

By 2030, achieve the sustainable management and efficient use of natural resources

- Supplier spend covered with commitment to sustainability (LOI)

Our supply chain (continued)

We invest considerable resources in developing and introducing new systems and system enhancements, such as EUV lithography and e-beam metrology and inspection. As these are complex technologies involving thousands of specialized parts, we focus on high value-added system integration.

ASML's supply chain strategy is centered on long-term relationships and close cooperation with our suppliers and partners. Our goal is to ensure we have the products, materials and services we need to meet our short- and long-term needs, to support our operations from the earliest moment of development to the end-of-life stages of our systems. To make sure that this runs smoothly, we 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.

Operating in a niche market characterized by producing high-value products in small quantities, fast development cycles and business volatility requires several key performance requirements for the supply base. Continuously improving our suppliers' capabilities and performance is at the heart of our sourcing and supply chain strategy.

We require our suppliers to:

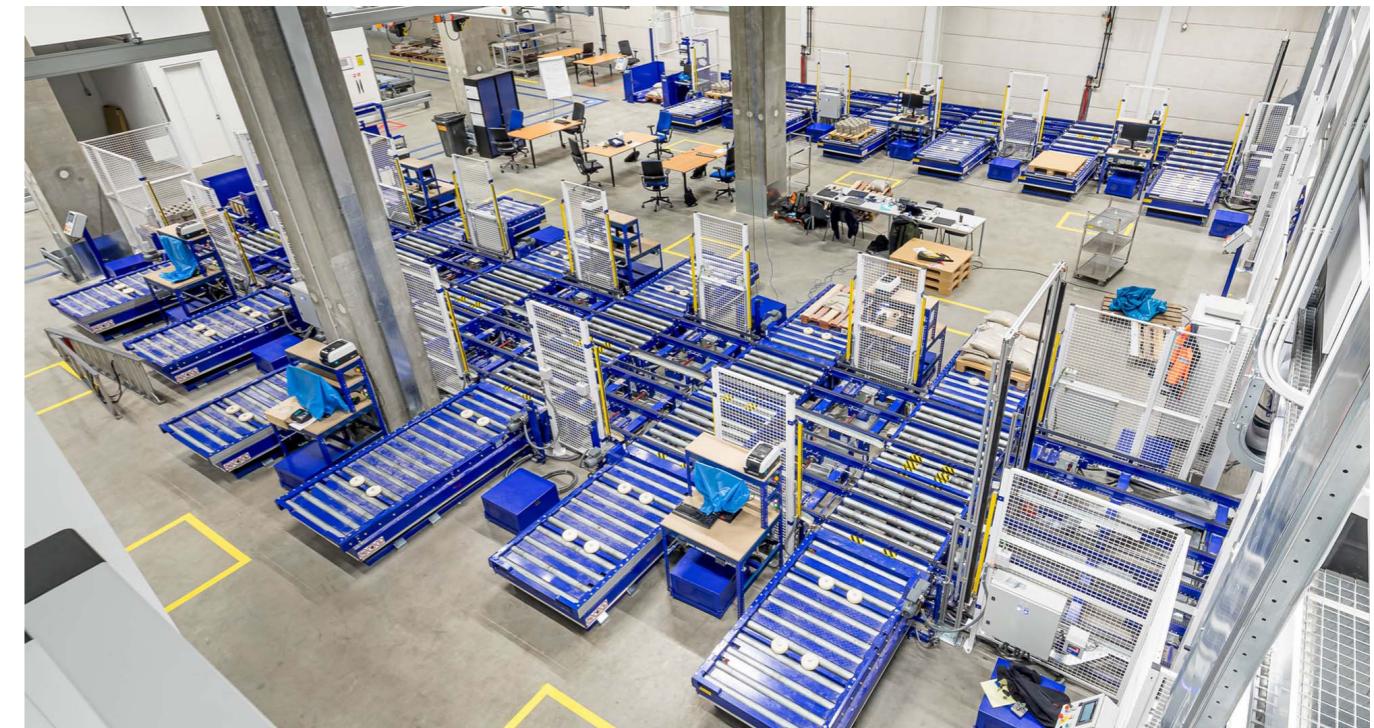
1. Secure materials from their suppliers to enable the output ramp-up for customers
2. Enable our product roadmap through the development and maintenance of best-in-class competencies and capabilities to secure the most advanced technology and fast time-to-market
3. Drive cost reductions, quality and capability improvements through efficient and dedicated operations
4. 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
5. Make active contributions to our sustainability strategy

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 have adopted the Responsible Business Alliance (RBA) Code of Conduct, which sets out ethical, social and environmental standards. We expect our key suppliers and their suppliers to acknowledge and comply with its requirements.

Our Supplier Sustainability Program focuses on seven building blocks – the Supplier Code of Conduct (RBA), RBA self-assessment, responsible minerals sourcing, reducing our carbon footprint, increasing re-use capabilities and reducing waste, information security, and business continuity.

We set out our approaches in these areas ('Supplier performance and risk management' and 'Responsible supply chain') over the following pages.



ASML's supply chain strategy is centered on long-term relationships and close cooperation with our suppliers and partners.

Our supply chain (continued)

On track or met target ●
Ongoing focus area ■

Our overall performance in 2022

Topic	Target 2025	Performance indicator	Progress tracking			Status
			2020	2021	2022	
Our supply chain 	80%	% supplier spend covered by commitment to sustainability (LOI)	n/a	n/a	59%	●
	90%	RBA self-assessment completed (in %)	88%	89%	93%	●
	100%	Suppliers with high risk on sustainability elements evaluated and follow-up agreed (in %)	—%	100%	100%	●

For more supply chain performance indicators (PIs) see:

[Non-financial statements – Non-financial indicators – Our supply chain.](#)

Our supply chain (continued)

Supplier performance and risk management

Our approach

Supplier performance management

To help us manage ASML's growth and our future ambitions, we continue to improve our key business processes. Tight risk control and continuous supply chain improvement are key to ensuring quality, long-term business continuity and sustainability.

We invest in developing and monitoring our supply landscape to help suppliers meet our requirements with regard to quality, logistics, technology, cost and sustainability (QLTCS). Our supplier profiling methodology helps us to measure supplier performance, supplier capability and risk profile in all of these fields.

We have a framework in place to communicate 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. We conduct regular operational and performance review meetings to ensure suppliers continue to improve their performance and processes. When supplier performance drops below the thresholds we set and persistently fails to recover upon request and within a reasonable time frame, ASML's policy is to take action to secure reliable future supplies.

A structural audit program 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 volume, it is not always economical to source from more than one supplier. In many instances, our sourcing strategy therefore 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 – calamity, ownership, finance, intellectual property ownership, information security 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 will 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 (LTSA) and/or continuous supply agreements in place, or ensure the availability of intellectual property in escrow.

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

Our performance and actions in 2022

We conduct continuous performance and risk management of our supply base to assuring and improving performance, and preventing reputational damage. Two key programs to this process: a suppliers' business continuity program aimed at securing continuity of supply and suppliers' information security; and an information security and cyber resilience program intended to protect our intellectual property and maintain our leading technology position.

Business continuity program

In 2022, we continued to focus on improving business recovery capabilities, carrying out a review of business continuity plans for reassurance that suppliers can re-establish deliveries within the shortest possible time frame in case a disruptive event occurs. We require suppliers to have business recovery capabilities in line with the ISO 22301 standard. Supplier recovery plans are requested, evaluated and, where needed, improved to prevent potential business disruptions. For example, suppliers might be required to store their inventory in separate locations, implement fire prevention controls or increase buffer stock. In 2022, we included 235 business-critical product-related suppliers in the business continuity program, and extended the scope with 29 non-product-related suppliers.

Information security and cyber resilience program

We continued to expand our information security and cyber resilience program in 2022, leading to a current scope of 314 suppliers compared with 202 in 2021. Additionally, a cyber-risk monitoring tool to monitor the internet presence of suppliers has been implemented, with 256 suppliers in scope.

Suppliers with access to top-secret information or with privileged access to our IT systems were asked to raise 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 Veerbaarheid (resilience) Brainport in the Netherlands.

[Read more in:](#)
[Governance - Responsible business - Information security.](#)

We conduct continuous performance and risk management of our supply base to assure and improve performance, and prevent reputational damage.

Our supply chain (continued)

Responsible supply chain

Our approach

We actively pursue sustainable development of our supply chain to ensure that our Tier 1 suppliers and contractors conduct their business in a caring and accountable manner, and that they act as responsible business partners. As we seek to ensure a responsible supply chain, we deploy several programs that focus on Responsible Business Alliance (RBA) commitments and standards, due diligence, and our Supplier Sustainability Program.

We are a member of the Responsible Business Alliance (RBA) and have adopted the RBA Code of Conduct.

Read more in:

[Governance - Responsible business - Business ethics and Code of Conduct](#)

Due diligence

With almost 5,000 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:

- Determine inherent risk level by screening our full supplier base on ethics, labor, health and safety and environment risk using the RBA Risk Platform.
- Apply supplier risk profiling to business-critical suppliers. For these suppliers we conduct risk assessment of QLTCS capability elements.

– Apply an RBA self-assessment questionnaire (SAQ) to major suppliers, in which we consider the type of supplier, leverage and geographical location of the supplier. We focus on our product-related suppliers covering 80% of our annual spend, business-critical suppliers including non-product-related suppliers, 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.

Supplier Sustainability Program

Our Supplier Sustainability Program addresses labor, human rights, safety, ethics and environmental risks in our Tier 1 supply chain by focusing on seven building blocks – Supplier Code of Conduct (RBA), RBA self-assessment, responsible minerals sourcing, reducing carbon footprint, increasing re-use capabilities and reducing waste, information security, and business continuity.

An important element in our Supplier Sustainability Program is the ‘Letter of Intent’. By signing this Letter of Intent, 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; and to collaborate with ASML and ecosystem partners to remanufacture used system parts, tools, packaging and other materials to maximize the re-use of materials.

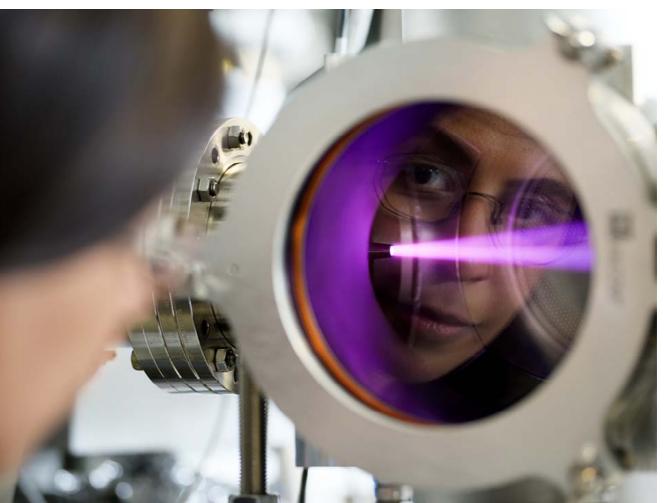
Conflict minerals

Like many companies in the electronics industry, 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, which are 3TG minerals, or so-called ‘conflict minerals’. We do not use a significant amount of these 3TG minerals in the manufacturing of our products. However, certain 3TG minerals are needed to develop our products and for them to function. Gold, for example, is used in coating critical electronic connectors, and tin is used for welding electronic components and creating EUV light.

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 (OECD Guidance). As part of our responsible sourcing program, we implement a reasonable country of origin inquiry focusing on five areas: 1. a robust management system, 2. risk identification, 3. risk mitigation, 4. industry collaboration with the Responsible Minerals Initiative (RMI) organization and 5. public reporting.

Despite our best efforts, we are unable to determine the precise origin of all of the 3TG minerals included in our products. This is due to several reasons including 3TG supply chain complexity, the number of tiers of suppliers involved in tracing 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, but 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 RBA smelters list to the RBA for audit.

For more information, please see our [Conflict Minerals report available on www.asml.com](#).



Our supply chain (continued)

Our targets

We have set three targets to support our drive to increase the sustainability of our supply chain:

- To have 80% of our top 60 suppliers covered with a commitment to sustainability (via letter of intent – LOI or providing us with their CO₂e emissions data (scope 1, scope 2 and scope 3)) by 2025
- For 90% of all suppliers in scope of the RBA self-assessment to have completed it by 2025
- 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 on a monthly basis, tracking the progress against target and following up with the Sourcing lead and Supplier as needed.

Our performance in 2022

Total supplier base

12.4bn

Total spend

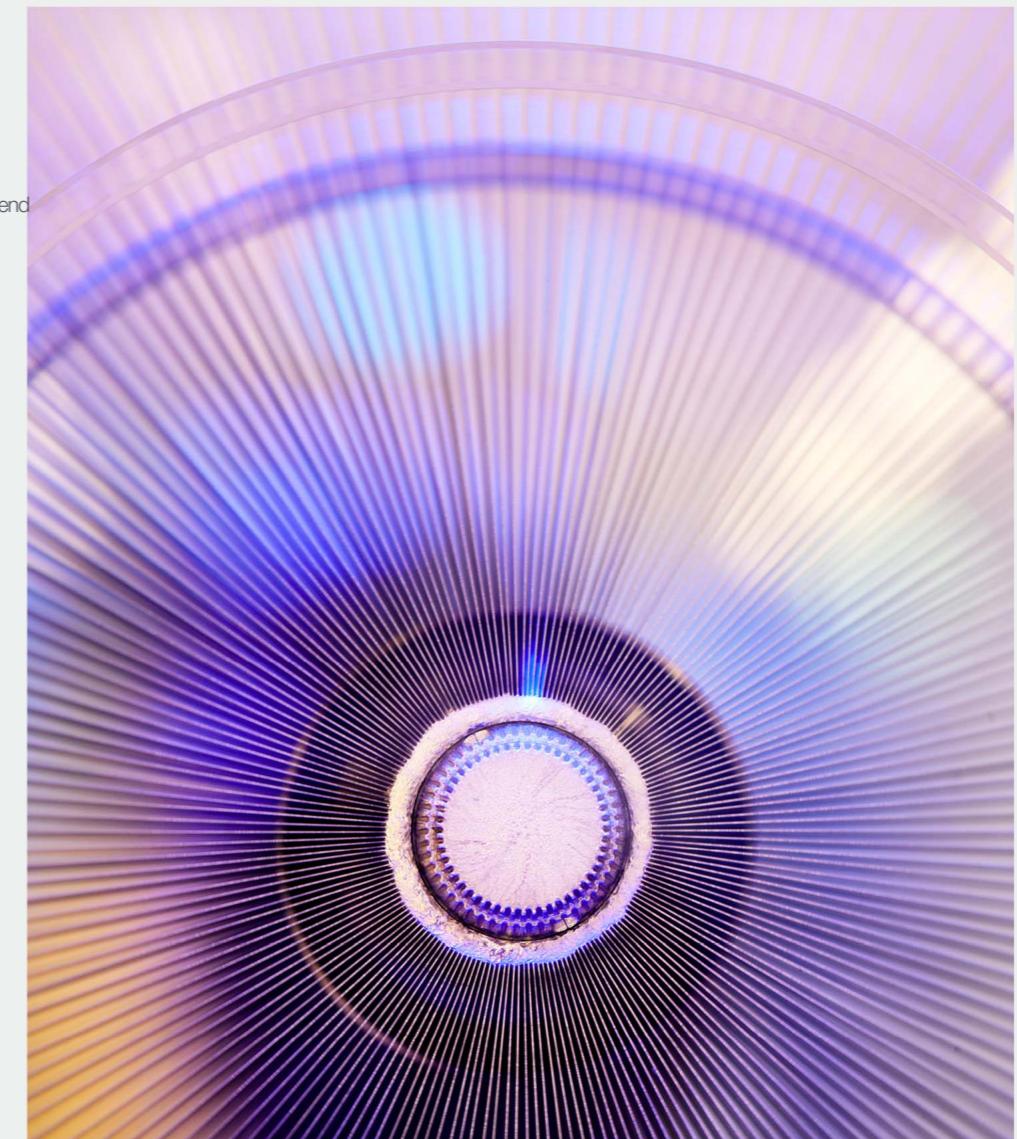
800	Product-related suppliers
4,200	Non-product-related suppliers

% of total spend
69 %
31 %



In 2022, 59% of the total spend was covered with the LOI commitment to sustainability

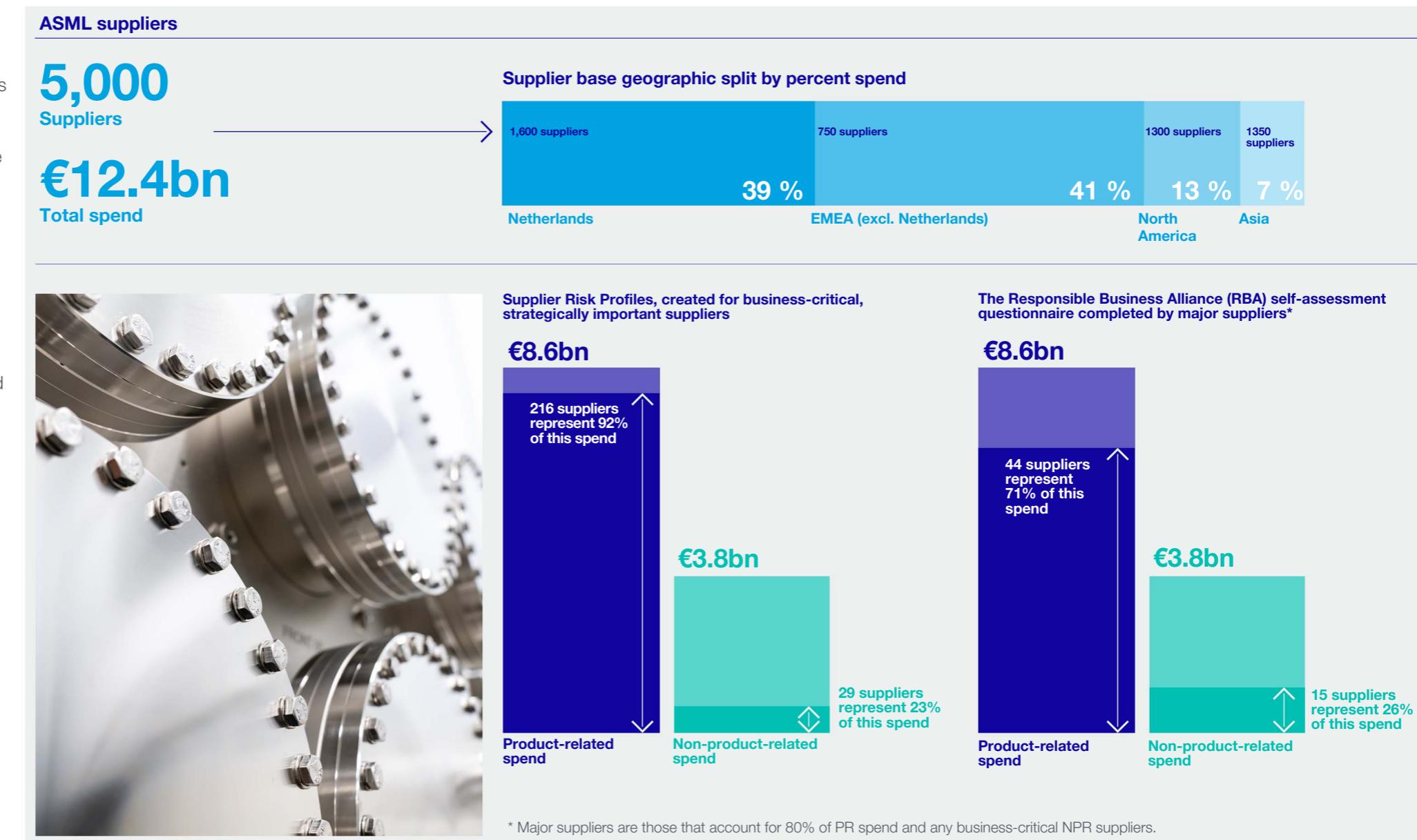
We apply due diligence screening to the total supplier base using the RBA Risk Assessment Platform.



Our supply chain (continued)

By year end 2022, 59% of the 60 suppliers in scope had signed the Letter of Intent, 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 re-use ambitions. By the end of the year, more than 35 suppliers had provided data on CO₂e emissions. By 2025, we aim for 80% of the top 60 suppliers to have signed the Letter of Intent.

We have asked a total of 59 suppliers to complete the detailed RBA SAQ. 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 end 2022, 93% of the suppliers in scope had completed the RBA SAQ (89% in 2021). The completed RBA SAQs indicated that no supplier had overall high risk on all sustainability elements.



Our supply chain (continued)

However, this process did indicate high risk on 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 through 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 which were followed up on could show that they have a policy/procedure in place to ensure compliance to ethics, labor, safety and environmental requirements. More details can be found in the table below for 2020-2022.

Standard	RBA commitment	Number of high risks identified from RBA SAQ			Main findings 2022
		2020	2021	2022	
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 ILO's eight fundamental conventions	1	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 is essential to identifying and solving health and safety issues in the workplace	0	0	1	Finding related to a non-product-related supplier where the requirements do not entirely match the type of organization.
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	0	3	Findings related to 1) a non-product-related company where the requirements do not entirely match the type of organization; 2) a supplier in the process of implementing a company-wide environmental program and supplier management and 3) a company with policies in place, however, no environmental program and supplier contractual requirements in place.
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	1	0	1	Finding related to no separate conflict minerals policy and supplier program in place, but instead this supplier has a supplier code of conduct in place.

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

Our supply chain (continued)

Our actions in 2022

Reduction of CO₂e emissions and waste

In 2022, we made significant progress in our Supplier Sustainability Program, with the aim of joining forces with suppliers to achieve our goal of net zero emissions by 2030. We launched this program to our top 60 suppliers, and our goal is to gradually increase the scope over time. We recognize that our suppliers are in different phases of maturity with regard to CO₂e emissions and waste reduction ambitions, varying from advanced target setting and performances to not having yet started to measure their environmental footprint.

We also started collecting CO₂e emissions data from suppliers – more than 35 key suppliers now share their environmental performance and commitment with us, and we are discussing the emission reduction opportunities together. We are also sourcing an IT tool that suppliers can use to share their CO₂e emission data with us.

In 2022, we also resumed our onsite supplier audits for QLTCS and business continuity. We also initiated two pilot RBA audits during the year, and we will move to a model where we structurally audit suppliers on RBA compliance.

Engaging with suppliers

We held a number of engagement sessions with key suppliers during the year, including a Supplier Ramp-up Day in March and a Supplier Day in September, which gave suppliers the opportunity to ask questions and share mutual challenges with us. We identified action points from these feedback sessions where possible.

Our suppliers have access to our Sourcing lead or our Strategic Account (SAT) teams, whose job is to manage the relationship with our suppliers. Sourcing and Supply Chain also held workshops for suppliers specifically to cover collaboration on CO₂e emissions data, with experts invited to introduce the program and talk through scope 1, 2 and 3 emissions. The workshops started with 15 suppliers and expanded to 80 over the year, with one being held face-to-face at Brainport to give suppliers an update from an ASML perspective, next steps and the chance to brainstorm ideas. We ask suppliers to let us know their challenges when collecting CO₂e emissions data, and we discuss possible solutions.

Suppliers have indicated that these workshops are highly beneficial and contribute to best-practice sharing and being able to tackle joint problems together. Topics raised in workshops are followed up in future workshops.

To meet the continuing high demand from our customers, we need to work closely together. Our customers' trust is key, while material shortages threaten our output. Greater transparency and collaboration are crucial to success. We face dynamic market circumstances and these present challenges in their own right. During the Supplier Days, ASML leaders and suppliers spoke openly about how to overcome challenges by improving partnerships, increasing transparency, shortening feedback loops and embracing re-use. In response to suppliers indicating difficulties in understanding the demand flexibility, our team provided more insights into why ASML is adjusting the Start Plan when needing to ramp. Further discussions have centered on how listening to the voice of the customer is an essential part of understanding the market dynamics, as well as transparency on the ASML investments in robust growth, sustainability and improvements regarding industrialization. ASML leaders and suppliers agreed on the importance of highlighting and learning from areas of collaborative success.

Our experience during 2022 has again underlined the importance to the Supplier Sustainability Program of achieving alignment with suppliers and of early engagement with the supplier on RBA and conflict minerals in order to remove time pressures. The biggest challenge relates to collecting data – environmental data is a new area for some suppliers, so they need to put processes in place and develop teams to handle those processes. Every two months we host a workshop to facilitate and help suppliers with their issues and the challenges they face. We have also found that overall company targets are not always aligned across suppliers, as some work toward 2030 while others are working to 2040.

Action plans for 2022-2025

We are on track to achieve our targets and we intend to expand the number of suppliers with a commitment to sustainability to include our top 100 suppliers.

We will continue to host supplier workshops every two months in 2023.



Innovation ecosystem

We don't innovate in isolation. We develop technology together with the help of our partners and our collaborative knowledge network.



€3.3bn

R&D Investments
(2025 target: >4bn)



€14.7m

Contribution to EU research
projects



63%

R&D spend as % growth
from 2019 base year
(2025 target: >100%)



€1.0m

Value startups and
scaleups in-kind support

Our approach

We see ourselves as architects and integrators, working with partners in an innovation ecosystem. Our focus is on innovating through partnerships, and in our innovation ecosystem, long-term collaboration is based on trust. By sharing our expertise with the ecosystem, we build a strong knowledge network capable of creating technological solutions that society can tap into. We share both risk and reward, and this collaborative approach allows us to accelerate innovation.

We focus on collaboration with research centers, fueling the innovation pipeline through partnerships with academia and research institutes, and collaboration with R&D partners through EU public–private partnerships. We also believe that we can create greater impact in the ecosystem by nurturing future young tech through support for startups and scaleups.

Over the following pages, we explain how our approach to partnerships can accelerate innovation.



IN THIS SECTION

[119 Our overall performance in 2022](#)

[120 Partnerships for research and development](#)

[122 Supporting startups and scaleups](#)

Innovation ecosystem



SDG target

SDG target 9.1

Develop quality, reliable, sustainable and resilient infrastructure, including regional and transborder infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all

How we measure our performance

- Supporting startups to Star level
- Supporting scaleup projects
- Collaboration in EU projects

SDG target 9.4

By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes, with all countries taking action in accordance with their respective capabilities

- Collaboration with research partners
- Energy efficiency of our products measured per wafer pass

SDG target 9.5

Enhance scientific research, upgrade technological capabilities of industrial sectors in all countries, in particular developing countries. For developing countries, this includes, by 2030, encouraging innovation and increasing the number of research and development workers per one million people, as well as public and private research and development spending

- Investments in R&D

Innovation ecosystem (continued)

On track or met target ●
Ongoing focus area ■

Our overall performance in 2022

Topic	Target 2025	Performance indicator	Progress tracking			Status
			2020	2021	2022	
Innovation ecosystem 	>4bn euro	R&D Investments	€2.2bn	€2.5bn	€3.3bn	●
	>100%	R&D spend as % growth from 2019 base year	10 %	25 %	63 %	●
	No target	Value startups and scaleups in-kind support	€0.6m	€1.0m	€1.0m	n/a
	No target	Startups and scaleups in-kind support hours	1,550 hrs	2,100 hrs	4,180 hrs	n/a
	>20%	Startups reached Star level from total startups (in %)	16 %	15 %	12 %	■
	14	Number of scale-up companies supported (in numbers)	7	7	10	●
	No target	Contribution to EU research projects	€28.5m	€30.3m	€14.7m	n/a

Innovation ecosystem (continued)

Partnerships for research and development

Our approach

Public–private partnership

We cooperate with private partners in research and innovation projects subsidized by the European Union and its member states. We run collaborative subsidy projects aimed at advancing integrated circuit (IC) technology for the next node connected to the industry roadmap following Moore's Law. The Horizon Europe program, a public–private partnership, facilitates collaboration and strengthens the impact of research and innovation in developing, supporting and implementing EU policies while tackling global challenges.

By collaborating in European projects, ASML and its partners play a role in giving the continent a degree of sovereignty by driving and accelerating fundamental research and ground-breaking innovation in EMEA. This collaboration also generates significant business value, fuels job creation and creates knowledge. The increasing number of patent requests per year, both for ASML and the other members in the various consortia, demonstrates the success of these collaborations.

Partnerships with academia and research institutes

We co-develop expertise within a wide network of technology partners, such as universities and research institutions. Our partners include imec in Belgium, the technical universities in Twente, Delft and Eindhoven in the Netherlands and the Advanced Research Center for Nanolithography (ARCNL), also in the Netherlands. ARCNL conducts fundamental research and focusing on the physics and chemistry that are important in current and future key technologies within nanolithography and its application within the semiconductor industry.

Our targets for research and development

Our R&D partnerships are underpinned by a number of targets:

- Reach >€4bn R&D investments by 2025
- Grow R&D spend over 100% from 2019 base year

Our performance in 2022

Our R&D investments in 2022 amounted to €3.3 billion, which represents 63% growth from the 2019 investment level.

Our own contribution in R&D across public–private partnerships in 2022 was €14.7 million, and the total value of our investment for the full three-year duration of our projects is €88.9 million, with a total project size of €438.9 million. Across all of our projects, we work with universities, research and technology institutes and other high-tech companies across EMEA – varying from 20 to 80 partners from 12 different European countries – to help enable the industry to move toward next-generation technology.

Our actions in 2022

Public–private partnerships

In 2022, we continued coordinating efforts in four EU projects – TAPES3, PIN3S, IT2 and ID2PPAC – all with a duration of three years. We have enabled timely reporting to the connected public partners, and have organized online consortium meetings to exchange ideas and knowledge. The TAPES3 project was successfully closed in April 2022, when an online project review meeting involving independent experts from the industry hired by the European Commission evaluated the results of the project.

In 2022, we submitted a project proposal – 14ACMOS – in the first call of the newly established Key Digital Technologies Joint Undertaking. The aim of this three-year project is to explore and realize solutions for the manufacture of 14 angstrom (1.4 nm) CMOS chip technology. 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 14ACMOS project brings together the R&D capabilities of 25 leading expert partners to tackle these challenges. It is valued at more than €95 million in R&D costs and unlocks at least €27 million in public funding for the ecosystem. In terms of geography, the project connects people from Romania, the United Kingdom, Belgium, Sweden, France, Germany, Israel and the Netherlands.



€3.3 billion
R&D investments in 2022

€14.7 million
Contribution in R&D across public–private
partnerships in 2022

Innovation ecosystem (continued)

Partnerships with academia and research institutes

Over the last couple of years, using 0.33 NA EUV systems, imec and ASML have entered into an extensive technical collaboration to prepare for the introduction of EUV 0.55 NA (High-NA) lithography (see phase 1 in Figure 1). This collaboration identified the critical device layers on a customer's roadmap that required the most work to enable the introduction of High-NA. We carried out studies to understand and mitigate foreseen High-NA scanner-related challenges, among other detailed studies on depth of focus and field stitching. In parallel studies, the ecosystem challenges – such as choices of resist and their stochastic effects, reticle absorber materials and the necessary massive metrology – were addressed. As an indication of the impact of this collaboration, more than 30% of the oral paper presentations submitted by ASML to the upcoming SPIE Advanced Lithography and Patterning conference (SPIE ALP 2023) are derived from the collaboration between imec and ASML. Preparation for phase 2 began in 2022 with the creation of the infrastructure for the joint High-NA Lab and the installation of the necessary peripheral equipment, such as resist and development track, film thickness and wafer metrology equipment.

In 2022, we joined forces with the NXTGEN Hightech program that is intended to support the future growth of the Netherlands by working on the next generation of high-tech equipment. The ASML contribution in this Growth Fund program focuses on mechatronics, systems engineering and potentially other fields.

Our collaboration with ARCNL is becoming even stronger. In the past 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. In the areas of EUV source, metrology and materials, our joint interest is well established and yielding results. Among many other examples, these results 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.

Action plans for 2022-2025

No additional actions, as we are on track to meet our targets.

High-NA lab to accelerate EUV 0.55 NA (High-NA) introduction

Fast route to mature high-volume manufacturing (HVM) introduction

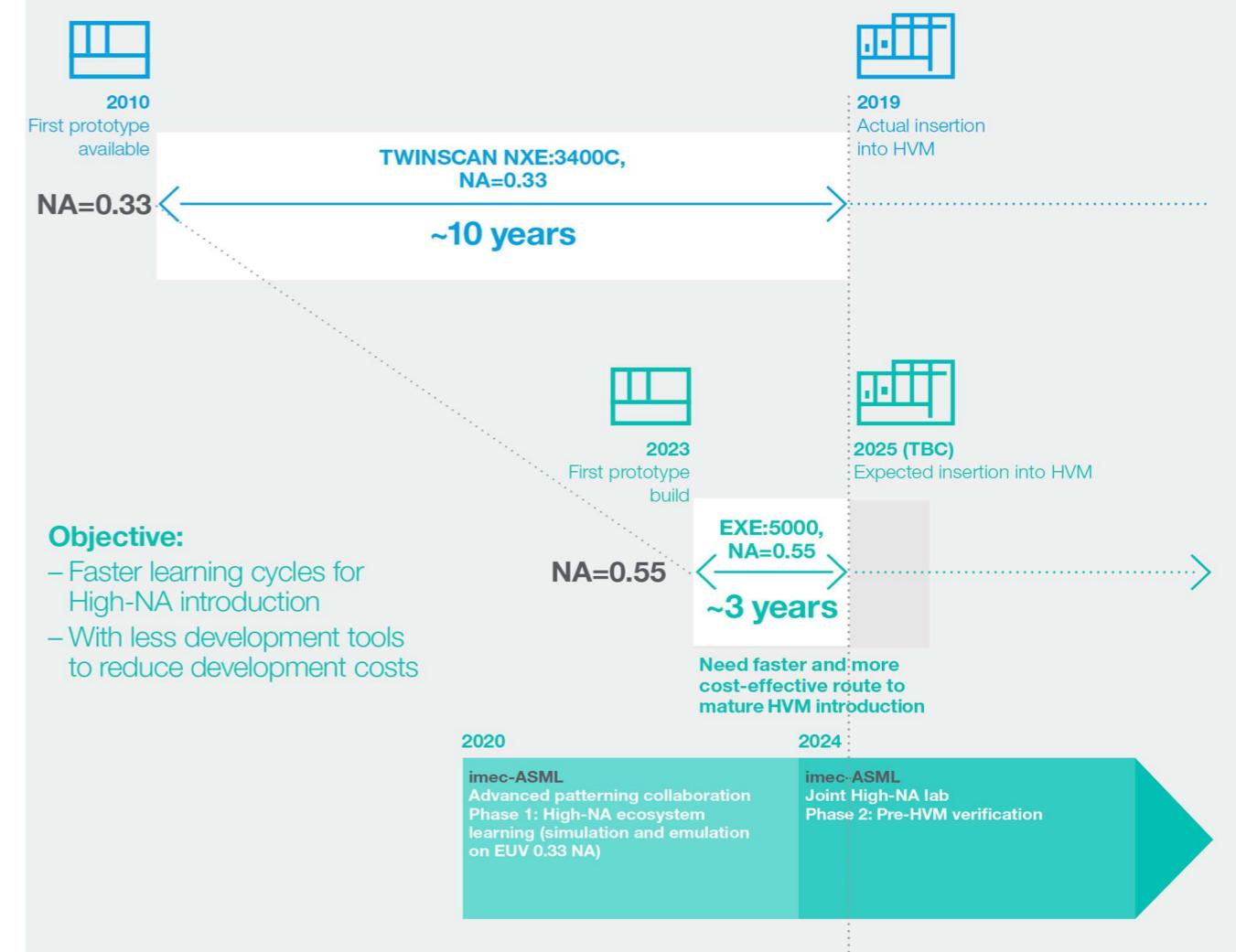


Figure 1: ASML's IPCEI proposal concerns the third step in the three-phase approach toward introduction of EUV 0.55 NA (High-NA) lithography. Phases 1 & 2 are already planned by ASML and imec.

Innovation ecosystem (continued)

Supporting startups and scaleups



Our approach

To nurture innovation by new generations of technological talents, we also provide valuable expertise to support entrepreneurs and startups. We make use of our experts' in-depth competencies and knowledge to develop and support startups and scaleups. By fostering entrepreneurship, we aim to help these young enterprises excel and grow. What we share is based on what we are good at, such as building complex manufacturing systems. This is where we can play a role and make a difference.

Sharing our expertise strengthens our regional high-tech ecosystem, particularly around our headquarters in Veldhoven, the Netherlands. This region has a competitive edge globally, and we need to make sure we maintain this position. Building a strong regional foundation offers benefits not just to ASML and associated partners, but also to other companies and organizations. In addition, it helps attract a broad base of talent to the region.

Through HighTechXL and DeepTechXL, we build, finance and accelerate impactful startups by combining high-tech entrepreneurial talent and relevant technologies. With the Make Next Platform, we aim to support young, innovative high-tech scaleups. And through DeepTechXL, we help to finance these deep-tech ventures, particularly in the early stages where risks are still at their highest.

Make Next Platform

To support young innovative high-tech scaleups, ASML founded the Make Next Platform (MNP) in 2016 together with Huisman, Vanderlande and the non-profit Stichting Technology Rating (STR). Thales NL joined as a co-founder in 2019. MNP puts the partners' network, competencies, expertise and experience to work in answering questions that these scaleups encounter in their development and helps them grow into sustainable companies.

MNP aims to help emerging high-tech ventures that have moved beyond the startup phase and are ready to expand. These scaleup companies face challenges such as systems engineering, supply chain management, business/corporate development, targeting beachhead markets, managerial issues, funding issues and public affairs. Through the exchange of best practices, business experience and coaching from senior corporate experts, the MNP partners aim to support scaleup companies in their development to become global players by giving them access to their internal and external networks.

Our targets

Our target for 2025 is for >20% of the total startups to reach Star level and to support 14 new scaleup projects by 2025.

Innovation ecosystem (continued)

Our performance in 2022

In 2022, ASML committed to providing more than €15 million support to high-tech startups and scaleups, with 4,180 hours of in-kind support provided and over €14 million cash committed. This commitment includes our contribution to the DeepTechXL startup investment fund for early-phase funding. 12% of startups reached Star level.

To date, the MNP has screened more than 250 companies and engaged with the management teams of more than 60 of them. So far, 10 scaleups have been adopted, including three in 2022. Meanwhile, one has reached Alumnus status and is now finding their own way, based on their own strengths: SMART Photonics (2021).

Our actions in 2022

ASML as a venture builder

In 2022, we became a strategic investor and co-initiator in DeepTechXL Fund I, a new Dutch deep-tech fund of €85 million. Together with the other investing industry partners (Philips, Brabantse Ontwikkelings Maatschappij (BOM), research institute TNO, PME Pension Fund, Invest-NL and some family offices), the fund provides deep-tech startups and scaleups with access to knowledge, network, technology, licenses and business development support, and it intends to finance these tech ventures particularly in their early stage of growth, where investments risks are still at the highest. The fund aims to introduce launching customers, find partners in the supply chain and to assist in entering new markets and scaling up manufacturing. DeepTechXL originates from and will work closely with HighTechXL.

ASML is also one of the main shareholders of HighTechXL, together with other tech-minded partners in the region such as Philips, TNO, 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. Selected ASML talents join these startups for 30% of their time for a period of three months. They define their learning goals and typically benefit from both enriched skills and mindsets after this entrepreneurial experience.

To date, over 20 new deep-tech ventures have completed the 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.

Action plans for 2022-2025

We are on track to support 14 new scaleup projects by 2025 and to meet our R&D investment targets. However, the target of 20% of startups to achieve Star level by 2025 may take longer than originally expected. 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. A discussion on defining a more applicable target reflecting the new situation is ongoing.

inPhocal makes first sale after two years as HighTechXL Venture Building Program alumnus

In 2020, a group of enthusiastic founders set course on a journey to start inPhocal, a deep-tech company based on an optical technology that originated from the CERN institute, where it was originally developed for long-distance alignment of equipment in their Large Hadron Collider (LHC) experiment.

Within the nine-months HighTechXL venture building program, inPhocal was given the chance to pick technologies from several top-class institutes and companies, such as ASML, the European Space Agency, Philips and TNO, and to develop themselves into a mature company. As part of this program, inPhocal discovered the potential of their unique technology for laser processing, which provides a laser beam with a long focus depth – this means the focus does not have to be adjusted when marking curved objects or cutting through thick materials, which results in unprecedented improvements in speed and efficiency. Market research proved that their technology could indeed solve current problems and their technology quickly gained the interest of several large companies, such as Heineken, Coca-Cola, Pepsico, AbInBev and Logitech.

In the meantime, inPhocal developed a functional product prototype in 2021, together with lab partner Exspectrum. They optimized their technology further in cooperation with development partner Lion Lasers, which led to a first fully certified system mid 2022. By that time, they also received a €2 million investment, led by the new DeepTechXL fund in which ASML is participating as well. InPhocal is using their funding to scale production in 2023 and have already made their first sale of a system that will be installed in the Netherlands in early 2023.

Over the years, inPhocal has made optimal use of the support provided by ASML to HighTechXL with four ASML talents joining at various stages during the program. As part of their own personal development, these talents are allowed to join the startup for a period of three months and make contributions to topics ranging from technology, finance, market research and strategy. After completing the program, the ASML talents went back to work on their ASML duties, however with all of them strong relationships have been built and the talents remain available for inPhocal to ask for advice and guidance on an ad hoc basis. InPhocal will continue its mission to become the new standard in laser processing while at the same time strengthening the high-tech ecosystem of the Eindhoven region.

We are on track to support 14 new scaleup projects by 2025.

Valued partner in our communities

As a global technology leader and employer, we play an active role in the communities where we operate – we recognize that when the community thrives, we thrive. At the same time, our ASML Foundation aims to improve lives through education and training.



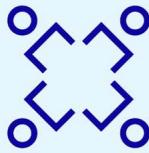
€11.5m

Community investment



13,645

Time investment in volunteers
– hrs community involvement



4,736

Time investment in volunteers
– hrs technology promotion



411

Total number of projects
supported

IN THIS SECTION

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Our approach

ASML's success and growth has a significant impact on the communities where we operate, in particular at our large sites (Brainport Eindhoven region, Wilton, Silicon Valley, San Diego and Hsinchu), where ASML and its network of suppliers and partners generate a wealth of jobs and social activity.

We aim to be a valued and trusted partner in our communities, improving the quality of life for all, with a special focus on disadvantaged communities. Our community engagement program, which falls under the responsibility of our CEO, is built on three pillars where ASML has competence and can create impact:

1. Education
2. Arts & culture
3. Local outreach

Our corporate citizenship activities stretch beyond community support to in-kind contribution to startups and scaleups, aiming to nurture innovation by future young tech.

Read more in:

[Social - Innovation ecosystem - Supporting startups and scaleups.](#)

Through our global volunteering program, we encourage employees to become more involved in their local communities. Every person is able to use one day a year as a paid volunteering day with an event, charity or activity that is in line with our volunteering policy. Employees can also volunteer with ASML Foundation projects.

In this chapter, we outline our approach to community outreach and our actions to improve education, arts & culture and local outreach.

Valued partner in our communities



SDG target

SDG target 4.4

By 2030, substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship

How we measure our performance

- Community engagement and technology promotion

SDG target 4.5

By 2030, eliminate gender disparities in education and ensure equal access to all levels of education and vocational training for the vulnerable, including persons with disabilities, indigenous peoples and children in vulnerable situations

- ASML Foundation projects

SDG target 11.2

By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons

- Community engagement

SDG target 11.4

Strengthen efforts to protect and safeguard the world's cultural and natural heritage

Valued partner in our communities (continued)

On track or met target ●
Ongoing focus area ■

Our overall performance in 2022

Topic	Target 2025	Performance indicator	Progress tracking			Status
			2020	2021	2022	
Valued partner in our communities 	No target	ASML Foundation projects supported	22	22	21	n/a
	No target	ASML Foundation's value of donations	€1.0m	€2.0m	€2.4m	n/a
	No target	Projects supported	n/a	133	390	n/a
	No target	Value of donations	€3.1m	€8.1m	€7.9m	n/a
	No target	Total cost of volunteering	€271k	€283k	€1,200k	n/a
	No target	Time investment of volunteers (in hours) – Community involvement	1,333	2,393	13,645	n/a
	No target	Time investment of volunteers (in hours) – Tech promotion	2,936	1,886	4,736	n/a

We are welcomed as a source of high-tech economic activity that benefits people and planet, and we scored 7.8 out of 10 in the October 2022 Brainport Eindhoven survey. However, our many stakeholders in the community also point out that our growing presence means that more engagement is expected and required to ensure that everyone in the community can benefit, and our presence delivers true positive social impact.

The total amount of cash commitments and in-kind support that ASML spent on charities, community engagement, organizations and our own ASML Foundation in 2022 was approximately €11.5 million.

Five of our locations (Veldhoven, Wilton, Silicon Valley, San Diego and Hsinchu) benefit from implemented and dedicated community engagement programs. These locations represent 83% of our operations (in headcount). We also operate smaller community engagement initiatives in other locations, and these will be gradually scaled up to more formal dedicated programs in the coming years.

Valued partner in our communities (continued)

Education

Our approach

Education, as the ‘big equalizer’ and opportunity creator, needs to prepare people of all ages for an increasingly digital future. Our intensive STEM (science, technology, engineering and mathematics) education programs aim to boost interest in technology among young people and increase the local and regional talent pool. We also raise awareness of career prospects in a sector offering many development opportunities. STEM competencies are important in helping children to reach their potential, particularly in disadvantaged communities. At the same time, we work with senior citizens’ organizations to help the elderly bridge the digital divide.

We organize and sponsor many initiatives that aim to share our enthusiasm for and expertise in technology to inspire all generations. We also partner with multiple organizations and educational events that promote careers in technology. Our employees act as role models and guides for all these initiatives.

The education team works closely with schools and education programs in the communities where we have operations. It provides hands-on support and coordinates a network of ASML volunteers (known as ASML ambassadors) who visit schools and events, and support children and schools in their curricula, some as part-time ('hybrid') teachers, some as tutors of disadvantaged children, and some as technology and STEM promoters.

The ASML Foundation aims to unlock the potential of young people in need by enabling inclusive and equitable participation in society through quality education. The ASML Foundation is an independent foundation with strong ties to ASML. It operates at arm’s length and has its own board and budget. It aims to increase the self-sufficiency of underrepresented and underserved youth around the world, and more specifically in the communities where ASML operates, through educational initiatives that develop their talent and help unlock their potential. Read more in: ASML Foundation.

Our performance in 2022

In 2022, we supported a total of 221 education projects across the regions where we operate (Netherlands, US and Asia). The total value of these projects amounted to €0.9 million.

'Our actions' outlines a few highlights – for more information, please visit
[www.asml.com – community engagement](http://www.asml.com - community engagement).



Valued partner in our communities (continued)

We're doing our part to ensure everyone, at every age, is prepared for an increasingly digital future and that all young people have access to technical education to reach their potential.



Our actions in 2022

Ongoing projects

- ASML Junior Academy (the Netherlands): In September, the ASML Junior Academy kicked off with 58 primary schools in a partnership with Mad Science, a renowned name in the field of STEM education and promotion. It offers all participating classes (children aged 4–12) technology lessons six times a year, with the aim of creating more awareness of STEM topics. One of the six lessons focuses on the role of the microchip in our daily lives and will be given by an ASML employee. The partnership also includes a project to familiarize teacher-training students with more STEM topics. The aim is to have all 271 primary schools in the Brainport Eindhoven region supported with STEM lessons by 2025.
- Wikimedia (global): We donated €64,000 to the Wikimedia Foundation, the organization behind Wikipedia, to ensure its continuity and support its drive to remain a resource for free and open knowledge for everyone. This annual donation will increase over time as our employee base grows, in accordance with Wikimedia's guidelines.
- Dutch Technology Festival (the Netherlands): Technology is at the core of who we are and what we do at ASML. At the annual Dutch Technology Festival we share this passion and knowledge to inspire the next generation of scientists and engineers. In 2022, we highlighted the best our region has to offer, all in one place, to inspire more than 22,000 young thinkers and doers.

Standalone initiatives

- Science & Engineering Night (US): In July 2022, the San Diego Children's Discovery Museum was transformed after hours to host hands-on activities at Science & Engineering Night. As main sponsor, we hosted a booth at this educational event with seven ASML employees featuring an exhibit that taught kids how to bring a robot to life using coding and programming, giving them the opportunity to learn more about science and engineering.
- BOYO Foundation (Taiwan): The Enlighten Your Potential project aims to prevent underserved students from dropping out of school by sponsoring the salaries of educators and the lecture materials for the BOYO Foundation. As well as providing funding, the ASML Foundation worked with the ASML Community Engagement team on setting up teacher-training workshops. By the end of 2022, over 35 teachers from four remote schools had joined our workshops. We also sent multiple volunteers as speakers to schools in order to encourage underserved students to continue learning and exploring their potential.

Valued partner in our communities (continued)

Arts & culture

Our approach

While culture is the invisible bond that ties the people of a community together, the arts are how culture becomes visible. To strengthen that bond, we support initiatives and organizations that are vital for the community's culture and help open them up for newcomers and the underprivileged. We focus on cultural icons in our communities – organizations and initiatives that have an impact beyond the local community.

Our performance in 2022

In 2022, we supported a total of 29 arts & culture projects across the regions where we operate (Netherlands, US and Asia). The total value of these projects amounted to €1.9 million.

'Our actions' outlines a few highlights – for more information, please visit

www.asml.com – community engagement.

Our actions in 2022

Ongoing projects

- Van Gogh Museum and Van Gogh Brabant (Netherlands and global): We have long-term partnerships with the Van Gogh Museum and Van Gogh Brabant to help ensure the artist's work and cultural heritage, rooted in the Dutch region of Brabant, can be enjoyed for many generations to come. Through this partnership we support several programs, including:

- Preserve the paintings: In collaboration with the Cultural Heritage Agency of the Netherlands, the University of Amsterdam and the conservators of the Van Gogh Museum, a team of ASML engineers is investigating how external factors, such as light, affect the paint that Van Gogh used. By using this knowledge to optimize display conditions and minimize further degradation of the collection, we help to preserve his masterpieces for future generations. In 2022, we made steady progress in developing the condition assessment tool – and we are looking forward to demonstrating our work during the celebrations for the 50th anniversary of the Van Gogh Museum in 2023.

- Vincent's Lightlab: Museum Vincentre, which focuses on Vincent's Brabant years, has plans for a significant expansion that includes 'Vincent's Lightlab', developed together with ASML. The reopening is planned for May 2023. The ambition is to welcome 40,000 visitors every year to the new Museum Vincentre and to share the story of Vincent Van Gogh and his search for color and light in Brabant.



Valued partner in our communities (continued)



- Educational programs: Together with the Van Gogh Museum, we have developed educational materials for students in primary and secondary schools, connecting science and art. The artist's curiosity was key to his craftsmanship, and together with the museum, we encourage students to follow in his footsteps.
- In 2022, we participated in the Vakkanjers program, which sets real-world competitions – working with a different industry partner each year – and challenges to teenage boys and girls, designed to help them discover and develop their skills. Through this program, schools and companies collaborate to help develop the craftspeople of the future. This year, the Van Gogh Museum in cooperation with ASML challenged students to think of innovative ways of preserving Van Gogh's artworks for the future, as well as to give new dimensions to Vincent's story and the way people experience his paintings by using technical components and creative solutions. In total, 254 schools and more than 12,000 students took part in these challenges.
- In Taiwan, ASML and the Van Gogh Museum launched Masterminds & Masterpieces, an international STEM program that reached students across the country. Working closely with two non-profit organizations, colleagues co-developed a hybrid initiative, leveraging their expertise in developing offline and online resources. In September, a bookmobile – developed in partnership with the CommonWealth Magazine Foundation – started traveling to schools in remote areas of Taiwan, supporting wider efforts to improve students' literacy. ASML Taiwan recruited over 70 volunteers to participate in this education program. The roll-out of the school tour and the online learning program will continue across Taiwan until the end of 2022, with over 20,000 primary school students in Taiwan estimated to join in Q4 2022.
- GLOW Light Art Festival (the Netherlands): Light is key to our work, which is why we partner with the annual GLOW Light Art Festival in Eindhoven, the Netherlands. In November 2022, around 700,000 people visited the festival.
- ASML on Stage (the Netherlands): ASML on Stage is an annual event featuring a multicultural mix of musical styles, all performed by acts featuring ASML colleagues and friends. With 17 ASML acts and 1,400 tickets sold in 2022, the event once again showcased the multiple talents of our employees, combining their love of music with their passion for science and technology.
- Spotlight (the Netherlands): Together with Muziekgebouw Eindhoven, we host the Spotlight program, where anyone who normally does not have the chance can take the main stage and experience being a performing artist. During 2022, 437 people participated and enjoyed their moment in the spotlight.

Standalone initiatives

- Van Gogh PaintFest (global): This year, a partnership between the Foundation for Hospital Art (FFHA) and the Van Gogh Museum in Amsterdam opened the door for hospitals all over the world to brighten their walls with the wonder of Van Gogh. The Van Gogh Museum collaborated with FFHA to license six of Van Gogh's greatest original works as inspiration for the designs. ASML was given first access to the PaintFest Kit designs before they were made available for public purchase. Throughout March 2022, leading up to Van Gogh's birthday, five ASML sites around the globe (Wilton, San Jose, San Diego, Veldhoven and Hsinchu) invited colleagues to paint the murals. 750 colleagues joined in on the fun. All finished murals were donated to local healthcare facilities upon completion for permanent installation to cheer and uplift patients and their families as well as hospital staff.



Valued partner in our communities (continued)

Local outreach

Our approach

Because our operations are concentrated in a limited number of locations, our presence and impact in these communities is important to us and to our local stakeholders. Our continuous interactions with community members as well as local government give us the opportunity to focus our efforts and improve our impact.

While our stakeholders welcome ASML's presence in the community as a sustainable engine of progress and economic development, they also observe that ASML's growth brings several challenges for their community. Their main concerns are connected with the growing and increasingly international workforce at ASML and its supplier network. At our main locations this has recently been associated with increasing home prices and competition for scarce engineering talent, while traffic congestion has been a longer-term concern.

In the Brainport Eindhoven region, community leaders also observe increasing tensions between established residents and international newcomers, who all claim their fair share of public and non-public services. On top of these main concerns that take place in the public domain, local government leaders ask for successful businesses to become more inclusive employers and offer development and career opportunities for the disadvantaged local residents who currently benefit less from the prosperity brought by the high-tech industry.

In these high-impact areas, we aim for smart and sustainable interventions. To battle congestion, we actively encourage employees to choose healthy and sustainable modes of transportation, such as cycling and public transport, through our successful Access & Mobility program that has been running for several years.

We support education and development by promoting STEM, with ASML employees working as 'hybrid teachers' and tutoring disadvantaged students, helping to increase the number of youngsters with a professional qualification. For our neighbors and local stakeholders, we invest in local amenities and services, while we enable our employees to take part in community service and to share their knowledge and expertise. Across all our partnerships and programs, we pay special attention to encouraging integration, promoting diversity and empowering the underprivileged.

We work with key players and fund high-impact programs and projects that also make a quantified contribution to our ESG strategy, and are supported by approved, robust governance structures.

Our performance in 2022

In 2022, we supported a total of 140 local outreach projects across the regions where we operate (Netherlands, US and Asia). The total value of these projects amounted to €5.1 million.

'Our actions' outlines a few highlights – for more information, please visit
www.asml.com - community engagement.

It is important to us that everyone in our communities around the world can benefit from ASML's presence and develop their potential.

Our actions in 2022

Ongoing projects

- Gift Matching (US & the Netherlands): Dedicated to supporting the causes that our people care about, we have launched our Gift Matching program in the US and the Netherlands. We match donations made to non-profit organizations via the Global Matching Gift program, up to €1,000 per employee per year. This means that when an employee donates €100 to a qualified organization, we match their generosity and donate another €100 to the same organization. The program was initially launched in the US and has already succeeded in matching almost \$150,000 of employee donations. We are looking forward to launching the program in Asia in 2023.
- PSV football club (the Netherlands): In a unique sponsorship innovation, ASML and five other partners teamed up to sponsor professional local soccer club PSV. Through this partnership, we are committed to promoting the Brainport Eindhoven region as an attractive environment to live and work. We support several programs, including:
 - ASML Community Lounge at Philips Stadium: This aims to make soccer accessible to everyone, to help newcomers find their place in our region and to enable people lacking the means to enjoy an evening of top-class sport. We welcomed volunteers and clients from groups such as Food Bank, senior citizens' union, Severinus, The Salvation Army and other aid agencies to the venue, totaling more than 4,200 guests in 2022.

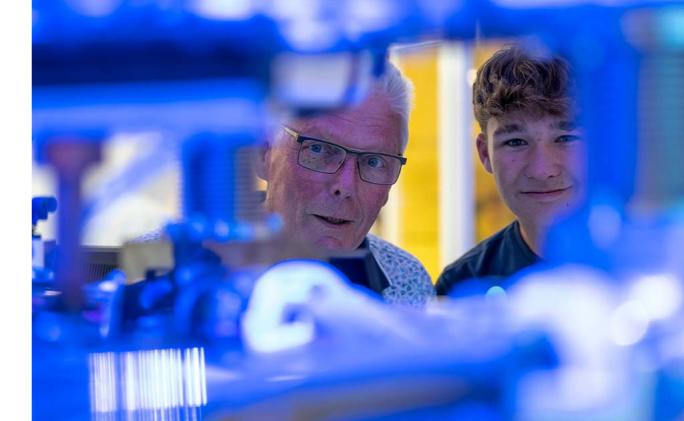
Valued partner in our communities (continued)

- As part of our partnership with PSV, we are able to use their pitch for a day. We took full advantage during 2022, inviting the Eindhoven children of the Weekend School. We also welcomed 500 primary school students to present their innovative ideas while participating in the PSV Brainport School Challenge, as well as 400 Ukrainian children and their supervisors, who enjoyed some respite from their troubles.
- Brainport Eindhoven and PSV's online vitality platform is still up and running, offering health and well-being inspiration and motivation for everyone in the Brainport Eindhoven region, creating a vital and healthy region for all.
- PSV Analytics: This collaboration project between PSV Sport performance and ASML BAS Big Data was initiated to help the Dutch premier top soccer club unlock, use and optimize the large amounts of data it has collected, and translate it into dynamic images analyzing the game plan. This work inspires our technologists as we collaborate and support the club to compete with its much bigger (and richer) rivals.

- Open Huis (the Netherlands): Following a two-year pause, we were thrilled to once again underline our role as a good neighbor and welcome 2,400 Brainport Eindhoven residents to the Veldhoven campus. These well-known Neighbor Days returned for the seventh time with a new name, 'Open Huis', and took place on not just one but four days in September. All residents of the Brainport region were able to register online, with places filled very quickly. The visitors were guided by more than 300 ASML ambassadors and enjoyed an action-packed program. We hosted various on-campus tours, shared our plans for new ASML buildings in the local area, gave insightful presentations on how our machines work, arranged Van Gogh workshops, led Mad Science experiments, hosted a photo corner with cleanroom suits and much more. Our neighbors particularly noted the campus's full-sized running track, 24-hour market, magnificent view over our neighborhood from the nineteenth floor and extremely neat cleanrooms.
- ASML Eindhoven Marathon (the Netherlands): The annual ASML Marathon Eindhoven took place in October 2022. A record 1,700+ ASML colleagues (up from 900 last year) took part in the various races, including the full marathon, half marathon, relay and quarter marathon. Anyone, of any age, experience or ability was welcome to take part, and we encouraged all of our runners to wear a special ASML shirt with pride. Runners and spectators were out in force to celebrate the city and the spirit of this challenge, with more than 25,000 runners competing.

Standalone initiatives

- Blood banks (US): The San Diego Blood Bank and blood banks across the US are experiencing a major decline in donor turnout, leading to a disruption in blood supply. In 2022, our San Diego office hosted six blood drives to help the community. 148 San Diego employees and 47 members of the community donated 180 units, which will help save the lives of 544 people.
- Support for Ukraine (the Netherlands): Russia's invasion of Ukraine has forced millions of people to leave their homes and seek refuge in the EU and neighboring countries. ASML helped the municipality of Eindhoven and social organization Springplank040 to accommodate more than 100 refugees in a specially created shelter. Working with our partners from the Brainport Partner Fund, we helped fit out the shelter and provided toys and supplies to soften the experience for the children. Together with our partner PSV, we also organized an afternoon of fun and games in the Philips Stadium for 400 Ukrainian children.
- Wilton Land Conservation Trust (US): Over 30 ASML Wilton employees joined forces with Wilton Land Conservation Trust to clear invasive plant species from Schenck's Island Park in Wilton. The invasive plants were replaced with native blueberry bushes, which will provide food for native animals and local hikers alike.
- Rise Against Hunger (USA): ASML Wilton partnered with Rise Against Hunger, an international hunger relief non-profit organization that coordinates the packaging and distribution of food and other aid to people worldwide. Over 140,000 meals were packaged and shipped to our neighbors in need.



Valued partner in our communities (continued)

ASML foundation

Our approach

The ASML Foundation is our charity of choice, with a primary focus on impactful, inclusive education and training programs for young people in need. Its mission is to improve lives through inclusive and quality education and training – with the goal of enabling equitable participation in society. The Foundation aims to make a sustainable impact on SDG 4 (Quality Education), and contribute to SDG 5 (Gender Equality), SDG 10 (Reduce Inequalities) and SDG 17 (Partnerships for the goals).

We believe that all people deserve to receive a quality education, allowing them to be self-sufficient, no matter what their background is. We aim to help people who participate in the programs we support to improve their chances of a better life. In terms of diversity, our project selection seeks to improve the inclusion of underserved groups, such as people of color, people who are neurodivergent and people from a less-privileged background, thereby tackling the disadvantages our target groups may face, such as limited access to education, special education needs or a lack of vocational training.

As the ASML Foundation aims to make a difference in ASML's communities, it mainly supports projects and initiatives in EMEA, the US and Asia that address specific needs in the ASML regions. For example, in the Brainport Eindhoven region in the Netherlands, tackling illiteracy continues to be a key focus area for the ASML Foundation, alongside support for organizations that provide help to neurodivergent young people, with special attention on autism and high giftedness. In the US, projects focus mainly on preventing school dropouts in less-privileged areas, and on promoting science, technology, engineering and mathematics (STEM) for girls as well as for specific minority groups. Projects in Asia differ per country. In developing areas in Asia, for example, there is a focus on education for girls to reduce inequality and also to prevent child marriages. In China, the focus is on STEM for girls in rural areas.

Where possible, the ASML Foundation strongly promotes collaboration between organizations with similar focus, but with complementary programs. This has resulted in a number of initiatives that clearly added value to the organizations, resulting in improved support for a number of our target groups.

ASML employees support the ASML Foundation financially when they purchase goods from the ASML employee store, and the Foundation also receives regular private donations from a number of colleagues.

Our performance in 2022

In 2022, the Foundation donated around €2.4 million (€2.0 million in 2021), supporting 21 projects in nine countries. With the Foundation's financial support, the Foundation contributed to improving the lives of around 1.2 million young people. Our employees contributed a total of 13,645 volunteering hours to community involvement and 4,736 hours to tech promotion. We saw an increase from prior years due to the relaxation of COVID-19 measures.

Action plans for 2022-2025

Next steps in society and community engagement

Our reputation and license to operate are for a large part dependent on the local and regional communities where we operate – we need their support to be able to execute our strategy. Our continuing strong growth and increasing visibility mean that these communities expect considerably more from us. That is why we aim to increase our investments, by a factor of 10, in society and community engagement activities across the globe in the coming years. Those activities will have a strong focus on social cohesion, talent and education, digital inclusion and employee engagement. This has also led to the creation of an ESG Community Partnership Program Team. This new team will provide integrated governance on all company-wide community outreach activities and overseeing our increasing investments.

As part of our step up we will determine our actions for this topic, setting tangible targets and implementing a process to monitor the effectiveness of our approach. Working closely with local stakeholders as well as employees, our goal is to increase our positive impact in all of these areas and strengthen ASML's position as a robust, reliable and valued partner in the communities around us.

Governance at a glance



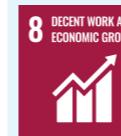
What we do

We champion good integrated corporate governance to build a relationship of trust, respect and mutual benefit with our stakeholders – shareholders, customers, suppliers, employees and society. In this ESG Governance section, we describe how we organize the management of ESG issues within our business, and the other ways in which we ensure we are a responsible business.

Our aims

As the innovator that makes vital systems for the chip industry, we have a responsibility to lead by example. We are committed to conducting our business in compliance with applicable laws and regulations in all the countries we operate in. We strive to work to the highest standards of integrity and continuous improvement of our governance, based on feedback we actively procure from our internal and external stakeholders. We want to conduct our business with honesty and embrace an open dialogue and knowledge sharing throughout our ecosystem.

Managing ESG sustainability, Responsible business and Our approach to tax



SDG 8

Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.



SDG 12

Ensure sustainable consumption and production patterns

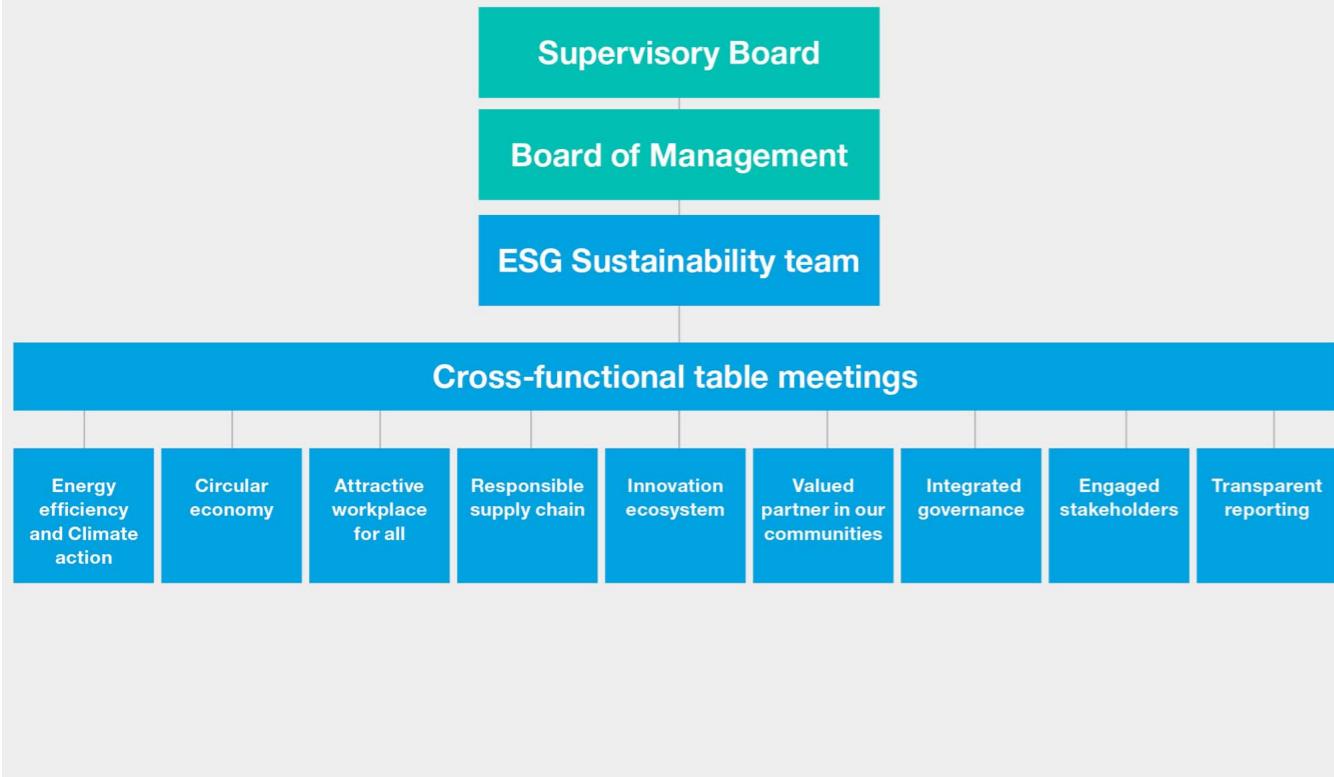
[Read more on page 134, 135, and 147 >](#)

- Managing ESG sustainability
- Business ethics and Code of Conduct
- Legal and compliance
- Anti-bribery and anti-corruption
- Competition law compliance policy
- Privacy protection
- Respecting human rights
- Information security
- Our approach to tax
- Product safety



Managing ESG Sustainability

ASML ESG Sustainability



We manage ESG sustainability as an integrated part of our corporate strategy. The purpose of the ESG sustainability governance is to monitor and guide our organization to realize our ambition to be a top performer by 2025. This incorporates a number of levels to drive accountability and execution, including the Supervisory Board, Board of Management, ESG Sustainability team, topic-specific action owners and experts from the business lines and sectors.

Our Board of Management sets the ESG Sustainability aspects of our integrated strategy and oversees its execution. The Board of Management meets regularly to give guidance on relevant issues, including climate-related risks and opportunities.

The Supervisory Board supervises, monitors and advises the Board of Management on the ESG Sustainability aspects which are relevant to the company (see Rules of Procedure). This includes addressing the principal risks and opportunities related to the strategy.

Our ESG Sustainability team supports the Board of Management in relation to ESG Sustainability aspects. This could include recommendations regarding focus areas, targets, external commitments and disclosures. Furthermore, the ESG Sustainability team is responsible for monitoring risks and opportunities (including climate change-related matters), global trends, stakeholder expectations and (peers), best practices that could impact our short-, medium- and long-term ESG sustainability objectives.

the ESG Sustainability strategic themes are driven by one or more cross-functional table meetings. Responsibility for executing the strategy lies with the business lines and sectors. Progress is monitored quarterly by the Board of Management.

In addition, we identify and assess the impact of ESG Sustainability-related risks and opportunities, including risks from climate change, through our Enterprise Risk Management (ERM) process.

Read more in:
[Risk](#).

Our performance in sustainability areas is part of the Long Term Incentive Plans of our Board of Management and senior management.

Read more in:
[Remuneration Report](#).

Responsible business

Empowering individuals for the collective good to ensure our employees are proud to work for us and engaged with our ambitions as a company.



414

Speak Up messages



10%

Gender diversity % female
in senior (13+) job grades
(2024 target: 12%)

We are a global leader in the semiconductor industry. As the innovator that makes vital systems for the chip industry, we have a responsibility to lead by example. Our purpose is clear – 'to unlock the potential of people and society by pushing technology to new limits' – and we want our values to reflect in everything we do to pursue our purpose.

Besides the material focus areas in our strategy, we need to make sure that we conduct our business in a responsible manner. Anywhere we operate, we believe that conducting our business with honesty and acting with the highest standards of integrity is essential to our value creation for our stakeholder groups and the long-term success of our company.

We have corporate policies and procedures in place detailing our principles and compliance, guiding us in making the right decisions and living up to our values. In the next sections, more information can be found on topics such as our business ethics and Code of Conduct, compliance, our responsibility to respect human rights, protection of information and tax.

IN THIS SECTION

- 136 [Business ethics and Code of Conduct](#)
- 139 [Legal & Compliance](#)
- 139 [Anti-bribery and anti-corruption](#)
- 139 [Competition Law Compliance Policy](#)
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Responsible business



SDG target

SDG target 8.7

Take immediate and effective measures to eradicate forced labor, end modern slavery and human trafficking and secure the prohibition and elimination of the worst forms of child labor, including recruitment and use of child soldiers, and by 2025 end child labor in all its forms

– Number of speak-up messages

SDG target 8.8

Protect labor rights and promote safe and secure working environments for all workers, including migrant workers, in particular women migrants, and those in precarious employment

SDG target 12.4

By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health

– RoHs/REACH compliance of parts used

Responsible business (continued)

Business ethics and Code of Conduct

We are committed to conducting our business in compliance with applicable laws and regulations in all the countries we operate in. We promote and uphold ethical behavior, fostering a culture where speaking up is encouraged and appreciated.

We seek to continuously improve and professionalize our Ethics and related Compliance organization to the highest standards. In 2022, we continued to grow our network of Ethics Liaisons and provided them with tailored training sessions, updated our Anti-Bribery & Anti-Corruption and Anti-Fraud policies, and refreshed our Gifts & Entertainment Policy. These policies are reflecting the precautionary principle as a guiding principle. We continued our training programs and focused on raising awareness across our entire organization. Our next Global Ethics Survey will take place in 2023, as part of the we@ASML pulse survey.

Our values – challenge, collaborate and care – guide us in our everyday dealings with employees, customers, suppliers, shareholders and the society we serve. These values are reflected in our Code of Conduct (hereafter: Code). The Code sets clear expectations and guiding principles for the way we conduct our business and serves to foster a culture of integrity, ethics and respect. Together with a set of practical guidelines, it puts integrity at the center of what we do.

At ASML, we rely heavily on the skills, commitment and behavior of our employees for our continued success, and for our positive contribution to society. That is why we expect all employees to fully live up to the company's values and to act with integrity and respect at all times. We ask all our employees and our business partners to abide by our Code.

For over a decade, we have been a member of the Responsible Business Alliance (RBA), the world's largest industry coalition dedicated to corporate social responsibility in the global electronics industry. As a member of the RBA, we have adopted the RBA Code of Conduct, which is a standard intended to ensure that working conditions in the electronics industry, or industries in which electronics is a key component, and its supply chains are safe, that workers are treated with respect and dignity, and that business operations are environmentally responsible and conducted ethically. Our Code is in line with the RBA Code of Conduct. To reinforce our commitment to the supplier network, we expect our key suppliers (representing around 80% of our total spend) and their suppliers to acknowledge and comply with the RBA Code of Conduct and to develop their own strategies, policies and processes to follow it. This requirement is included in our long-term product-related suppliers' contracts. We also encourage our suppliers to develop their own sustainability strategies, policies and processes, and we actively encourage our suppliers' adherence to this code.

Our ethics governance consists of several levels, which include:

1. Our Ethics Board, chaired by our CEO, reports to the Audit Committee and Board of Management. The Ethics Board is responsible for policymaking and the supervision of ASML's compliance with legal and ethical requirements. The Ethics Board meets regularly to give guidance on relevant issues and approve the relevant policies.
2. Our Ethics Committee investigates significant notifications about potential breaches of ASML's Code of Conduct worldwide.
3. Our Ethics Office is responsible for overseeing and implementing our Ethics program. All reports of a possible breach of ASML's Code of Conduct are screened by one of the Ethics Officers and all significant reports are discussed with the Ethics Committee.
4. Our Ethics organization includes employees who, in addition to their regular roles at ASML, act as Ethics Liaisons in all the countries we operate in. They serve as trusted representatives, and act as the first local point of contact for employees with questions and concerns related to ethics.

Our values – challenge, collaborate and care – guide us in our everyday dealings with employees, customers, suppliers, shareholders and the society we serve.



Responsible business (continued)

Our Code of Conduct 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 and more powerful, ASML has an important role to play – not only by reputation and results but also in relation to the environment too. 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.

Our Code is available for all our stakeholders on our website www.asml.com, our intranet and in our Employee app.

Promoting ethical behavior

Our dedicated Ethics program, and related Compliance program, provides the necessary support, advice, training and communication to enable employees and others to understand and follow our Code. It does this by building awareness through various communication channels to promote a culture of high integrity. It also helps create an open and honest culture that fosters compliance with the law and ASML policies across the organization.

In 2022, we continued to extend our ethics training curriculum.

In addition to generic modules, which are available to all employees, the curriculum will include modules with a specific audience depending on potential exposure. The curriculum aims to support management and employees in decision-making and promoting our Code and other compliance-related topics, and to raise awareness around the importance of ethical behavior and our Speak Up & Non-Retaliation Policy. It also provides information and guidance on dealing with topics such as personal relationships at work, conflicts of interest, navigating cultural differences and ethical aspects around ancillary activities or other positions outside of ASML. In our training program we particularly focus on all new employees; within the first three months of starting at ASML they receive an invitation to complete the first module of the curriculum.

Our Code of Conduct serves to foster a culture of integrity, ethics and respect.

Responsible business (continued)

We promote an open culture of trust and honest communication.

Encouraging people to Speak Up

In 2022, following an update to our Speak Up & Non-Retaliation Policy which addressed the requirements of the EU Whistleblowing Directive, we continued to focus on putting the concept of non-retaliation at the core of what we do. We strongly believe that employees should feel safe to express their concerns with the company without apprehension due to the fear of retaliation. These policies and procedures reassure employees that they can report a breach without fear of repercussions. ASML has zero tolerance for retaliation.

In 2022, we also focused on updating our internal ethics investigation procedure, which outlines the investigation phases of an ethics complaint, from first report to remedial action and final closure.

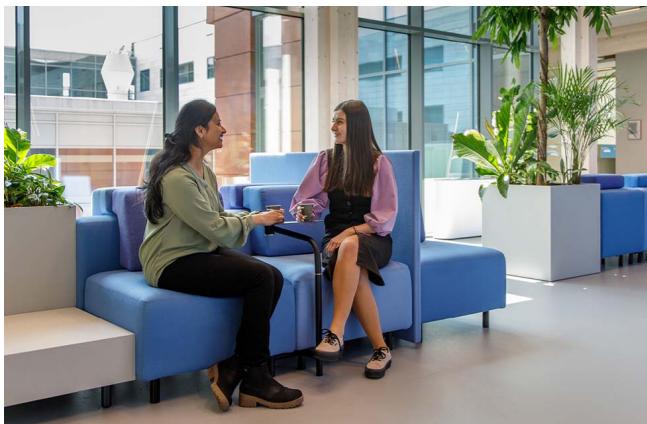
For more information on speaking up, non-retaliation, our ethics investigation procedure, anonymity and privacy, please see our Speak Up & Non-Retaliation Policy publicly available on www.asml.com.

We encourage everyone, including external business partners, such as suppliers, contractors and other workers, to express any concerns they might have regarding possible violations of our Code, our company's policies, the law or our values. We promote an open culture of trust and honest communication where violations of the Code are not tolerated. We have several different channels within the Speak Up program to report such concerns, including an online reporting tool (hosted by an independent, external service company), phone numbers for each country in which we operate, a dedicated email address and via our Ethics Liaisons. For employees or external stakeholders who prefer to remain anonymous, the Speak Up service is available to report breaches anonymously. The role of the Ethics Office is to assess each Speak Up report and take proper action to address the report so that any suitable remedial actions can be taken by the appropriate body.

We review and assess all Speak Up messages and follow up on all of them by providing feedback to the reporting party if possible. If necessary, we engage with the reporting party and/or counterparty to understand the nature of the Speak Up message, and to conduct more detailed analysis and/or investigation. When required, we implement remedial actions to prevent recurrence.

We registered 414 ethics-related reports in 2022 (396 in 2021).

Among these Speak Up reports, sixteen complaints were considered to be admissible as investigations by the Ethics Committee. These follow a formal ethics complaint investigation procedure. At the time of publication of this annual report, the investigation procedure of ten ethics complaints was completed. Of this total, two complaints were deemed unsubstantiated – no violation of the Code – and two partially substantiated. The corrective actions on the six substantiated complaints vary from warning letters and suspension to instant dismissal. The remaining six ethics complaints remain in the formal investigation process.



Responsible business (continued)

Legal & Compliance

Our Legal & Compliance function oversees adherence to a wide variety of regulatory compliance-related areas and advises management about the regulatory framework, including changes in legislation and regulations. The function aims to ensure that we conduct business in compliance with all relevant national and international laws and regulations, as well as professional standards, accepted business practices and our own internal standards. Examples of regulatory compliance areas include securities and insider trading, competition law (antitrust), export control and anti-bribery and anti-corruption. When needed, our Legal & Compliance Department takes charge of any regulatory investigations.

Anti-bribery and anti-corruption

ASML does not tolerate bribery or corruption or any form of improper influence on colleagues or others. We are committed to the highest standards of personal and business integrity. In September 2022, our Anti-Fraud and Anti-Bribery & Anti-Corruption policies were both updated. The Anti-Bribery & Anti-Corruption Policy details our commitment to strong ethics and integrity and the measures we take to prevent bribery and corruption at ASML. ASML does not allow employees to accept or provide facilitation payments or to make political contributions on behalf of the company. The policy also requires compliance with applicable anti-bribery and anti-corruption laws as well as the ASML Code of Conduct.

For more information or to download the policy, please visit:

www.asml.com

Our Gifts & Entertainment Policy details the behavior expected of all ASML employees with regard to giving and accepting gifts or entertainment (including business meals) and supports our commitment to doing business in a professional, ethical and transparent manner. The policy is also a key element in our compliance and anti-bribery & anti-corruption program. We require our employees to always comply with this policy, use common sense and, if needed, seek guidance or support as outlined in this policy and explanatory material (such as FAQs and flowchart). An important element of the policy is the request for prior approval for certain categories of third-party gifts or entertainment. This enables us to capture registration of both given and accepted gifts and entertainment in these categories, which supports us in complying with the policy, as well as with laws and regulations. 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.

In 2022, we updated our training curriculum regarding fraud, anti-bribery and anti-corruption topics, by launching an all-employee mandatory e-learning course which is part of the ethics training curriculum and by providing additional classroom training to specific stakeholder groups. We are further strengthening our global third-party due diligence program.

There were no regulatory fines or actions toward ASML in the area of bribery and corruption in the reporting year 2022.

Competition Law Compliance Policy

We consider compliance with competition law an essential part of our business. Competition law (also known as 'antitrust law') protects effective competition in order to ensure the optimal functioning of the market. Competition law impacts many areas of ASML's day-to-day business, and affects 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, including suppliers, co-developers, customers and other industry peers. As such, ASML does not condone any form of conduct that is considered illegal under applicable competition laws or is contrary to our Code of Conduct, and we will not engage in business or cooperate with business partners who resort to anticompetitive behavior or suggest entering into illegal conduct.

To this end, we have general and specific control measures in place to prevent, detect and disclose potential competition law issues, including the following:

Competition law compliance risk assessment:

We regularly perform risk assessments of relevant competition law focus areas. This assessment identifies and takes into account risks that may be present from a competition law perspective, the controls that have been put into place, the remaining risks and which measures will be taken in order to mitigate any remaining risks.

Policy review:

Our Competition Law Compliance Policy demonstrates our ongoing 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. Consequently, this may lead to appropriate 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:

Our competition law training program consists of a combination of different methods, including computer-based and in-person training sessions. It also promotes awareness of relevant topics and issues relating to competition law by periodic communications through, for example, presentations and articles on our intranet or by email communications.



Responsible business (continued)



Contacts with business partners:

We expect our business partners (such as customers, suppliers, consultants, contractors and intermediaries) to demonstrate high standards of ethical behavior that are consistent with our own. We will not engage in business or cooperate with business partners that resort to anticompetitive behavior or suggest entering into illegal conduct. We firmly condemn any anticompetitive behavior by our business partners.

Reporting and resolving an issue, violation or complaint:

We will support our employees and business partners who refuse to enter into anticompetitive 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 didn't incur any fines for breaches of competition law in 2022.

For more information, download our ASML's public Competition Law Compliance Policy:
www.asml.com.

Export Controls

We are committed to compliance with all applicable export controls laws globally. We have implemented policies and procedures designed to promote compliance and prevent unauthorized transactions. Employees are required to follow our policies and procedures. Further, we have IT controls and other measures in place designed to facilitate protection against inadvertent violations of export control requirements.

We regularly assess the effectiveness of such policies, procedures, and controls, and update them as necessary. For example, we have recently updated our policies and procedures in connection with the Additional Export Controls on Semiconductor Manufacturing Items imposed by the U.S. government in October 2022.

Privacy protection

We are committed to respecting and protecting the privacy rights of employees, customers, suppliers and everyone we do business with. Personal data is managed in a professional, lawful and ethical way, in line with our Code of Conduct and in compliance with applicable laws and regulations.

We have technical and organizational measures in place intended to prevent accidental or unlawful destruction, loss, alteration, unauthorized disclosure of, or access to, personal data. Our Privacy Policy sets the 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.

A dedicated privacy and personal data protection program ensures we adhere to high standards of personal data protection. Among other elements, the program covers:

- Governance: At the senior management level, the Corporate Risk Committee 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 130 privacy activities including privacy impact assessments and data protection impact assessments. The Privacy Controls framework is included in our ERM process.
- Disciplinary actions: We investigate all incidents, concerns and reports of potential breaches that are registered in our Privacy portal, as outlined in our personal data breach procedure. We take appropriate control measures and disciplinary actions to prevent reoccurrence.
- Audit: Privacy is included in our internal audit program. Our privacy notices for both business partners and recruitment are derived from our Privacy Policy. They explain why personal data is collected and how ASML uses it.

In 2021, 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).

We expect our business partners – customers, suppliers, consultants, contractors and intermediaries – to demonstrate high standards of ethical behavior that are consistent with our own.

Responsible business (continued)

Respecting human rights

ASML is a keen proponent of intentional integrity, particularly given its responsibility to society. This means not just ticking a box when it comes to critical issues such as upholding human rights. We conduct business on the basis of fairness, good faith and integrity, and we expect the same from all those we work with. To this end, we also believe that we have the responsibility not only to respect human rights but to advocate for them throughout our organization to help make a positive impact on society. The work we are doing around our ESG framework, the steps we are taking with respect to diversity and inclusion, our well-being program and our continuous efforts to address integrity as part of our culture are all attribute to advocating for human rights within ASML. 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 UN Guiding Principles on Business and Human Rights. In 2017, we initiated our Human Rights Policy, which is publicly available on www.asml.com, which reflects the earlier mentioned precautionary principle and takes a holistic view on embedding and protecting human rights within our organization.

The provisions of this 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 laid down in the OECD Guidelines for Multinational Enterprises. In 2023, we will review our existing policy to ensure we are not only complying with the minimum requirements but adjust them where necessary and consider whether we can introduce additional measures to meet our goals of being leaders in this field. In addition, we will review the effectiveness of the procedures that have been implemented in order to identify, manage and prevent adverse human rights impacts that are material to ASML's business.

Our Human Rights Policy complements our ASML Code of Conduct and the RBA Code of Conduct, to which we adhere. It expresses our commitment to human rights and responsible labor practice in our operations and our supply chain. The Human Rights Policy applies to ASML and its subsidiaries anywhere in the world. The overall responsibility for identifying and managing human rights issues in our direct operations falls under the remit of our Executive Vice President HR. Responsibility for human rights in our supply chain falls under the remit of our Executive Vice President Sourcing and Supply Chain.

Defining salient human rights issues

Salient human rights issues are those human rights that are at risk of the most severe negative impact through a company's activities or business relationships. Our commitments to address and engage actively in our salient human rights issues are highlighted in our Code of Conduct, Human Rights Policy and RBA Code of Conduct for suppliers. We identify and manage human rights issues in various ways, for example through stakeholder engagement and by assessing human rights in our own operations, as well as suppliers' due diligence and sustainability risk management.

Read more in:
[Social – Our supply chain](#).

We received no grievances about breaches of human rights in 2022.

Our operations

Following the risk assessment which we conducted to identify the inherent risks related to human rights within our own operations, we have decided to review the current policy and update it during 2023. The results of our previous analysis showed that the risk of human rights vulnerabilities inherent in our own operations are working hours and overtime, health and safety, and workplace harassment. The vulnerable rights-holder groups identified within ASML are contractors, ethnic minorities and migrant workers. We continue to monitor these issues through regular internal EHS audits.

Read more in:
[Social – Attractive workplace for all – Best employee experience](#).

Working hours and overtime

The standard weekly working hours in the locations where we operate are on average 40 hours. Our company standards are based on the International Labor Standards of the International Labor Organization (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 constant attention to protecting our employees from working overtime during peak periods. As overtime remains an important attention point for management, we are continuing to monitor the use of overtime and to take appropriate measures to manage the situation.

Health and safety

Our obligation is to provide safe and healthy working conditions for all our employees and others working on our premises. In all our products and processes, we work hard to make ASML a safe place to work. We put significant effort into creating awareness and maintaining a proactive safety culture within ASML.

Read more in:
[Social – Attractive workplace for all - Ensuring employee safety](#).

Responsible business (continued)

We believe that we have the responsibility not only to respect human rights but to advocate for them throughout our organization to help make a positive impact on society.



Workplace harassment

We are a global company with operations in more than 60 locations in 16 countries and regions. We have a culturally diverse workforce, employing 143 nationalities. This leads to a higher inherent human rights risk around the issue of workplace harassment.

Read more in:

[Governance - Responsible business - Business ethics and Code of Conduct.](#)

Through our Ethics program, we raise awareness around the importance of ethical behavior and our Speak Up & Non-Retaliation Policy. It also provides information and guidance on dealing with topics such as personal relationships at work, conflict of interest, dealing with cultural differences, and ethical aspects around ancillary activities or other positions outside of ASML.



Our supply chain

We assess risks related to human rights in our supply chain through a risk-based approach. In our due diligence process, 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. In the event that a medium or high risk relating to labor is identified, we engage with the supplier and conduct a more detailed analysis. For strategic suppliers covering around 80% of our product-related spend, we expect them to complete the annual RBA SAQ. This SAQ covers more than 400 risk elements related to labor (including human rights), ethics, environmental and safety factors, control elements and management systems, including their performance. It helps us to determine a supplier's risk profile on sustainability. When we identify compliance gaps, we engage with the supplier to determine corrective action plan(s).

The salient issues we have identified relate to working conditions (forced and bonded labor), health and safety, and trade union rights. However, as they work in the high-tech industry, the majority of our suppliers operate in countries with a strong rule of law and are law abiding. We view this inherent risk as low.

Read more in:

[Social - Our supply chain.](#)

Information security

With ASML's unique position and the growing geopolitical tensions in the semiconductor industry, we see increasing security risk trends, ranging from ransomware and phishing attacks to attempts to acquire intellectual property or disrupt business continuity.

In 2022, ASML registered around 2,800 cybersecurity incidents, excluding phishing. We don't believe that any of these incidents has had a material impact on our business. See "Risk Factors – Cybersecurity and other security incidents, or other disruptions in our processes or information technology systems, could materially adversely affect our business operations". We have increased the number of FTEs from 10 around a decade ago to around 300 FTEs dedicated to security matters in 2022.

Security – like safety and quality – is a prerequisite for trust in the ASML brand. Our customers and partners must be able to rely on the security, safety and quality of our products and services. ASML's competitive edge is based on the knowledge and intellectual property that has been developed through decades within our ecosystem. That knowledge sits in various repositories within the company as well as in the minds of our employees and the many people we work with within our collaborative eco-system of hundreds of suppliers, customers and knowledge institutions. On the one hand it makes the protection of knowledge a challenge, because our eco-system is to a large extent based on exchange of ideas and insights among many individuals. On the other hand it also means that it is very difficult to replicate what we do. Without (operating) software, knowledge about electronics and the behavior of the different components, the specific knowledge of

Responsible business (continued)

individuals within ASML and our partners about integration of different elements of our technology, and without the very diverse and extensive partnerships within our eco-system, it is extremely difficult to effectively build machines as complex as ours.

As we innovate together with our ecosystem partners, our partners need access to some of our systems. Because the chain is only as strong as the weakest link, we need to make sure that this access is enabled in a secure way. ASML's Security Circle of Trust is intended to certify and assist our ecosystem partners to increase the maturity of their information security, while also resulting in developments for ASML itself to learn of effective techniques and technologies in return.

Information security resilience framework

Our vision on security is that it needs to be embedded in the DNA of our people, processes and technologies. In our effort to ensure this, we have created a dedicated security function in order to manage security risks. The Chief Information Security Officer (CISO) coordinates the response on information security risks as second line of responsibility and is supported by security teams in the sectors as first line of responsibility. Our mission is to enable ASML to have control over the protection of information and assets of the company, as well as confidential information of its customers and suppliers, by applying risk-based and efficient measures for people, processes and technology that support our business goals. To realize this vision and mission, we pursue and deploy our security strategy as we seek to achieve the highest level of maturity in our security capabilities, and rolling these out to our assets in a risk-based manner.

We developed our information security framework by applying the ISO 27001 Information Security Standard

across its 14 domains and by driving security maturity – from policy setting, asset management and access control to incident management and more. For each of these domains, we have tailored controls in place, which are assessed routinely intended to ensure compliance and effectiveness. In addition, our incident-reporting tool seeks to make sure that all IT and information security issues can be reported, correlated and investigated.

People and knowledge are key to the business success of ASML. Unauthorized disclosure of our information, or information of our customers or suppliers in our innovation ecosystem, could benefit competitors, negatively affect our ability to file patents or negatively affect cooperation with customers, suppliers and regulators. At the same time, our operations are dependent on reliable information processing, and unauthorized changes to the information content of these assets can damage our ability to carry out our business. Therefore, it is critical to guarantee confidentiality and integrity of information. To make sure that our employees understand the security policy and know how to act, we provide mandatory security training and through the year host multiple security awareness events, during which we provide additional information and share learnings.

In our supply chain network, we use a single model for risk assessment of our partners, which they also use in order to screen their suppliers. We are also in close contact with peers, partners and best-in-class security solution providers, and our security solutions are tested regularly through penetration testing (ethical hacking) to identify exploitable issues so that effective security controls can be implemented.

Given the continuous trend of increasing cyber and security risk and the increasing geopolitical attention

towards ASML, we are continuously reviewing the adequacy of our risk control framework and continue to implement additional controls. However, given the pervasiveness, sophistication and rapid rise of cybersecurity and other security risks, the geopolitical attention towards the semiconductor industry and the inherent limitations that follow from our collaborative innovation approach, this may not always be sufficient to prevent an incident, and reduce this risk entirely. Hence a relentless drive is required and in place to adopt the latest best practices.

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

Creating Security Circles of Trust

At ASML, we develop our technology in close collaboration with partners inside and outside our company in an innovation ecosystem based on trust. Innovating and collaborating in a connected ecosystem requires secure information sharing beyond corporate boundaries, as the vulnerability to cyberattacks is extended to the perimeter of the total ecosystem.

Therefore, in 2021 ASML started the Security Circles of Trust initiative to protect our innovation ecosystem in the Brainport Eindhoven region and the Netherlands. The 'circle of trust' is a network of peers and suppliers who jointly embrace the same information security standards and raise their performance against these standards. The network also drives the exchange of knowledge and best practices between ASML, suppliers and ecosystem partners.

We share best practices to help our innovation partners develop and reinforce security maturity. The goals are to protect intellectual property and guard the industry and the region against cybercrime such as ransomware, to share relevant threat intelligence, to collaborate on security topics and to become more secure together. Annually we hold master classes with our top 10 key suppliers and more than 50 of our neighbor companies to increase information security awareness and knowledge in the region, and to share practical tips, tricks and strategies, for example about combating ransomware. In 2022, we have expanded the Circle of Trust to also include semiconductor companies in the US, Europe and Taiwan, with further roll-out scheduled for 2023 to other geographies.

Responsible business (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 to protect our own knowledge as well as information entrusted to ASML by our customers and business partners. Patents are a way to protect ASML's research and development investments from use by our third parties, including exploitation by our competitors, customers, suppliers and co-developers. We innovate and develop our technology with our ecosystem partners consisting of many different firms 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 intellectual property rights of third parties.
- Prevent the disclosure of confidential information, including know-how and trade secrets, to the outside world, in accordance with ASML's Knowledge Protection Program.

Our Corporate Intellectual Property department is tasked with strengthening our global IP position including our patent portfolio, as well as protecting our patents. 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 intellectual property rights of third parties.

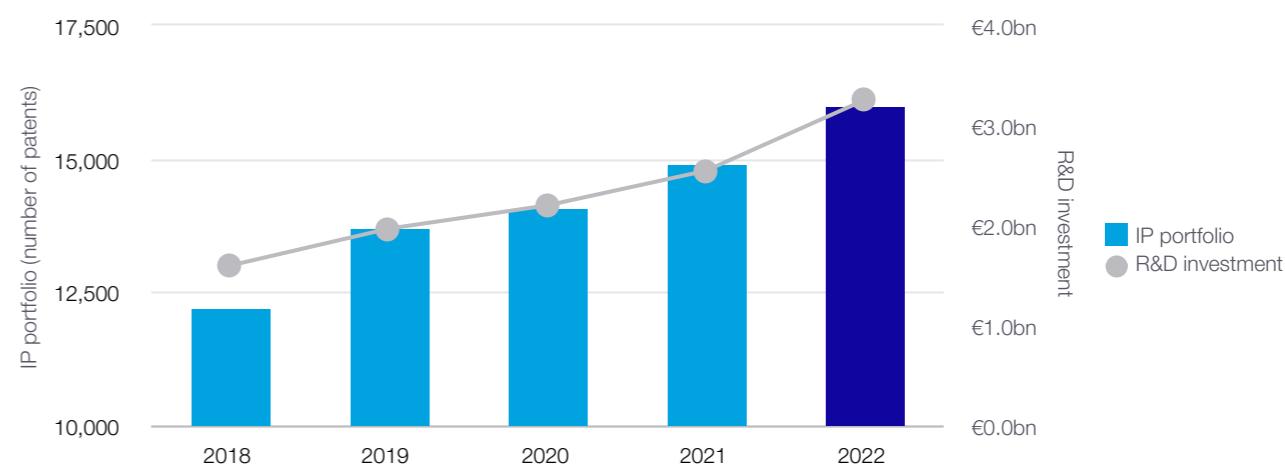
Our significant investment in complex research and development justifies a strong intellectual property portfolio. We have developed an IP rights management mechanism to safeguard our IP rights and to respect the IP of other parties. This includes, among others, a dedicated knowledge protection program, restricted access to Engineering Top Secrets, an information security program, mandatory information classification, and a training and awareness program.

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. These controls and procedures may not always be effective, and we have experienced unauthorized accessibility of data which enabled misappropriation of information by a former employee, which may constitute a violation of such regulations (see the risk factor "Cybersecurity and other security incidents, or other disruptions in our processes or information technology systems, could materially adversely affect our business operations"). We have implemented remedial measures to prevent similar unauthorized access and we are reviewing our security controls, policies and procedures to determine whether any further changes are appropriate.

Read more in:

[Governance - Responsible business - Information security.](#)

IP portfolio trend



Responsible business (continued)

Product safety

We want to innovate, but always with safety at the top of mind. It is our duty to provide a safe work environment at all times. We do this by focusing on safety at every stage of a product life cycle: research, development, production, transport, installation, maintenance, upgrades and decommissioning. And we make sure we cover all our stakeholder groups, including employees, customers, suppliers, contractors and visitors.

How we manage product safety

As we have grown, so has our product complexity and the number of geographical locations where we operate. It is therefore becoming more complex to assess which safety legislation and regulations apply to our products and tools. At the same time, it is also more complex to determine the rules and procedures we need to follow to demonstrate this compliance. Some of our technology is so innovative and new that it is not always immediately clear which regulatory regime applies. ASML is extending the expertise by hiring country safety regulatory experts.

We have clear systems and processes in place to support our approach to product safety. 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, with risk experts supporting individual projects.

Product safety competences

With regard to all of our competences, the role of our D&E safety competence leads us to provide thorough knowledge about our ways of working and to design rules for specific safety hazards in all of our competences.

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 legislations and standards, and also 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 helping projects 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, as well as seismic requirements for our machines.

Lifting: Many special requirements (such as the certification and training of crane operators) are applicable in countries where we use lifting tools. Our team can advise when certification is needed. For example, in South Korea certification is required for weights of 500 kg or more.

Working at height: This is a new area of expertise which was required during the design of our EXE:5000, our first EUV 0.55NA (High-NA) system to guarantee good access to the various areas.

Radiation: Main focus on lasers with intensities that go beyond standard. In addition, we consider the impacts of standard and special lamps and LEDs that we are using.

Dangerous goods: Prevent shipments being stopped due to requirements for transport and the importation of certain hazardous substances such as chemicals, magnets and batteries.

Safety in procedures: Support of creating written safety procedures for highly 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 don't use or introduce hazardous materials in our products.

Product safety in design

We seek to ensure all the products and tools we develop comply with the world's most stringent product safety regulations, and with legislation applicable to the countries where we do business. We focus on safety by design in hardware, followed by safety by procedure – prevention is key.

Safe products start with a well-thought-out design and with product safety requirements implemented right at the start of initial design. The first step to a human-safe design is to eliminate risk or 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 as much as possible. 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 any safety issues in the early stages of the design process. The SRA is evaluated throughout the entire product development process. We evaluate product safety at each subsequent stage of the product life cycle and track any reported product-related incidents – including supply chain incidents – through our incident-reporting system. We are proud to report that in 2022 there were no recordable incidents caused by our equipment.

Responsible business (continued)

Progress on EUV 0.55 NA (High-NA) safety aspects

EUV 0.55 NA (High-NA) is the latest ASML product on our EUV roadmap and is recognized as the next generation of EUV machines. The development of this system presented new challenges for product safety due to its size, weight of modules and accessibility. To support the design, we placed extra focus on ergonomics and working at height.

For example, our ergonomic experts use 3D simulations to enable people to practice various actions.

In addition, the new system features built-in service platforms and platforms which led to the new ‘working at height’ safety competence.

Due to the complexity of the system, the EU Safety Directives and semiconductor industry guidelines (SEMI S2) review was split, with a first design review followed by a second inspection of the hardware. During 2022, we began the SEMI S2 third-party safety design review.

Embedding product safety in the organization

In 2021, we established a Safety and Regulatory Office, tasked with tracking new legislation and standards and ensuring that our products are compliant with product safety rules and regulations. The Regulatory Board is responsible for decision-making on ASML product safety compliance as well as the strategy to eliminate non-compliance. It also monitors compliance status and drives risk mitigation. The Regulatory Board discusses possible non-compliance cases at its monthly meetings and takes decisions based on the mitigation plan presented.

Ensuring safety compliance

The products and tools we develop comply with the SEMI S2 to ensure product safety is taken into account at all times. These guidelines are incorporated in the Safety System Performance Specification (Safety SPS). We are SEMI S2-compliant for every product type shipped. In 2022, a report confirming this compliance was available for every product type we shipped. We also have a CE ('conformité européenne') declaration of conformity for all ASML products and tools.

Increasing product safety in our supply chain

Ensuring product safety does not end at our facilities – we also focus on product safety in the supply chain. A significant proportion of our innovation and development takes place at our suppliers’ sites. 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. Our goal is to ensure that our 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 or 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 structurally embedded across our organization. Policies, processes, guidelines and IT infrastructures 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 in order to enable us to take measures to ensure the safe handling, transport and storage of our products on time and with greater efficiency. As these activities are overseen by the safety and compliance organization, we are able to safeguard the active control of regulations and legislation impacting ASML products.

Materials and substance compliance

We are committed to complying with legislation and regulations in the markets where we operate. We follow the most stringent or leading regulations, currently but not limited to RoHS (Restriction of Hazardous Substances), 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 due to factors including: the increasing number of changes in the regulatory landscape; the number of unique parts used in our products (>50,000); an extensive global supply chain; the number of regulated substances we use (>100) we use. Activities during the course of 2022 include:

- A multi-disciplinary 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 Battery directive by taking part in the Semiconductor PFAS Consortium, working with our business partners and the supply chain, and establishing a working relationship with a well-respected firm of consultants.

Our approach to tax

ASML is committed to helping build a fairer and more sustainable society through social economic cohesion, sustainable growth and long-term prosperity. Taxation is a means to that end.

We consider the taxes that we pay to be a contribution to the communities in which we operate and an integral part of our responsibility for social value creation. Openness and transparency on how we operate and our approach to tax is important to us, which is supported by our business and ESG strategy.

€1.7bn

Income tax paid 2022
(>1.2bn in 2021)

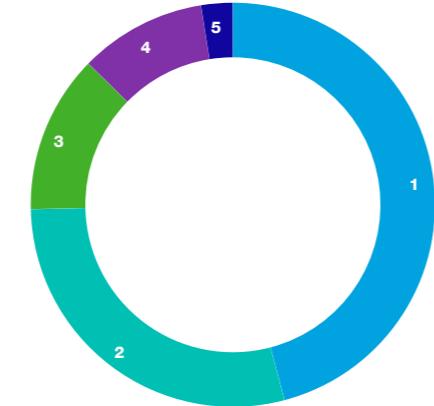
15.0%

Effective tax rate
2022
(15.2% in 2021)



Read more in:
['Approach to tax report' on www.asml.com](#)

Income tax paid in our five most significant countries of operation



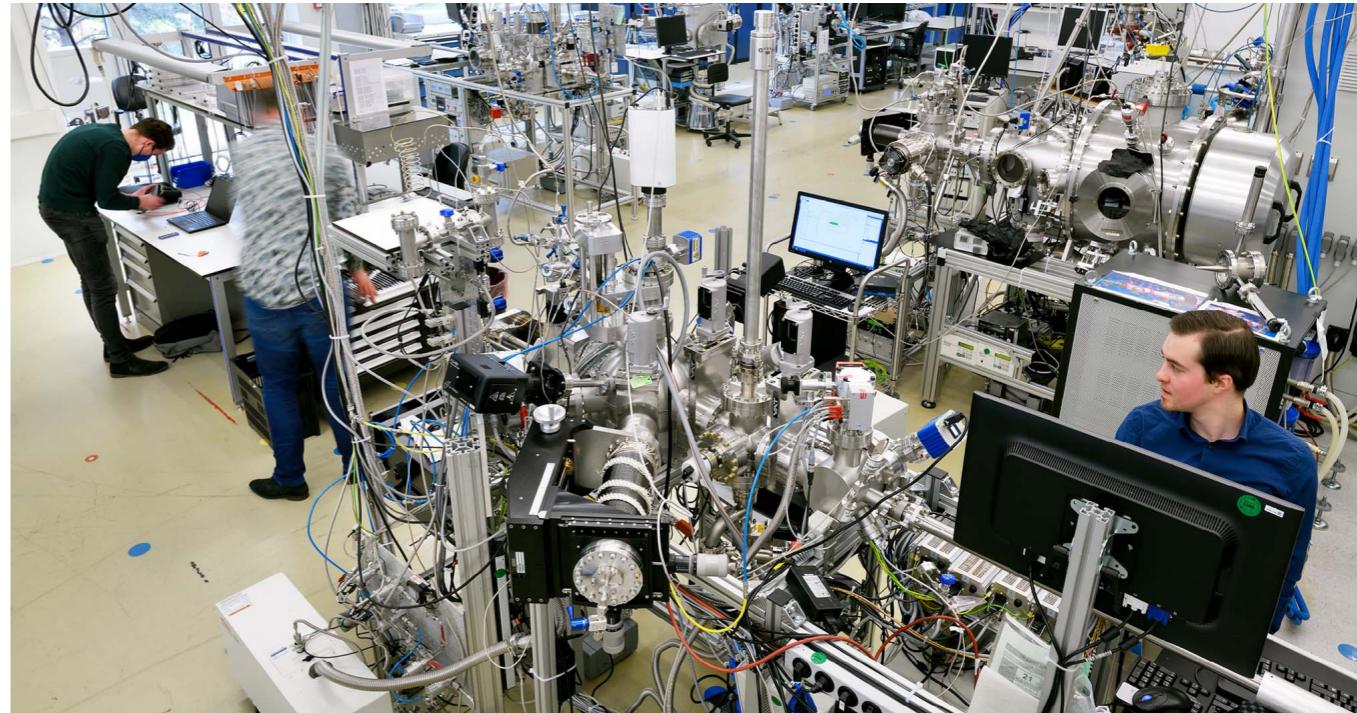
1. Netherlands	€757m
2. United States	€474m
3. Taiwan	€209m
4. South Korea	€167m
5. China	€42m

Last year we already took a significant step in our efforts to be more transparent on our tax affairs among others by sharing our tax principles and disclosing information about the five main countries in terms of business and tax footprint.

This year we have taken it a step further and made several improvements. We signed up to the VNO-NCW Tax Governance Code. This Tax Governance Code should lead to more transparency on the tax position of Dutch listed companies. In line with this Code, we have included country-by-country tax information in our tax report for all countries where ASML is established. We also have included an explanation of the activities in our five main countries as well as a brief explanation of the type and geographic scope of activities of our entities.

We will keep improving our transparency for tax matters. ASML's move to sign up to the VNO-NCW Tax Governance Code reflects this and answers to the call for companies to respond to shifting expectations from policymakers, NGOs and the general public.

Our leading principle is that our tax position is a reflection of our business operations, being the sale of lithography systems and related products and services, supported by our manufacturing and R&D activities. Since the start of the company, ASML has had a straightforward operating model, with our campus in Veldhoven, the Netherlands, at the heart of our global operations.



Our approach to tax (continued)

The following principles guide us in how we report and pay tax in the countries we operate in.

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.

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 the overall tax risk management apply to all group entities.



Our tax strategy is closely aligned to our business strategy and our sustainability goals."

Gaby Bes

Head of Tax & Customs

Our tax principles

Compliance

- We 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

1 Stakeholder management

Externally, with tax authorities and regulators, but also investor communication. Internally, in supporting our business in managing risks, being 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

This includes developments in ESG (including Tax Transparency) and Tax technology, whereby we closely monitor the developments in the outside world and continuously translate these into potential requirements or implications for ASML.

3 Compliance & Control

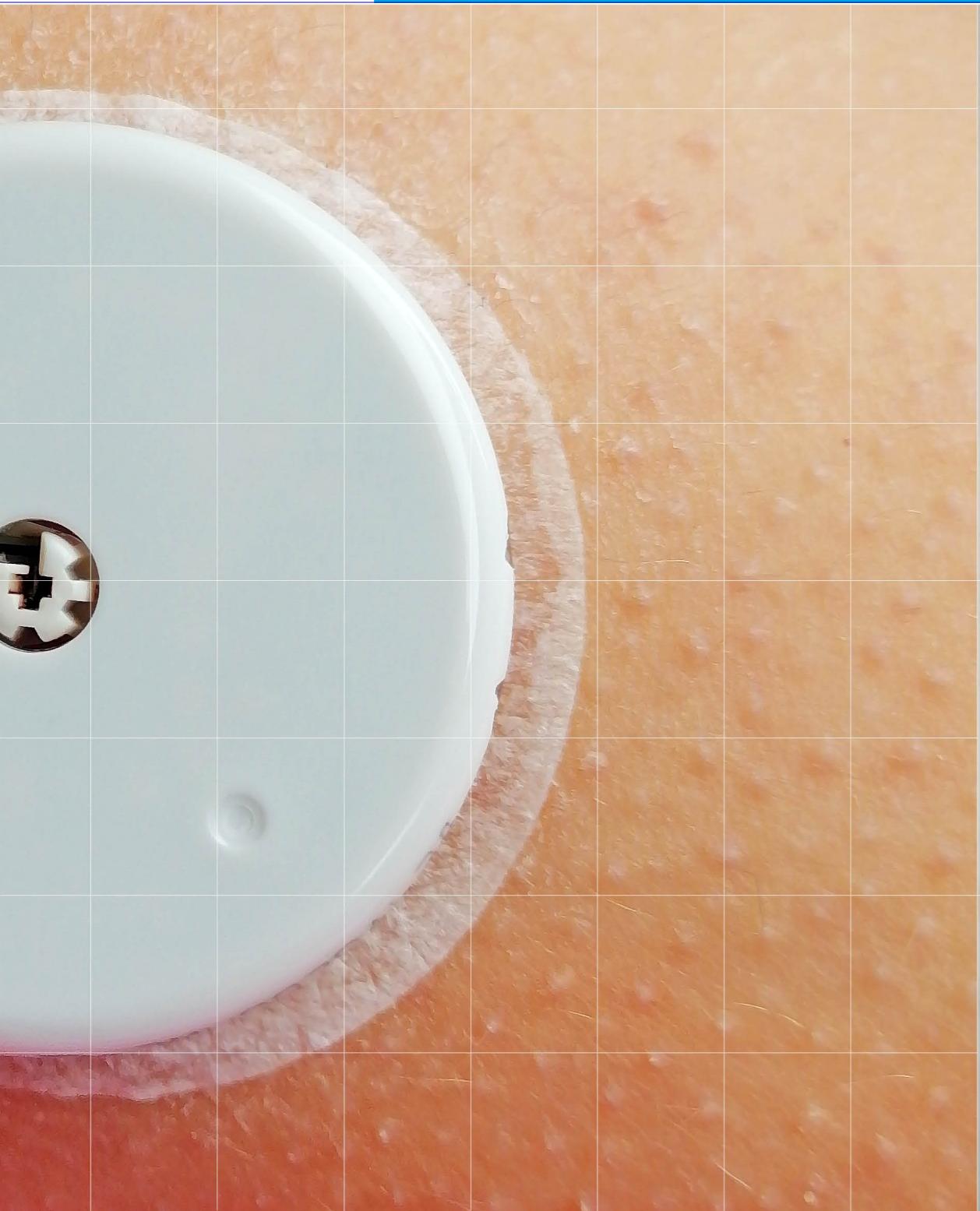
This includes the development, implementation and continuous monitoring of processes and controls for appropriate tax risk management and reporting purposes. Furthermore, this includes ensuring timely and accurate fulfillment of tax compliance obligations in line with applicable tax laws and regulations (incl. timely payment of taxes due).

4 Tax & Customs organization

In a fast-changing world, it is important to have a diverse team which can handle change and are more than just good tax and customs experts. Communication, digital and project management skills are becoming increasingly important. We strive to work together and develop each other in line with the ASML 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.



WEARABLE TECHNOLOGY

Ground-breaking tech, life-changing outcomes

Semiconductors are essential to a new range of wearable devices with the potential to transform medical care, particularly for our elderly populations. From smartwatches to fall detection services, nano-sensors can monitor patients' health and alert caregivers – while in conjunction with artificial intelligence, they can even predict conditions such as heart disease and cancer.

[Read more online](#)

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 Statement

In our Corporate Governance Statement we report on ASML's corporate governance structure and the way ASML applies the principles and best practices of the Dutch Corporate Governance Code.

[Read more on page 151](#)

- Governance structure
- Board of management
- Supervisory Board
- Board-related matters
- AGM and share capital
- Financial reporting and audit
- Compliance with governance requirements



Our strategy



Strengthen customer trust



Holistic lithography and applications



DUV competitiveness



EUV 0.33 NA for manufacturing



EUV 0.55 NA insertion

[Read more on page 31](#)

Our business model

[Read more on page 33](#)

Our stakeholders

[Read more on page 37](#)

Supervisory Board Report

This report outlines the activities of the Supervisory Board and its committees, as well as the key focus areas for 2022, including stakeholder engagement, issues relating to people and our supply chain, and the growing importance of ESG.

- Message from the Chair
- Supervisory Board
- Board focus in 2022
- 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 168](#)



Remuneration Report

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 the Remuneration Committee

[Read more on page 186](#)



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 N.V. 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.

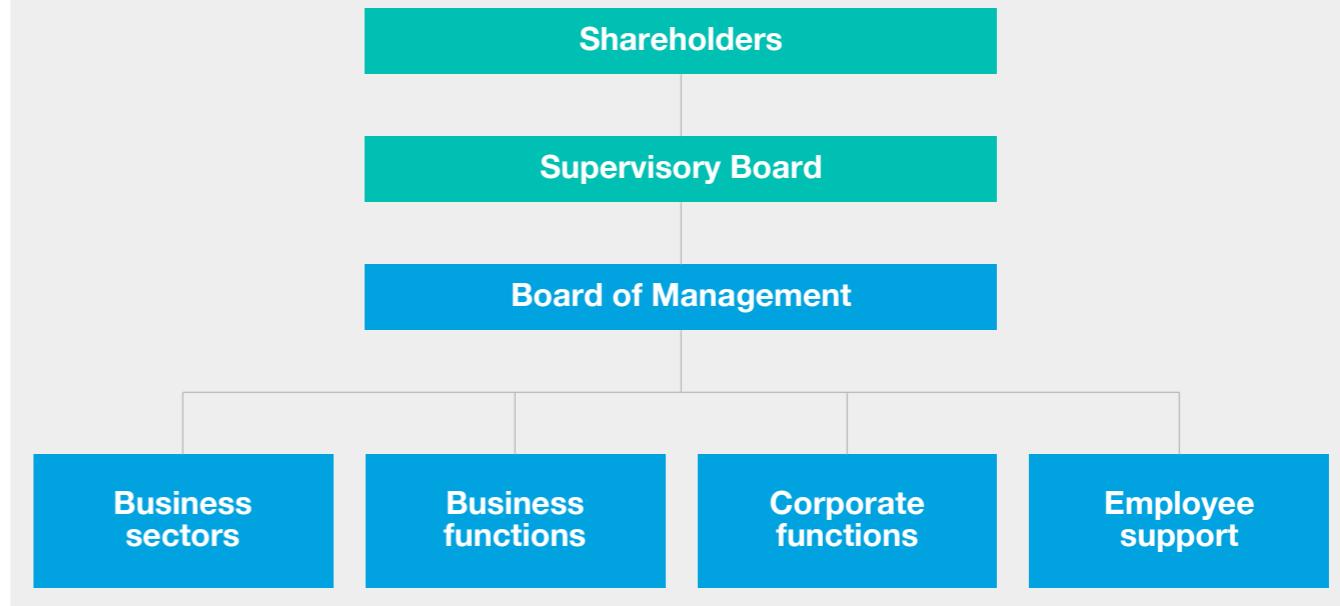
In accordance with the Dutch Corporate Governance Code (<https://www.mccg.nl/english>), other parts of this Annual Report address our strategy and culture aimed at long-term value creation, our values and Code of Conduct, as well as the main features of our internal control and risk management systems.

In February 2022, the Dutch Corporate Governance Code Monitoring Committee started a consultation process that has led to a revision of the Dutch Corporate Governance Code. The amended Dutch Corporate Governance Code was published on December 20, 2022, and for reporting purposes, applies to the financial years starting on or 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 Dutch corporate governance requirements, we are currently assessing the implications of the amended Code for our corporate governance structure.

Read more in:

[Our company](#),
[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 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 corporate social responsibility 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 our stakeholders.

The current Board of Management comprises five members. On October 19, 2022, the Supervisory Board announced its intention to expand the Board of Management to six members effective per the 2023 AGM, adding the Chief Strategic Sourcing & Procurement function as a Board of Management position, given the increased strategic importance of this function for ASML's strategy.

The Board of Management 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 the 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 chapter.



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 2022 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.

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 B.V. 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.

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, *inter alia*, ASML's corporate strategy aimed at long-term value creation and the execution thereof, 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 corporate social responsibility issues 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 2022 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 four committees: the Audit 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)



**Gerard J. Kleisterlee
(1946, Dutch)**

Member of the Supervisory Board since 2015
(Second term expires in 2023)

Chair of the Supervisory Board,
Chair of the Selection and Nomination Committee and member of the Technology Committee

Gerard Kleisterlee joined the Supervisory Board in 2015, and has been its Chair since 2016. He was President and CEO of the Board of Management of Royal Philips NV from 2001 until 2011, having worked at the company since 1974. He also served as a Supervisory Board member of the Dutch Central Bank from 2006 until 2012, as Non-Executive Director at Daimler AG from 2009 until 2014 and as Non-Executive Director at Dell from 2010 until 2013. From 2011 to 2022, Gerard was the Chairman of the Board of Vodafone Group Plc. From 2010 until May 2020, he was a Non-Executive Director of Royal Dutch Shell Plc. Currently, Gerard is an independent Board member at IBEX Limited.

**Antoinette (Annet) P. Aris
(1958, Dutch)**

Member of the Supervisory Board since 2015
(Third term expires in 2024)

Vice Chair of the Supervisory Board since 2021, Member of Remuneration Committee, Technology Committee and Selection and Nomination 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 and until December 2022 she was a Supervisory Board member at the Coöperatieve Rabobank UA. She 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 Remuneration Committee

Alexander Everke joined the Supervisory Board in 2022. He is the CEO of ams-OSRAM AG, a position he has held since March 2016, after having joined ams AG in October 2015. Prior to that, Mr. Everke held a range of positions in the semiconductor industry including management positions 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 held various management positions before being appointed as CEO. Furthermore, Mark was director at Freescale Semiconductor, MWI Veterinary Supply and Veoneer, Inc. Mark is a Non-Executive Director at Advanced Micro Devices, Inc., a member of the Board of AmerisourceBergen Corporation, 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)

Rolf-Dieter Schwalb (1952, German)

Member of the Supervisory Board since 2015
(Second term expires in 2023)

Chair of the Audit Committee and member of the Remuneration Committee

Rolf-Dieter Schwalb has been a member of the Supervisory Board since 2015. He was CFO and member of the Board of Management of Royal DSM N.V. from 2006 to 2014. Prior to that, he was CFO and member of the Executive Board of Beiersdorf AG. He also held a variety of management positions in Finance, IT and Internal Audit at Beiersdorf AG and Procter & Gamble Co.



D. Warren A. East (1961, British)

Member of the Supervisory Board since 2020
(First term expires in 2024)

Member of the Audit Committee

Warren East became a member of the Supervisory Board in 2020. 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. He then joined ARM Holdings, Plc, where he held various management positions and was appointed CEO from 2001 to 2013.



Birgit M. Conix (1965, Belgian)

Member of the Supervisory Board since 2021
(First term expires in 2025)

Member of the Audit Committee

Birgit Conix became a member of the Supervisory Board in 2021. Birgit 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. Prior to that, she was the CFO of the Belgian media, cable and telecommunications company Telenet Group N.V. Prior to that, she held various management positions in finance at Johnson & Johnson, Heineken, Tenneco and Reed Elsevier.



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 Chief Executive Officer 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.



An L. Steegen (1971, Belgian)

Member of the Supervisory Board since 2022
(First term expires in 2026)

Member of the Technology Committee

An Steegen joined the Supervisory Board in 2022. She is co-CEO and member of the Board of Directors of Barco N.V., 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 2021. 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. No 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

On August 6, 2021, the US Securities and Exchange Commission approved the NASDAQ Stock Market's proposal to amend its listing standards to encourage greater board diversity and to require board diversity disclosures for NASDAQ-listed companies. Pursuant to the amended listing standards, 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, 2022)

	Female	Male	Non-Binary	Did not Disclose
Part I: Gender Identity				
Directors	4 (2021: 3)	5 (2021: 5)	0 (2021: 0)	0 (2021: 0)
Part II: Demographic Background				
Underrepresented Individual in Home Country Jurisdiction	0 (2021: 0)	0 (2021: 0)	0 (2021: 0)	0 (2021: 0)
LGBTQI+	0 (2021: 0)	0 (2021: 0)	0 (2021: 0)	0 (2021: 0)
Did Not Disclose Demographic Background	0 (2021: 0)	0 (2021: 0)	0 (2021: 0)	0 (2021: 0)
Country of Principal Executive Offices				
Foreign Private Issuer	The Netherlands			
Disclosure Prohibited under Home Country Law	Yes			
Total Number of Supervisory Board members	9 (2021: 8)			

Other Board-related matters (continued)



We recognize the importance of diversity and inclusion.

Christophe Fouquet

Executive Vice President, Chief Business Officer and member of the Board of Management

On January 1, 2022, the 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. Also, the bill 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 will have 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.

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.

Currently, no seats are taken by women on the Board of Management. During 2022, the Supervisory Board 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 intended appointment of Wayne Allan as member of the Board of Management per the 2023 AGM, this would lead to a female representation of at least 17% based on the size of the Board of Management per the 2023 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 16% female. The Supervisory Board has also considered the female representation of the ASML group overall, which was 19% (December 31, 2022) and the female representation in senior leadership (JG 13+), which was 10% (December 31, 2022). Furthermore, during 2022 a target was set to reach a representation of women at senior management level of 12% by 2024, the current level being 10%. To make this gender target for senior management tangible, we also set a goal to increase the hiring and promotion of female leaders (JG 13+), from 12% in 2021 to 20% in 2024. The Supervisory Board also included performance metrics aimed at improving the representation of females in senior leadership in the Board of Management's long term incentive. During 2022, the Supervisory Board updated

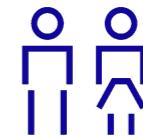
the Board of Management Diversity Policy, which can be found on our website.

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 diversity and inclusion roadmap focuses on three key areas within ASML: leadership, culture and talent.



12%

Target 2024
representation of women
at leadership level

To promote diversity and inclusion in our workforce, including our Board of Management and senior management, we are building and implementing programs that lead to measurable and actionable results. These programs include:

- Organizing internal training sessions for employees, managers and leaders globally
- Participating in national engineering conferences to broaden our talent pipeline to be more diverse and inclusive in all areas of demographics
- Collaborating with universities and organizations dedicated to building diversity and creating opportunities for professional development and engagement
- Executing global D&I engagement activities, such as International Women's Day, LGBTQIA+ Pride Month and Global Diversity Month
- Organizing D&I events with keynote speakers
- Supporting employee networks give back locally in their community through mentoring programs

Other Board-related matters (continued)

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.

In 2022, we made progress in gender diversity at all levels, including individual contributors and senior leaders. Female employees now make up 19% of our workforce worldwide, an improvement of one percentage point compared with last year. We aim to continue this upward trend as we move toward 2024.

To do this, we are focusing on the growth of our existing team members and expanding the diversity of our talent pool. We had set goals to increase the percentage of females among our new hires from 20% in 2021 to 23% by 2024. In 2022, 24% of new hires were females.

The current representation of women at leadership level is 10%, while our ambition is to reach 12% by 2024. To make this tangible, we had set a goal to increase the hiring and promotion of female leaders, from 12% in 2021 to 20% in 2024. In 2022, the % inflow of female leaders was 35%.

Due to the strong performance of our female inflow of new hires and recognizing that we want to continue this ambitious inflow, we have defined a 2025 target of 24% (which is at the same level as our 2022 performance, but higher than the original 2024 target of 23%).

This talented pool of female employees will be 'role models', paving a path for more to follow. We believe that promoting more 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.

Ensuring balanced gender representation has proven to be challenging in a technology environment such as the one ASML operates in. Overall, the global STEM (science, technology, engineering and math) talent pool is thinly populated and it is even more challenging to recruit female talent. Our R&D workforce is 16% female. Nearly 90% of our job positions are STEM-related, whereas peers in the high-tech industry have more non-STEM-related job positions. ASML is highly motivated to see more women pursuing careers in engineering and science now and in the future. The highly specialized nature of our industry means achieving this balance is a long-term process. We are actively engaged with multiple educational programs to grow the pipeline, deploy multiple initiatives to promote STEM education among the future female talent pool and continue to foster an environment where our current workforce can thrive.

Read more information on our diversity and inclusion strategy, initiatives, women in leadership and performance data in:
Social - Attractive workplace for all - Best employee experience and Non-financial statements - Non-financial indicators - Attractive workplace for all.

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 2022, 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 Chairperson 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 other 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 2022, all members of the Board of Management and the Supervisory Board complied with the requirements described above.

AGM and share capital



We highly value the interaction with our shareholders.”

Gerard Kleisterlee
Chair of the Supervisory Board

General Meeting

A General Meeting (AGM) is held at least once a year and generally takes place in Veldhoven, the Netherlands. In 2022, shareholders had the option to attend the 2022 AGM in person in Veldhoven or virtually. The agenda for the AGM typically includes the following topics:

- Discussion of the management report and the adoption of the financial statements over the past financial year;
- Discussion of the dividend policy and approval of any proposed dividends;
- Advisory vote on the Remuneration Report over the past financial year;
- 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;
- 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
- 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

In view of the ongoing COVID-19 pandemic, we organized a hybrid AGM in 2022, accommodating attendance in person as well as virtual attendance of the AGM by enabling shareholders to follow the proceedings of the meeting via video webcast and to vote electronically during the meeting. The opportunity to participate in the AGM in person or virtually was offered in addition to 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 Chairman 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; 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.

During the 2022 AGM, the Board of Management, with the approval of the Supervisory Board, proposed to the General Meeting to amend the Articles of Association. The amendments mainly related to reflecting various changes in applicable laws and regulations, simplifying the Articles of Association and applying amendments of a technical nature. The proposal was adopted by the General Meeting and the new Articles of Association became effective as per May 12, 2022. For more detailed information on the amendments to the Articles of Association, please see the 2022 AGM page on our website.

A brief summary of the most significant provisions of our Articles of Association is included as Exhibit 99.1 to our Form 6-K furnished to the SEC on February 8, 2013 (the ‘Articles of Association’), which is 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	2020	2021	2022
Issued ordinary shares with nominal value of €0.09	416,514,034	402,601,613	394,589,411
Issued ordinary treasury shares with nominal value of €0.09	2,983,454	3,873,663	8,548,631
Total issued ordinary shares with nominal value of €0.09	419,497,488	406,475,276	403,138,042

87,875,651 ordinary shares were held by 280 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 Transactions 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. Following the amended Articles of Association that were adopted by the General Meeting during the 2022 AGM, the capital structure changed. Due to these changes, we no longer have the ordinary share class B. With the removal of the ordinary share class B, 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. Currently, only one participating customer still holds (directly or indirectly) ordinary shares issued in the CCIP. Certain voting restrictions apply in respect of ordinary

shares issued in connection with the CCIP. These voting restrictions in respect of these ordinary shares are set out in the underlying agreement between ASML and the relevant customer. The shares issued in the CCIP were held by foundations which issued depository receipts to participants in the CCIP. A total of 96,566,077 depository receipts for ordinary shares were issued at the launch of the CCIP. This number has since decreased with the sell-down by the relevant customers following expiry of the lock-up.

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.

2022 authorization to issue shares

At our 2022 AGM, the Board of Management was authorized from April 29, 2022 through October 29, 2023, 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 29, 2022, plus an additional 5% of our issued share capital at April 29, 2022, that may be issued in connection with mergers, acquisitions and/or (strategic) alliances. Our shareholders also authorized the Board of Management through October 29, 2023, 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)

2022 authorization to repurchase shares

At the 2022 AGM, the Board of Management was authorized, subject to Supervisory Board approval, to repurchase through October 29, 2023, up to a maximum of 10% of our issued share capital at April 29, 2022, 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, 2022, 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, 2022. The information set out below with respect to shareholders is based on public filings with the SEC and AFM as of February 8, 2023.

	Shares	% of Class ⁶
Capital Research and Management Company ¹	40,615,837	10.29 %
BlackRock Inc. ²	32,539,755	8.25 %
T. Rowe Price Group, Inc. ³	13,527,385	3.43 %
Members of ASML's current Board of Management (5 persons) ^{4,5}	89,892	0.02 %

1. 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.

2. Based solely on the Schedule 13-G/A filed by BlackRock Inc. with the SEC on March 11, 2022; BlackRock reports voting power with respect to 29,277,159 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.

3. A public filing with the AFM on November 8, 2022 shows T. Rowe Price Group, Inc. indirectly holding 13,527,385 shares (comprising common shares and new york shares) and 13,098,195 votes, representing a capital interest of 3.33% and a voting interest of 3.22%, based on the total number of issued shares and voting rights at that time.

4. Does not include unvested shares granted to members of the Board of Management. For further information, see Leadership and governance – Remuneration Report.

5. No shares are owned by members of the Supervisory Board.

6. As a percentage of the total number of ordinary shares issued and outstanding, 394,589,411 as of December 31, 2022, which excludes 8,548,631 ordinary shares which have been issued but are held in treasury 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



ASML publishes, among others, the following annual reports regarding the financial year 2022:

- The statutory Annual Report, prepared in accordance with the requirements of Dutch law. The financial statements included therein are prepared in accordance with Part 9 of Book 2 of the Dutch Civil Code and EU-IFRS; and
- The Annual Report on Form 20-F, prepared in accordance with the requirements of the Exchange Act. The financial statements included therein are prepared in conformity with US GAAP.

The image shows a scanned document of the SEC Form 6-K filing by ASML Holding N.V. The document is titled "SECURITIES AND EXCHANGE COMMISSION Washington, D.C. 20549" and "FORM 6-K". It is a "REPORT OF FOREIGN PRIVATE ISSUER PURSUANT TO RULE 13a-16 OR 15d-16 OF THE SECURITIES EXCHANGE ACT OF 1934". The filer is "ASML Holding N.V." and the filing date is "July 29, 2022". The document includes a signature page for "De Raat, Arie S. 5964 DR. Veldhoven The Netherlands" and a note about checkmarks for Form 20-F or Form 8-K.

Both reports have the same qualitative base and describe the same risk factors that are specific to the semiconductor industry, ASML and ASML's shares. We also provide sensitivity analyses by providing:

- A narrative explanation of ASML's financial statements;
- The context within which financial information should be analyzed; and
- Information about the quality, and variability, of our earnings and cash flow.

ASML annually prepares two sets of annual reports including financial statements as set out on this page. With respect to the process of creating the Annual Report, we have extensive guidelines for the content and layout of our report. These guidelines are primarily based on the applicable laws and regulations referred to above. With respect to the preparation process of these and the other financial reports, we apply internal procedures to safeguard the completeness and accuracy of such information as part of its disclosure controls and procedures. The Disclosure Committee assists the Board of Management in overseeing ASML's disclosure activities and ensures compliance with applicable disclosure requirements arising under Dutch and US law, and other regulatory requirements. These internal procedures are frequently discussed by the Audit Committee and the Supervisory Board.

For ASML's internal risk management and control systems read more in:
Risk - How we manage risk - Enterprise Risk Management.

The Supervisory Board has reviewed and approved, and all Supervisory Board members signed, ASML's 2022 financial statements as prepared by the Board of Management. KPMG has duly examined our financial statements, and the Auditor's Report is included in the Consolidated Financial Statements.

External Audit

In accordance with Dutch law, our external auditor is appointed by the General Meeting, based on a nomination for appointment by the Supervisory Board. The Supervisory Board bases its nomination on the advice from the Audit Committee and the Board of Management, who annually provide a report to the Supervisory Board on the performance of and relationship with the external auditor, as well as its independence. ASML's current external auditor, KPMG, was first appointed by the General Meeting in 2015 for the reporting year 2016, and has been reappointed on a yearly basis since then. At the 2022 AGM, KPMG was appointed as the external auditor for the reporting years 2023 and 2024.

On April 29, 2022, ASML announced the Supervisory Board's decision to nominate PricewaterhouseCoopers Accountants NV (PwC) as its external auditor for the reporting year 2025. The formal appointment of PwC will be submitted for voting at ASML's 2023 AGM.

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 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 the Board of Management. 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.

Compliance with Corporate Governance requirements

Corporate information

ASML Holding N.V. 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.

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.

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 2022.

The Board of Management and the Supervisory Board,
Veldhoven, February 15, 2023

Message from the Chair of the Supervisory Board

Another record performance, in challenging circumstances

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.



“

The Supervisory Board is confident that the full order book – supported by the skills and passion of our outstanding teams – lays a firm foundation for the months and years ahead.”

Gerard Kleisterlee
Chair of the Supervisory Board

Dear Stakeholder,

Despite geopolitical turmoil, high inflation and massive supply chain issues, 2022 has been another record year for our company. Driven by continuing strong demand for microchips, we currently enjoy the fullest order book in our history – and we are in a very good position to achieve further growth in the years to come.

As a supervisory Board we are of course very pleased with these achievements that only could be realized thanks to our highly engaged workforce that always went the extra mile required. We are satisfied, but not complacent. The high market demand, especially for DUV, took us by surprise and our systems and supply chain issues did not allow us to meet all our customer requirements.

In order to maintain our success we are working hard to prepare for the future. Below, I outline some of the key areas that we focused on during 2022.

Reviewing our capacity plans

The last 12 months again saw unprecedented demand for semiconductors, both in mature as well as leading edge technology, resulting in the fullest order book in our history. This against a backdrop of a declining global economic growth, driven by geopolitical tensions – including the war in Ukraine as well as legacy issues associated with COVID-19 - with resulting high inflation and the desire for (regional) technological sovereignty.

In this highly volatile and uncertain environment the Supervisory Board dedicated several of its sessions to discuss different long term market development scenarios and agree with management the plans for structural capacity expansion both at ASML and in our supply chain with the required flexibility to cope with market volatility.

The Supervisory Board also discussed in detail with management the actions required to meet the short term demand of our customers. Although we could not supply all that we were asked to deliver, we ensured that our teams did everything possible to help our customers continue to meet the demands of their customers. For example, our fast shipments initiative reduced throughput time and increased output by having some final testing and formal acceptance carried out on customer sites instead of at our own facilities.

Organizing for continued growth

Reviewing our priorities for continued growth, we confirmed that our current core business presents by far the biggest opportunity. This requires a further strengthening of our partnerships with certain key suppliers, where we are making good progress. In addition, we see interesting opportunities in adjacent holistic lithography markets that we will further explore.

We strive to foster a unified culture at ASML based on our values of challenge, collaborate and care. Making the impossible possible and always trying to reach the cutting edge of what is technically doable are core characteristics of our company. However, ASML's rapid growth presents significant challenges for our way of working, our people and our managerial capacity and capabilities.

Message from the Chair of the Supervisory Board (continued)

We have grown from a small-to-medium-sized company, operating in one location and relying on a handful of people to oversee the entire organization, to a global multinational business. Such expansion requires a different approach and new structures, so organizational and people development have been top priorities for the Supervisory Board. Projects have been agreed to renew and strengthen both our Customer Management as well as our Supply Chain Management.

In addition, as a Supervisory Board, we maintained a strong focus on Management development and succession planning. We are working hard together with the Board of Management to identify and develop the talent we need to ensure that we have qualified successors both in middle- and senior-management to deliver continued growth and meet market demands for cutting edge lithography solutions.

Emphasizing the importance of ESG

Environment, Social and Governance (ESG) matters are increasingly important to us and all our stakeholders. With us and all our stakeholders, from customers and our investors to our people and local communities, there is a growing awareness of the role that all businesses must play in society.

The Supervisory Board has spent considerable time evaluating and discussing the company's ESG strategy and is fully supportive of the decisions that management has made.

Energy efficiency, climate action, a circular economy, water management and product safety are key commitments from an environmental perspective. At the same time, our management is working hard to ensure that ASML is an attractive workplace for all and a valued partner in our communities, while supporting the innovation ecosystem and the supply chain. Overarching our Environmental and Social initiatives is a firm commitment to the highest standards of Governance.

Engaging with our stakeholders

The Supervisory Board continued to visit customers and suppliers during the year in order to learn more about the challenges they face and build engagement at the highest level. We visited Intel, one of our major customers, where we engaged with their senior team to further improve our customer focus, and Zeiss, the supply partner for all our optics, to explore how we could make the supply chain more robust and resilient.

Our visits to internal functions including the 5L Warehouse project and the High NA factory gave us a good insights into the expertise we have at ASML and delivered valuable learnings on further improvement required. I We also visited one of our key technology partners, the Advanced Research Center for Nanolithography (ARCNL), where we were impressed by their depth of technical capability.

In addition a delegation of the Supervisory Board regularly meets with the Works Council in order to better understand the needs and concerns of our people. Although our thoughts are usually closely aligned with those of the Works Council, we ensure that we engage directly with them to provide a clear communications channel to the feelings of people across our organization.

Also Members of the Supervisory Board regularly meet with institutional investors. For instance, the Chair of our Remuneration Committee frequently engages with major investors to ensure that the Remuneration Policy is closely aligned with their expectations.

Looking ahead

The Supervisory Board is confident that the full order book – supported by the skills and passion of our outstanding teams – lays a firm foundation for the months and years ahead. While geopolitical matters, likely mild recession and the aftermath of COVID-19 will continue to hamper efforts to ensure the supply chain runs smoothly, ASML is well placed to achieve another excellent performance in 2023.

At the 2023 AGM, Rolf-Dieter Schwalb and I will step down after having served on ASML's Supervisory Board for eight years. On behalf of the Supervisory Board I would like to express gratitude to Rolf-Dieter for his important contribution to the Supervisory Board, especially as Chairman of the Audit Committee and previously also as Chairman of the Remuneration Committee.

During our 8 years on the Board, we were part of a fantastic journey that saw ASML grow with the breakthrough of EUV from a 6 billion revenue company in 2014 to a 21 billion Company in 2022, driven by absolute customer focus, technological prowess and an unbelievably strong “can do” mentality. The journey will continue under our successors. For us it was a pleasure and a privilege to serve.

To close, on behalf of the whole Supervisory Board I would once again like to thank every member of our 39,086-strong team for their hard work and sheer enthusiasm throughout 2022. You made it happen!

Gerard Kleisterlee
Chair of the Supervisory Board

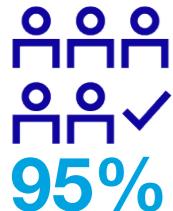
Supervisory Board focus in 2022



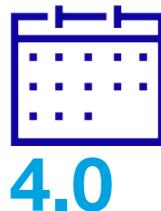
Supervisory Board meetings (2021: 6)



Female members (2021: 38%)



Attendance rate (2021: 98%)



Years average tenure (2021: 3.9)

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 2022.

We are pleased to see that 2022 was another record year for ASML in terms of turnover, cash flow and profitability. It was a challenging year as well, since demand for our products continued to outweigh our output possibilities. The company has therefore been working very hard to ramp up capacity. We recognize that the strong growth of ASML leads to challenges in the area of people and organizational development. Furthermore, the geopolitical situation is a sincere factor of risk and uncertainty. However, with a record order book and a clear strategy for growth, we believe that ASML is well positioned to continue to provide its customers with leading, cost-effective patterning solutions that drive the advancement of microchips.

Supervisory Board focus in 2022

Throughout 2022, 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 long-term value creation

During 2022, the Supervisory Board devoted a considerable amount of time 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 EUV, DUV and Applications. The Supervisory Board fully supports ASML's strategy, which continues to be centered around the five pillars: strengthen customer trust, holistic lithography and applications, DUV competitiveness, EUV 0.33 NA for manufacturing and EUV 0.55 NA (High-NA) insertion. With the strong demand for ASML's products in combination with the company's 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.

As part of the annual strategy review, we held dedicated workshops focused on ASML's value strategy and data strategy. An in-depth review was performed of the short-, medium- and long-term market developments in the semiconductor industry and the related capacity ramp-up required to meet our customers' demands. Another session was focused on long-term organic and in-organic growth opportunities. 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.

Deep dive

Market developments and ASML capacity



The Supervisory Board discussed with the Board of Management the short-, medium- and long-term market developments in the semiconductor industry and the related capacity ramp-up required to meet our customers' demands. Key areas of Supervisory Board attention were the various demand drivers and their impact on overall demand, potential demand volatilities and the consequences of increasing demand in terms of capacity (ASML infrastructure and FTEs, supply chain). The challenges and risks related to the capacity ramp-up were also a key focus area for the Supervisory Board.

Supervisory Board focus in 2022 (continued)



Alongside the annual strategy review, the Supervisory Board addressed strategic topics throughout the year via deep dives, which enabled focused, in-depth review.”

Gerard Kleisterlee

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 2022. Furthermore, the Supervisory Board monitored the execution of the 2021-2023 share buyback program, which was completed on October 18, 2022. The Supervisory Board also discussed and approved the 2022-2025 share buyback program, which was announced on November 10, 2022.

A special Audit Committee meeting was held, in which also the majority of the full Supervisory Board was also present, to discuss the messaging around the 2022 Capital Markets Day. During this meeting, our updated market outlook and financial model were extensively reviewed and discussed.

As a Supervisory Board, we are pleased with the financial performance of the Company and we are confident that ASML is well positioned to continue to deliver long-term growth and stakeholder value in a sustainable manner.

Business developments

In 2022, we witnessed continued increase of wafer demand at both advanced and mature nodes driven by global megatrends in the electronics industry as well as countries pushing for technological sovereignty in a complex geopolitical context. This surging demand came with challenges both in our own operations and in our supply chain. The Supervisory Board closely monitored the developments in this regard and saw management address these challenges 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 the ever-wider adoption of ASML's EUV 0.33 NA scanner platform in high-volume manufacturing, and growing commitment to the next-generation EUV 0.55 NA (High-NA) platform, where great progress has been made by the teams working on this program.

Deep dive

Growth



Growth is a central theme that touches on many aspects of ASML. For this reason, growth has also been top of mind for the Supervisory Board during 2022. We discussed with the Board of Management the challenges resulting from our growth in various areas, including how to grow our customer trust and performance, our people and organization, our output capability, and our innovation, and also how to grow sustainably. On all of these themes we held open dialogues in which the Supervisory Board challenged and advised the Board of Management, not only on how to deal with the current growth ASML is going through, but on how to organize for the future expected growth towards 2030.

People and organization

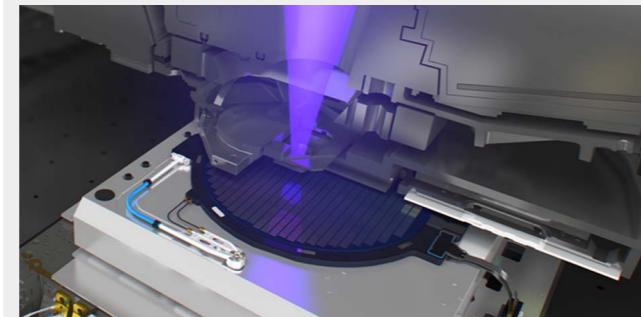
Given the significant growth of ASML in recent years, the topics of people and organization continued to be key areas of focus for the Supervisory Board in 2022, as we believe that these are of critical importance for the future success of ASML. On several occasions, we were provided with updates on Human Resources and Organization. Topics covered included the ASML progress made on the ASML leadership program, the results of the annual employee engagement survey and the Diversity & Inclusion strategy and progress made. 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. Also, internal and external perspectives on ASML's culture were discussed. We also extensively discussed the organizational setup of ASML in the context of current and future growth. As a result of this discussion, the Supervisory Board decided to position the role of the Executive Vice President and Chief Strategic Sourcing & Procurement Officer in the Board of Management, as announced by press release on October 19, 2022. 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.

Supervisory Board focus in 2022 (continued)

Furthermore, as a Supervisory Board, we find it important that business processes are fit for growth. We therefore oversaw various transformation programs such as 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, ASML's program dedicated to securing configuration integrity over the life cycle of our customer offerings while enhancing the business processes and maintaining flexibility, 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 2022, 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 include in the Board of Management's incentive scheme metrics directly linked to ESG Sustainability strategy, with an increased weighting.

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. We paid particular attention to the challenges created by the strong increase in demand for ASML's products across the entire product portfolio, which impacts multiple risks in ASML's risk landscape. We also focused on the risk related to rapid growth of the organization. During the year, specific risk areas were reviewed in deep dive sessions. These included the physical and IT security risk, the risk related to the ability to deliver according to plan and political risks in light of the global trade situation.

Read more in:

[Risk - How we manage risk.](#)

Relationship with stakeholders

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 Board of Management remuneration. More information can be found in the Remuneration Report.

A Supervisory Board delegation held two formal meetings with the Works Council in 2022. 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 2022 and 2023 AGMs. The Works Council and Supervisory Board also extensively discussed the 2022 Remuneration Policy for the Board of Management; more information on the interactions with the Works Council on the topic of executive remuneration can be found in the Remuneration Report.

In November 2022, the Supervisory Board paid a visit to one of our key customers, Intel. The Supervisory Board met with Intel's management and visited the Intel facility in Hillsboro, Oregon, US. Topics of discussion included market outlook, Intel's technology roadmap and how ASML can support it, and the relationship between the two companies. For the Supervisory Board, such visits are highly valuable because it increases our understanding of our customers and the challenges they face.

Supervisory Board focus in 2022 (continued)

Additional topics

Other topics considered during Supervisory Board meetings in 2022 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 list on the right.

Overview of the year

Q1

- 2021 Annual Results and Annual Report
- 2021 external audit report
- Final dividend 2021
- Remuneration Board of Management and Supervisory Board
- Risk Management including deep dive: ability to deliver according to plan
- ESG strategy, including deep dives on EUV energy efficiency and Diversity & Inclusion
- Expansions beyond current scope and M&A strategy
- Outcome of Supervisory Board evaluation
- Composition of Supervisory Board
- Composition of Board of Management
- Remuneration Policy for the Board of Management
- Amendment to the Rules of Procedure Board of Management and Supervisory Board
- Amendment of the Articles of Association
- External auditor rotation
- Legal matters report
- AGM agenda

Q2

- Strategy deep dive: Future operating model
- Strategy deep dive: Tool allocation policy
- Strategy deep dive: Scenarios to ramp the end-to-end supply chain including industrial footprint
- Market outlook and demand drivers
- Update on business sectors: EUV, DUV, Applications
- AGM update

Q3

- 2022 statutory interim report
- Cash return including dividend policy and interim dividend
- Visit to ASML new logistics warehouse (5L)
- HR&O update
- Risk management: Update risk landscape & deep dive: Security
- Strategy deep dive: 2023-2027 litho demand and consequences for ASML capacity
- Business Performance Improvement initiative including update on Our New Enterprise program
- Revision to insider trading rules

Q4

- Annual strategy review
- Long-term financial plan and Annual Plan 2023
- Update of business plans of the business sectors and functions
- Cash return including interim dividend and share buyback program
- Strategy deep dive: Expansion beyond current scope
- Strategy deep dive: Value strategy
- Strategy deep dive: Data
- Transformation projects related to sourcing & supply chain, Customer and operating model
- Capital Markets Day messaging
- Composition of Supervisory Board
- Composition of Board of Management
- HR&O, including deep dives on Diversity & Inclusion and Culture
- Customer deep dive: Intel
- Intel visit

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 Chairman, one or more of its members, or the Board of Management requests a meeting.

In 2022, the Supervisory Board held seven meetings. Of these meetings, three were held virtually and four were held in person. Three in-person meetings were held at ASML's headquarters, one was held offsite in the Netherlands and one was held in the USA. 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 far 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 2022. 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 get 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

While most Supervisory Board and Committee meetings of 2022 were held in person, the Supervisory Board also met virtually on some occasions. Using the experience gained from virtual meetings during the COVID-19 pandemic, the Supervisory Board continued to apply a number of solutions developed to benefit the discussion in the meetings, such as organizing break-out sessions in smaller groups to optimize interaction. We also used video for meeting preparation and provided written meeting documents, in order to allow as much time as possible for discussion. The Supervisory Board members provided positive feedback about applying these solutions in the annual evaluation.

Supervisory Board meeting attendance overview



Name	Supervisory Board	Audit Committee	Remuneration Committee	Selection and Nomination Committee	Technology Committee
Gerard Kleisterlee (Chair)	7/7	7/7	n/a	6/6	5/5
Annet Aris	6/7	n/a	4/4	6/6	5/5
Birgit Conix	6/7	6/7	n/a	n/a	n/a
Mark Durcan	7/7	n/a	n/a	6/6	5/5
Warren East	6/7	5/7	n/a	n/a	n/a
Alexander Everke ¹	4/4	n/a	3/3	n/a	n/a
Terri Kelly	7/7	n/a	4/4	6/6	n/a
Rolf-Dieter Schwalb	7/7	7/7	4/4	n/a	n/a
An Steegen ²	4/4	n/a	n/a	n/a	1/2
Hans Stork ³	3/3	n/a	1/1	n/a	3/3

1. Appointed at the AGM on April 29, 2022; also appointed as member of the Remuneration Committee.

2. Appointed at the AGM on April 29, 2022; also appointed as member of the Technology Committee.

3. Stepped down per the AGM on April 29, 2022.

Meetings and attendance (continued)

Composition, training and evaluation

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, 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 matrix

	Gerard Kleisterlee (Chair)	Annet Aris	Birgit Conix	Mark Durcan	Warren East	Alexander Everke	Terri Kelly	Rolf-Dieter Schwalb	An Steegen
General skills									
Executive board member of (listed) international company	✓		✓	✓	✓	✓	✓	✓	✓
Finance/governance	✓	✓	✓		✓	✓		✓	
Remuneration	✓	✓		✓	✓	✓	✓	✓	
Human resources/employee relations	✓	✓	✓	✓	✓	✓	✓	✓	✓
IT/digital/cyber	✓	✓	✓	✓	✓		✓	✓	
ESG	✓	✓	✓	✓	✓	✓	✓		✓
ASML-specific skills									
Semiconductor ecosystem	✓	✓		✓	✓	✓		✓	
Deep understanding of semiconductor technology	✓	✓		✓		✓		✓	
High-tech manufacturing/integrated supply chain management	✓	✓		✓		✓	✓	✓	
Business in Asia	✓		✓	✓	✓	✓	✓	✓	✓

For further information and background on the members of the Supervisory Board, including details on nationality, gender and age, please see the

[Supervisory Board members' information in Corporate Governance - Supervisory Board.](#)

Changes in composition in 2022

When his term of appointment expired, Hans Stork did not stand for re-election and stepped down from the Supervisory Board at the 2022 AGM, after 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 two candidates, Mr. Alexander Everke and Ms. An Steegen, for appointment at the 2022 AGM. The nomination for the appointment of An Steegen was based on the enhanced recommendation right of the Works Council of ASML Netherlands B.V. The General Meeting resolved to appoint Alexander Everke and An Steegen for a term of four years effective from the date of the 2022 AGM. As a result, the Supervisory Board consists of nine members following the 2022 AGM.

Changes in composition in 2023

At the 2022 AGM, the Supervisory Board gave notice that the appointment terms of Gerard Kleisterlee and Rolf-Dieter Schwalb would expire per the 2023 AGM.

Gerard Kleisterlee and Rolf-Dieter Schwalb have informed the Supervisory Board that they will not stand for re-election and will retire at the 2023 AGM, upon completion of their current term. The Supervisory Board extends its thanks to Gerard Kleisterlee and Rolf-Dieter Schwalb for their valuable contribution over the past eight years, during which the Supervisory Board has greatly benefited from their knowledge and experience.

Meetings and attendance (continued)

On November 23, 2022, the Supervisory Board announced that it intends to nominate Nils Andersen and Jack de Kreij as members of the Supervisory Board effective from the 2023 AGM, with the intention to elect Nils Andersen as Chair of the Supervisory Board and Jack De Kreij as Chair of the Audit Committee following their appointment. Furthermore, Nils Andersen is intended to be elected as the Chair of the Selection and Nomination Committee. Jack de Kreij is intended to be elected as a member of the Remuneration Committee upon appointment. Both candidate Supervisory Board members have been present at the Supervisory Board meetings as observers as of Q4 2022 in order to ensure a smooth onboarding.

The agenda and explanatory notes for the 2023 AGM will contain further information about the intended nominations for appointment of these two 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 lines, sectors and corporate departments. A site visit and factory tour is also part of the induction program. On joining the Supervisory Board, Alexander Everke and An Steegen completed an induction program, which was partly virtual and partly in person. Nils Andersen and Jack de Kreij will also complete their induction program prior to their appointment.

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 2022, strategy and risk deep dives were held on a variety of topics: see the Our Activities 2022 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. The Supervisory Board also performed site visits. We visited the 5L logistics center at ASML's headquarters, where we saw the process of the new logistics center first hand and were impressed by the achievements made. Visits were also paid to ASML's office in Hillsboro, Oregon, US, where the Supervisory Board met with local management and employees, as well as to Intel, one of our key customers. The Technology Committee visited the Advanced Research Center for Nanolithography (ARCNL) to see how ARCNL works and cooperates with ASML as well as see the ARCNL facilities in Amsterdam at first hand.

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 Chairman and individual Supervisory Board members.

The 2022 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 Chairman 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. A specific focus was the follow-up of prior-year recommendations. 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 2023. The conclusion was that the Supervisory Board and its committees continue to function well. Suggestions to further improve the functioning of the Supervisory Board will be implemented in 2023. These suggestions include further developing the open and constructive dialogue with the Board of Management on strategic topics and emerging risks, and increasing the focus on key priorities identified by the Supervisory Board. Other recommendations relate to continuous enhancement of the oversight on stakeholders, in particular customers and suppliers, and

to increase the understanding of the ecosystem beyond our direct stakeholders. Obtaining outside-in perspectives, where relevant, was another recommendation resulting from the evaluation. Opportunities for improving the focus and concision of meeting materials were also identified, for instance by including executive summaries highlighting the key discussion items. The Supervisory Board furthermore decided performing an in-depth analysis of its profile in 2023 and investigating the establishment of an ESG Sustainability Committee in view of corporate governance developments.

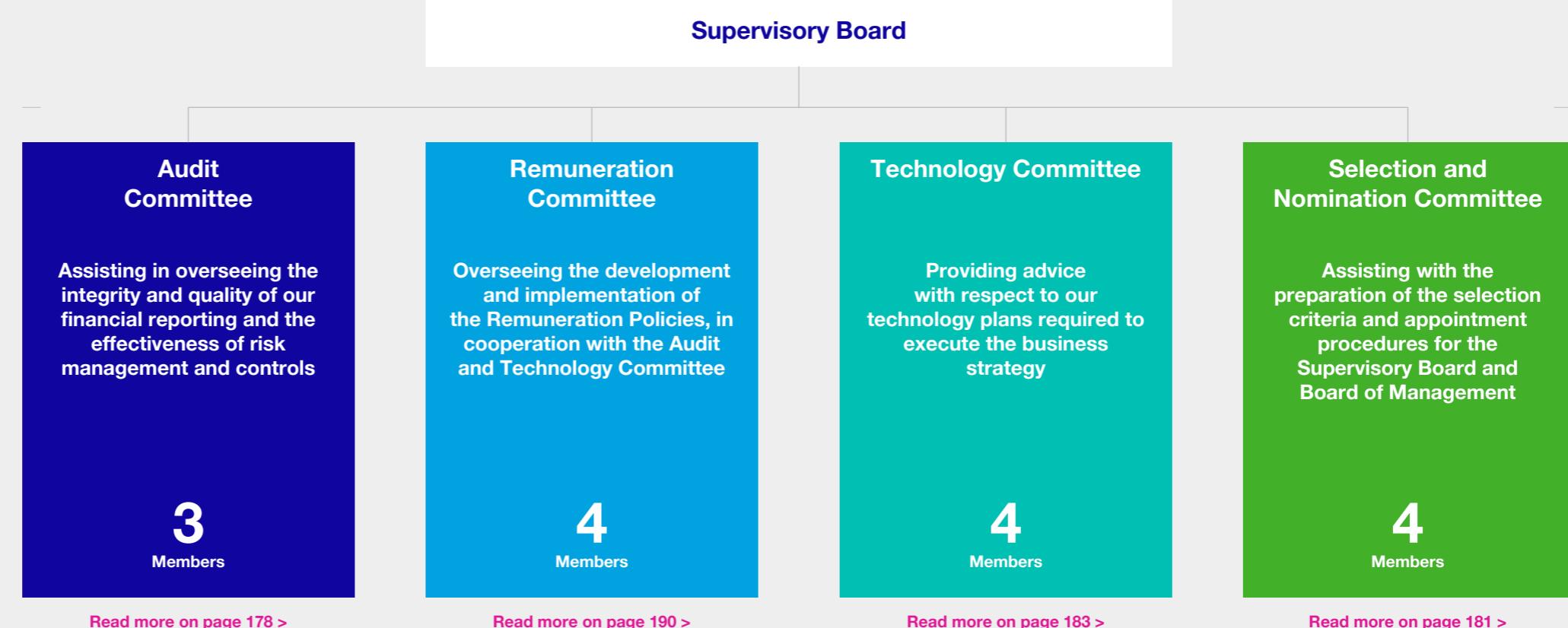
The Board of Management also conducted a self-evaluation in 2022, focusing on the role, responsibilities and functioning of the Board of Management collectively, and on the functioning of the individual Board of Management members. This self-evaluation was performed in a number of offsite Board of Management meetings dedicated to this topic. 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 organization. Also in 2023, special Board of Management sessions will be held to continue the discussion and follow up on the observations made. 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 four standing committees, with members appointed by the Supervisory Board from among its members. The full Supervisory Board remains responsible for all decisions, even if prepared and taken by one of the Supervisory Board's Committees.

The four committees of the Supervisory Board support the decision-making by the full Board. In the plenary Supervisory Board meetings, the chairpersons 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 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.



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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:

- Rolf-Dieter Schwab (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 Mr. Schwab and Ms. 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.

Main responsibilities:

- Overseeing the integrity and quality of ASML's financial statements and related non-financial disclosure and submitting proposals to ensure such integrity;
- Overseeing the accounting and financial 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 reporting;
- Overseeing the External Auditor's qualifications, independence, performance and determining its compensation; and
- Overseeing the functioning of Internal Audit.

In Q4 2022, the Audit Committee performed an accounting deep dive into ESG reporting requirements.

Recurring agenda topics (quarterly)

- Financial update and financing
- Review of the quarterly financial results and press release
- Accounting update
- Internal control update
- Observations of External Auditor
- Risk and Internal Audit update
- Disclosure Committee report
- Legal matters report
- Ethics and compliance

Attendance

In addition to the Audit Committee members, the Chairman 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 2022. 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 2022, in addition to the recurring agenda topics.

Q1

- 2021 Annual Report and financial statements US GAAP and EU-IFRS
- Accounting deep dive: Balance sheet review
- 2021 External audit report
- Annual reporting process
- Cash return: Final dividend 2021
- Fraud-risk assessment
- Results of the external auditor evaluation 2021
- Results of the Audit Committee self-evaluation
- Annual plans of Risk and Internal Audit
- External auditor rotation

Q2

- Approval of external audit plan 2022
- Expense reporting for Board of Management and Supervisory Board 2021
- Security, including IT security
- External auditor rotation

Q3

- Statutory Interim report 2022
- Financing, capital allocation and dividend policy
- Quarterly interim dividend proposal and share buyback program
- Compliance deep dive: Finance
- Finance and IT transformation program

Q4

- Cash return including Q4 2022 interim dividend proposal and share buyback program
- Capital Markets Day messaging
- 2022 Annual Report process
- Long-term financial plan
- Annual Plan 2023
- Accounting deep dive: ESG reporting requirements including CSRD
- Annual tax update
- External audit update
- Review of Rules of Procedure for the Audit Committee

Supervisory Board committees (continued)

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 2022

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 2022, the Audit Committee held seven meetings.

Financials

In 2022, the Audit Committee focused, among other things, 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, for instance emerging ESG reporting requirements. 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. ASML's financing and cash return policies were reviewed in detail, in particular the change in dividend policy enabling quarterly dividend payments, the execution of the 2021-2023 share buyback program and the new share buyback program for 2022-2025 as announced on November 10, 2022.

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 proposed final dividend payment in respect of the 2021 financial year and the interim dividends for the financial year 2022, which were approved by the Supervisory Board following recommendation by the Audit Committee. The Audit Committee also extensively discussed the revised dividend policy that provides for dividend payments on a quarterly basis. The revised dividend policy was announced in July 2022.

Risk management and internal control

Throughout 2022, 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. 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.

Emerging risks and risk deep dives

In 2022, we performed an in-depth review of emerging risks as a result of ASML's growth and ramp-up to meet customer demand, given its potential impact on several risk categories in the risk landscape. We looked in detail into the risks impacted and the mitigating actions identified by management. We paid special attention to the process effectiveness and efficiency risk, with a focus on support processes, not only in view of the challenges related to the significant growth, but also considering the different business models for ASML's products, the IT and process landscape.

Furthermore, a deep dive review of the key risks and developments related to physical and IT security was performed paying specific attention to the progress of risk mitigation actions and the further development of ASML's security capabilities.

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 2022, we also discussed ASML's Compliance Program, including an in-depth review of finance compliance. Furthermore, an annual update on fraud and fraud risk management was provided.

Supervisory Board committees (continued)

Internal audit

The Audit Committee reviewed the annual internal audit plan, including the scope of the audit at the start of 2022. 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

The Audit Committee reviewed the 2022 external audit plan, including scoping, materiality level and fees. It monitored the progress of the external audit activities, including review of the observations made in the quarterly procedures and the audits performed at year end. The Audit Committee oversaw the follow-up by the Board of Management on the control deficiencies reported by the external auditor in their periodic internal control update. The Audit Committee confirms that the communication over the 2022 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 2022, including a review of their independence. During the 2022 AGM, KPMG was appointed as the external auditor for the reporting years 2023 and 2024.

Due to the fact that the current lead audit partner, for independence reasons, can only stay 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 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 second-tier audit firm, 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 needed to withdraw the nomination of Deloitte after being 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. We intend to submit the proposal to appoint PwC for the reporting year 2025 for voting at ASML's 2023 AGM.

Other topics

Other topics discussed by the Audit Committee in 2022, included ASML's tax planning, the Finance and IT transformation program, ESG reporting requirements 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)

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:

- Gerard Kleisterlee (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.

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.

In 2022, the Selection and Nomination Committee nominated Nils Andersen and Jack de Kreij for appointment as Supervisory Board members per the 2023 AGM.

Recurring agenda topics

- Role, composition and functioning of the Board of Management
- Role, composition and functioning of the Supervisory Board
- Corporate governance

The overview below provides details on the topics discussed during Selection and Nomination Committee meetings in 2022.

H1

- Composition of Board of Management, including diversity aspects & requirements and succession pipeline
- Reappointment of Board of Management members
- 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
- Amendment of Articles of Association
- Outcome of evaluation of Supervisory Board and committees
- Performance of the Board of Management and individual members

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.

H2

- Composition of Board of Management, including diversity aspects & requirements, and succession pipeline
- Intended appointment of Wayne Allan as member of the Board of Management per the 2023 AGM
- Profile and composition of Supervisory Board
- Nomination for appointment of Nils Andersen and Jack de Kreij as Supervisory Board members per the 2023 AGM
- Evaluation of the Supervisory Board and committees including follow-up on the recommendations of the Supervisory Board evaluation and approach to the 2022 evaluation

Supervisory Board committees (continued)

Composition, role and responsibilities of the Board of Management

In 2022, 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 2022 AGM, Peter Wennink, Martin van den Brink, Roger Dassen, Christophe Fouquet and Frédéric Schneider-Maunoury were reappointed as members of the Board of Management. Peter Wennink and Martin van Den Brink were reappointed for a term of two years. Roger Dassen, Christophe Fouquet and Frédéric Schneider-Maunoury were appointed for four-year terms. On October 19, we announced the intention to appoint Wayne Allan, EVP and Chief Strategic Sourcing & Procurement Officer, as member of the Board of Management effective per the 2023 AGM. With this appointment, the Board of Management will be expanded to six members. The rationale behind this intended appointment is the increased strategic importance of the Strategic Sourcing & Procurement Officer function for ASML's strategy.

The Selection and Nomination Committee and the Supervisory Board are continuously discussing the succession planning with respect to the Board of Management.

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. This discussion resulted among other things in a decision to increase the number of Supervisory Board members to nine effective from the 2022 AGM. The rationale behind this extension is that the Supervisory Board considered it desirable to add an additional member with a background and experience in semiconductor technology and the semiconductor industry. This was seen as particularly important given the growth of ASML in size and complexity as well as in view of the Supervisory Board's rotation schedule. 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 nomination for appointment of successors to Gerard Kleisterlee and Rolf-Dieter Schwalb, who will retire during the 2023 AGM after having served eight years on our Supervisory Board.

Read more in:
[Supervisory Board report - Meetings and attendance - Composition.](#)

Changes to Supervisory Board Committees in 2022

The Selection and Nomination Committee also discussed the composition of the Supervisory Board committees in light of the retirement of Hans Stork and the appointment of An Steegen and Alexander Everke. Several changes in the composition of the Supervisory Board Committees took effect per the 2022 AGM. Alexander Everke became a member of the Remuneration Committee upon the retirement of Hans Stork. In the Technology Committee, Hans Stork was succeeded by An Steegen.

Read more in:
[Supervisory Board report - Meetings and attendance - Composition.](#)

At the end of 2022 and early 2023, 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, among other things, the amendments of the Articles of Association and the Rules of Procedure for the Board of Management and the Supervisory Board. In addition, the Selection and Nomination Committee discussed developments with regard to the Dutch gender diversity bill that came into effect on January 1, 2022, and its impact on ASML. The Committee also discussed the amendment of the Dutch Corporate Governance Code as well as 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
- Gerard Kleisterlee
- 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.

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)

- Product roadmap
- Progress Technology Leadership Index

Technology Committee meetings in 2022

In general, the Technology Committee meets at least twice a year and more frequently when deemed necessary. In 2022, 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 2022.

Q1

- Business line review: Applications
- Technology target setting for 2022

Q2

- Review of the Development & Engineering department
- Visit to Advanced Research Center for Nanolithography in Amsterdam, the Netherlands

Q3

- Business line review: EUV (including High-NA)
- Next EUV

Q4

- Roadmap in Logic and Memory
- Business line review: DUV

In Q2 2022, the Technology Committee visited the Advanced Research Center for Nanolithography in Amsterdam, the Netherlands.

Supervisory Board committees (continued)

Review of technology programs

As in previous years, the Technology Committee's primary focus in 2022 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 the Applications business line. The Technology Committee was presented with a recap of the achievements in 2021 and was informed about the roadmap toward 2027, 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 department 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. The meeting took place at the Advanced Research Center for Nanolithography (ARCNL) in Amsterdam. In addition to a presentation on how ARCNL works and cooperates with ASML, the Technology Committee was provided with a tour of through the ARCNL facilities in Amsterdam.

The primary focus of the meeting in Q3 was the achievements and challenges in EUV 0.33 NA and EUV 0.55 NA (High-NA), including an extensive discussion about the biggest risks and opportunities for EUV 0.33 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 informed about the interest and engagement of customers in High-NA, the customer insertion roadmap and node requirements and how supply chain challenges are managed. In addition, the Technology Committee was presented with input regarding the possibilities and the landscape beyond EUV 0.55 NA (High-NA).

In Q4, the Technology Committee invited imec to provide its view on the long-term device roadmap for both Logic and Memory, and this was followed by a detailed discussion of the impact of the device roadmap on the lithography roadmap. In addition, the Technology Committee discussed the developments and achievements in DUV. In addition to the product roadmaps and the technology programs, the Technology Committee was informed about the product strategy and the service strategy. Furthermore, the Committee paid attention to the Mature Products & Services business line and the related challenges and opportunities.

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 2022, as prepared by the Board of Management, have been audited by KPMG Accountants N.V. All members of the Board of Management and the Supervisory Board have signed these financial statements.

We recommend to shareholders that they adopt the 2022 financial statements. We also recommend that our shareholders adopt the Board of Management's proposal to make a final dividend payment of €1.69 per ordinary share. Together with the interim dividends paid in respect of the 2022 financial year, which add up to €4.11 per ordinary share, this leads to a total dividend of €5.80 per ordinary share for the year 2022.

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,
Gerard Kleisterlee, Chair
Annet Aris, Vice Chair
Birgit Conix
Mark Durcan
Warren East
Alexander Everke
Terri Kelly
Rolf-Dieter Schwalb
An Steegen

Veldhoven, February 15, 2023



Remuneration Report

A fair and balanced remuneration is our main priority, and this year we have looked to increase the level of transparency around how we reward management in order to attract the right talent.



Overall, starting from high standards, ASML's leadership set ambitious targets and was able to resolve and respond to many challenges."

Terri Kelly

Chair of the Remuneration Committee



Message from the Chair of the Remuneration Committee

Dear Stakeholder,

On behalf of the Remuneration Committee, I am pleased to present the 2022 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 2022.

From a personal perspective, my first full year as Chair has been challenging but highly enjoyable. Throughout, I have really appreciated the support I have received from both internal and external stakeholders. The Committee worked hard to engage with as many stakeholders as possible during the year. We built a sound understanding of the major issues around remuneration, particularly those around disclosure and incentives, and this enabled us to prepare a fair and balanced Remuneration Policy.

Broad support

These are early days during which we are closely monitoring the impact of the new policy to ensure that it has the desired effects. Our initial engagements with shareholders and shareholder representatives revealed that they were generally supportive. In particular, they were appreciative of the increased disclosure and of the ways in which the Supervisory Board proposed to address sensitivities around the higher pay levels.

However, some shareholders expressed concerns regarding our ability to attract and retain the right talent, given senior executive pay packages at ASML versus those at companies with which we compete in the global race for talent. Furthermore, some shareholders have raised questions around the level of ambition of the performance metrics in the long-term incentive (LTI), notably Relative Total Shareholder Return and employee engagement. We amended the threshold level for the employee engagement target following this feedback.

In addition, while the Works Council acknowledged the recruitment challenges we face and was positive about the Remuneration Policy for the Board of Management in many respects, it did have reservations regarding some matters including the short-term incentive (STI) – for example, the Works Council was concerned that internal factors such as process efficiency and employee well-being were not explicitly considered in the STI and that there were no explicit criteria regarding internal and societal fairness. Throughout 2022, the Remuneration Committee and the Works Council continued to engage constructively about these topics.

Message from the Chair of the Remuneration Committee (continued)

An eventful year, a strong team

The last 12 months have seen ASML continue to go from strength to strength, supported by a wonderful team of people who have again come together in uncertain times and done what is best for our company and for our customers.

A key factor that motivates our people across ASML is the opportunity to engage in meaningful work and make an impact. In an increasingly digital world, the work carried out at ASML is ultimately enabling innovative businesses to transform the way in which we all live by bringing new opportunities in areas from healthcare to agriculture, interconnectivity to climate change.

Nevertheless, fair and balanced remuneration must always be the top priority for our Remuneration Committee, and throughout the year we have continued to engage with stakeholders, not only ahead of the presentation of the new ASML Remuneration Policy at the 2022 AGM, but in the many months since.

During my time as Chair, I am committed to ensuring that engagement and collaboration continue to be the hallmarks of the ASML Remuneration Committee.

Changes to the Remuneration Committee

At the 2022 AGM, Hans Stork stepped down from the Remuneration Committee and the Supervisory Board, and I would like to thank him for his contribution over the past years.

We are delighted that Alexander Everke became a member of the Remuneration Committee after the 2022 AGM. It is important that the composition of the Remuneration Committee maintains a proper balance that drives a deep and broad understanding of ASML's business environment. Alexander brings with him valuable and extensive skills from a business and operational perspective. We have already benefited from his experience and input and look forward to continuing to work closely with him in the future.

Decisions made in 2022: Our new Remuneration Policy

In the first quarter of 2022, we finalized our review of the Remuneration Policy for the Board of Management. The Remuneration Committee and Supervisory Board concluded that it was appropriate to amend the Remuneration Policy for the Board of Management, as the last major revision took place in 2017 with only minor revisions having been made to compensation levels – primarily associated with the Short Term Incentive and Long Term Incentive plans. Since 2017, ASML has grown significantly and the context in which we operate has changed. The revised Remuneration Policy for the Board of Management was submitted to the 2022 AGM and was adopted with 93.18% support.

During our review, we took the opportunity to explore current market practice, stakeholder views and societal trends and expectations, as well as developments in corporate governance. We also asked our Board of Management members to share their views on the proposed amendments.

The main changes are outlined in the 2022 Remuneration Policy changes in the section Board of Management remuneration.

Transparency around remuneration

The Remuneration Report for the financial year 2021 was submitted to the 2022 AGM for an advisory vote. 84.59% of the votes were cast in favor. As part of our efforts to further improve transparency, we have added the ex-ante disclosure of the STI metrics for 2023 and the ex-ante disclosure of the LTI metrics and target levels for the 2023-2025 performance period. We have also continued to disclose the actual achievement levels. An exception is made in the case of sensitive information where disclosure is not in the interests of ASML or our shareholders.

Outlook

The development of an appropriate Remuneration Policy is an evolutionary process, and during 2022 the Remuneration Committee continued to evaluate both the Remuneration Policy itself and the changing landscape in which ASML operates. Our focus remains on ensuring that we have the right incentive measures in place and that we use the right metrics. Only then will we be able to drive the right behaviors and the correct outcomes.

This process will continue over the coming year. We have a degree of flexibility in the Remuneration Policy for the Board of Management to align the metrics with what is important to drive strategy, as well as an improved ability to make that vital connection between remuneration and strategy. We have made good strides toward being more transparent and are committed to making further changes to enhance transparency where practicable.

We will also continue to engage with all our stakeholders as well as with external advisers in 2023, ensuring that our decisions take account of best practice, stakeholder views and the wider societal perspectives on executive remuneration. In addition, we will continue to engage with the members of the Board of Management to gather their views on remuneration.

Finally, I would like to thank my fellow Remuneration Committee members for their support during the last year. Together, we have put in place a Remuneration Policy for the Board of Management that I believe will serve us well for the period to come. In the year ahead, we will work hard to continue this ongoing process.

Terri Kelly
Chair of the Remuneration Committee

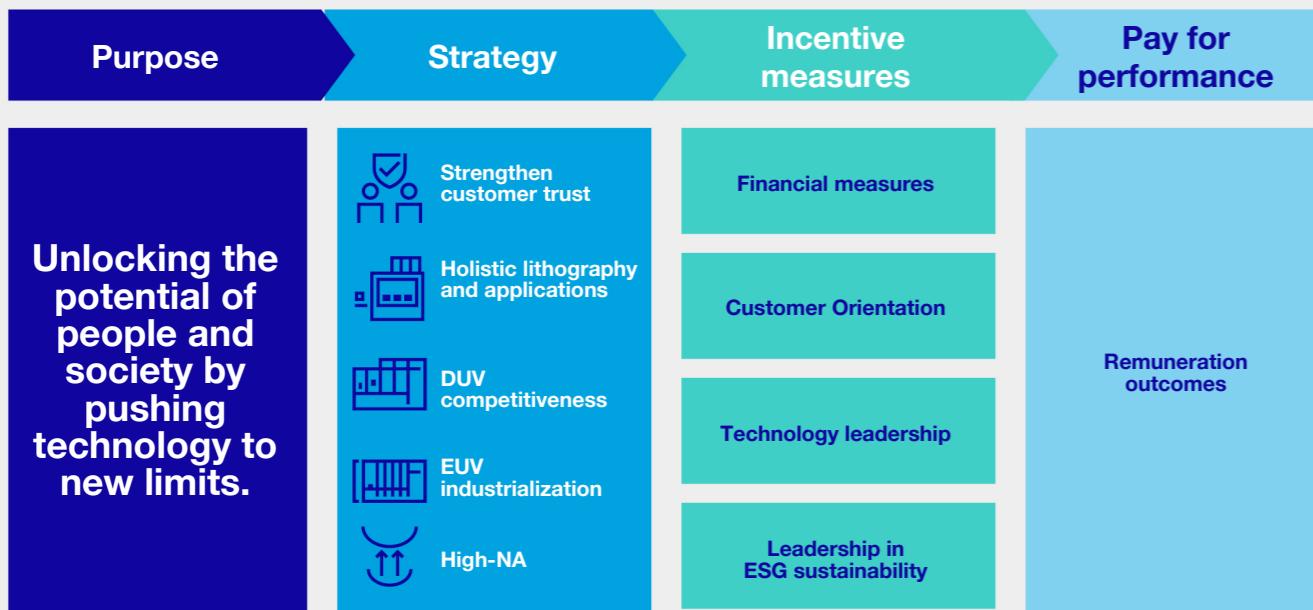
Remuneration at a glance

Remuneration is an essential tool to motivate and retain the right talent to continue to develop our technology.

Our remuneration principles for 2022 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 2022

Financial (based on US GAAP)

€21.2bn Total sales (2021: €18.6bn)	€10.7bn Gross profit (2021: €9.8bn)	€6.5bn Income from operations (2021: €6.8bn)	8.1 Technology Leadership Index score (2021: 8.0)
€8.5bn Net cash provided by operating activities (2021: €10.8bn)	€14.14 Earning per share (2021: €14.36)	48.2% ROAIC (Non-GAAP measure) ¹ (2021: 34.2%)	10.8% Dow Jones Sustainability Index (2021: 12.1%)

1. The ROAIC (Non-GAAP measure) is based on a three-year 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, Short Term Investments, Current liabilities and Long-term 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.

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.

€17.0m
Total remuneration

99.1%
Achieved of STI target

182.2%
Achieved of LTI target

34:1
CEO vs. average per FTE
(based on US GAAP)



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
- Rolf-Dieter Schwalb

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.

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.

The Committee will continue to monitor the Board of Management's performance and make recommendations around compensation levels.

Recurring agenda topics (quarterly)

- Remuneration of the Board of Management
- Remuneration of the Supervisory Board
- Update on performance on targets for short- and long-term incentives

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 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 2022.

Q1

- Short Term Incentive Plan: Performance 2021, pay-out 2021 and targets 2022
- Long Term Incentive Plan: share vesting performance period 2019-2021, and conditional grant and targets performance period 2022-2024
- Remuneration Report 2021
- Self-evaluation of Remuneration Committee
- Board of Management Remuneration Policy review including stakeholder outreach
- Compliance with share ownership requirements

Q2

- No meetings

Q3

- Progress STI and LTI targets and metrics
- Customer Orientation metric
- Latest trends in policies and reporting
- Report on interaction with the Works Council
- Board of Management remuneration 2023, including selection of STI and LTI metrics

Q4

- Progress STI and LTI targets
- Board of Management remuneration 2023, including selection of STI and LTI metrics
- Benchmark on Supervisory Board remuneration
- Update on corporate governance developments: remuneration
- Engagement of external auditor for agreed-upon procedures on remuneration
- Draft Remuneration Report 2022
- Compliance Board of Management members with share ownership guideline
- Share planning AGM period 2023-2024

Remuneration Committee (continued)

Remuneration of the Board of Management

In Q1 2022, the Remuneration Committee finalized its fundamental review of the Remuneration Policy for the Board of Management. During this process, the Remuneration Committee was supported by an external remuneration adviser. Before proposing to amend the Remuneration Policy for the Board of Management to the General Meeting, the Remuneration Committee consulted extensively with shareholders, shareholder representatives and other stakeholders, including the Works Council of ASML Netherlands B.V. For more information about the stakeholder feedback, reference is made to the 2022 AGM page on our website.

On April 29, 2022, the Supervisory Board, upon recommendation of the Remuneration Committee, proposed to the General Meeting to amend the Remuneration Policy for the Board of Management. The amended policy was adopted at the 2022 AGM. A summary of the main changes compared with the previous Remuneration Policy is included in this Remuneration Report.

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 2022 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 2022 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 and the Technology Committee.

At the end of 2022 we performed a light review of Board of Management remuneration levels. Since the 2022 STI and LTI at-target levels were below the maximum at-target levels allowed by the 2022 Remuneration Policy, the RC wanted to determine if an increase of these at-target levels for 2023 was desirable. The outcome of this review is that the Supervisory Board decided to increase the at-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 increase will be from 160% to 170%.

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 also prepared the Remuneration Report, which details the remuneration of members of the Supervisory Board and the Board of Management.

Increased transparency around remuneration

In our engagements with stakeholders during 2022, we received valuable feedback on the Remuneration Report, in particular on further improving transparency around remuneration. We have taken this feedback into consideration, and as a result, we have implemented several changes in the 2022 Remuneration Report. For example, we now include ex-ante disclosures of the selected STI metrics and of the selected LTI metrics and target levels (where this is not contrary to the strategic and/or commercial interests of ASML).

The Remuneration Committee engaged the external auditor to perform certain agreed-upon procedures regarding the reported performance by the Board of Management on the Short Term Incentive Plan 2022 and Long Term Incentive Plan for performance period 2020-2022.

Remuneration of the Supervisory Board

The current Remuneration Policy for the Supervisory Board was adopted by the General Meeting at the 2021 AGM. In 2022, the Remuneration Committee discussed the latest trends in policies and reporting and performed the recurring bi-annual benchmark of Supervisory Board remuneration. Based on the outcome of this review, we intend to submit a proposal for implementing some adjustments to the Remuneration Policy for the Supervisory Board at the 2023 AGM. The proposal will be set out in the convocation notice for the 2023 AGM, which will be published in March 2023.

The Remuneration Committee also reviewed the Remuneration Report, which details the remuneration of the members of the Supervisory Board.

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 2022. 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 is also taken into account when formulating the various elements of the policy. While revising 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 B.V. We received a high level of support for the revised Remuneration Policy at the 2022 AGM, with 93.18% of votes in favor. The Works Council was asked to provide advice on the proposed amended Remuneration Policy. The Works Council took the position that it did not fully support the proposed amendment and had some serious concerns. The Works Council and a delegation of the Supervisory Board

continued the dialogue on this topic throughout the course of 2022. A detailed overview of the stakeholder feedback is published on ASML's website (asml.com/agm2022). In line with the Dutch Corporate Governance Code, the members of the Board of Management have been asked to share their views on the proposed amendments of their own 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 and 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, 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.

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		

Board of Management remuneration (continued)

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 an STI. A capped LTI is added to the TCC, 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 2022 is disclosed in the table 'Total remuneration Board of Management'.

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 N.V., 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). For 2022, the target STI levels were lower, namely 95% for the presidents and 90% for the other members of the Board of Management, aligned with a positioning in the reference group slightly below the median (in terms of size) at the time of designing the Remuneration Policy, and applying a gradual transition into the new policy levels. For the same reason, the target LTI level for 2022 was 160% of base salary for all members of the Board of Management.

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 have been conducted.

The following table represents the variable pay as percentage of base salary for the Board of Management in the case of on-target performance.

Maximum variable compensation (on-target)	Market reference	Variable pay as % of base salary (maximum)	2022 Variable pay as % of base salary (on-target)
Short-term incentive	Determined based on ASML's relative position in the reference group capped at 50th percentile	Presidents: 120% Other members: 100%	Presidents: 95% Other members: 90%
Long-term incentive	Maximum on-target LTI is capped at 200% of base salary	200.0 %	160.0 %
Total		Presidents: 320% Other members: 300%	Presidents: 255% Other members: 250%

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
- 2022 target STI: 95% of base salary for the presidents and 90% 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
2022 target LTI: 160% of base salary

The weight of the individual LTI performance metrics is as follows:

- 30% Relative TSR
- 20-30% ESG measures; 2022 weight: 20%
- 20-30% Technology Leadership Index; 2022 weight: 20%
- 20-30% Strategic value drivers; 2022 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)

2022 Remuneration Policy changes

Remuneration benchmarking		Performance measures		
Reference group	2021 policy	2022 policy	2021 policy	2022 policy
	<ul style="list-style-type: none"> – Consisting of similar-sized European companies from various industry sectors 	<ul style="list-style-type: none"> – Consisting of 20 most relevant technology and R&D orientated companies, including ASML's competitors and business peers and (indirect) customers – Composition of companies in reference group takes into account ASML's geographic location – it's weighted toward European companies (75% weighting), with some US companies (25% weighting) 	<p>STI</p> <ul style="list-style-type: none"> The weight of the individual performance metrics: – 60% Financial – 20% Technology Leadership Index – 20% Market Position 	<p>STI</p> <ul style="list-style-type: none"> The weight of the individual performance metrics: – 60% Financial – 20% Technology Leadership Index – 20% Customer Orientation
Incentive levels			LTI	
STI	<p>2021 policy</p> <ul style="list-style-type: none"> – Target: 80% base salary (presidents and other BoM members) 	<p>2022 policy</p> <ul style="list-style-type: none"> – Phased increase from 80% of base salary to 120% of base salary for presidents and 100% for the other BoM members 	<p>LTI</p> <ul style="list-style-type: none"> – Threshold pay-out at -20% versus the PHLX index – (Threshold pay-out as 50% of target) 	<p>LTI</p> <ul style="list-style-type: none"> The weight of the individual performance metrics: – 40% ROAIC – 30% Relative TSR – 20% Technology Leadership Index – 10% Sustainability
LTI	<ul style="list-style-type: none"> – Target: 120% base salary (presidents and other BoM members) 	<ul style="list-style-type: none"> – Phased increase from 120% of base salary to 200% of base salary for presidents and other BoM members 		

Board of Management remuneration (continued)

Remuneration of Board of Management in 2022

The remuneration of the Board of Management for the financial year 2022 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 2022 contributed to the objectives of the 2022 Remuneration Policy for the Board of Management and, as a result, to ASML's strategy aimed at long-term value creation. Scenario analyses of the possible outcomes of the variable remuneration components and their effect on the remuneration of the Board of Management have been conducted.

Base Salary

The base salaries of the members of the Board of Management were set at the beginning of 2022. The Supervisory Board decided not to apply a base salary increase for 2022 compared with 2021 levels, as the base salary was considered competitive compared with the reference group. For 2022 base salary levels, reference is made to the section Total remuneration Board of Management.

Short-term incentive 2022

The financial and non-financial target levels for the STI were set at the beginning of the 2022 financial year in accordance with the 2022 Remuneration Policy for the Board of Management and taking into account the annual plan (forecast) for 2022. The rationale for amending the Remuneration Policy of the Board of Management including replacement of certain STI metrics is included in the 2022 Remuneration Policy for the Board of Management of ASML Holding N.V.

For the STI, the Supervisory Board selected the financial performance metric below, taking into consideration ASML's business challenges and circumstances in 2022:

- EBIT Margin %, measuring Income from operations as percentage of Total net sales

In addition, the following non-financial performance metrics applied for the STI in 2022:

- 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 segments of the Applications market where ASML faces intense competition; DUV output in terms of systems, in light of the 2022 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 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 2022 consisted of a list of 18 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.

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 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.

Board of Management remuneration (continued)

	Performance targets ¹				Actual outcome	Pay-out ²
	Weight	Threshold	Target	Stretch		
EBIT Margin (%) (Non-GAAP measure)	60%	33%	35%	37%	34.5 %	88.1 %
Customer Orientation	20%				105.0 %	Weight
Consisting of the following equally weighted sub-targets:						
Applications market share	5%	*			120.0 %	
DUV output (systems)	5%	*			— %	
EUV availability	5%	*			150.0 %	
VLSI customer survey	5%	Top 5	Top 3	Top 2	Top 2	150.0 %
Technology Leadership Index	20%	4	6	10	8.1	126.3 %
Total	100%				99.1 %	

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 2022 EBIT Margin % (Non-GAAP measure) of 30.7% is calculated as Income from operations of €6,501 million divided by Total net sales of €21,173 million.

The Supervisory Board applied an adjustment for fast shipments on the STI financial performance metric EBIT Margin % result. The rationale behind this decision is that fast shipments are a change in the business model made on request of our customers; the Board of Management decided to honor these customer requests, as this was considered the best decision in the interest of ASML and its stakeholders, especially also in light of the global chip shortage; however, fast shipments lead to a delay in revenue recognition and as such have a negative impact on the EBIT Margin %. Considering the foregoing, the Supervisory Board decided to normalize the EBIT Margin % result for these fast shipments. The adjustment for the delay in revenue recognition due to fast shipments results in an EBIT margin % of 34.5% and a total STI pay-out as % of target of 99.1% compared with 46.3% without adjustment.

The composition of customer performance changed, since DUV is now measured based on output in systems. Performance in the other sub targets was comparable to last year.

The actual outcome for Technology Leadership Index of 8.1 is in line with last year performance.

The total STI outcome for current Board of Management results in a cash pay-out of €3.8 million, representing a payout as % of target of 99.1%.

Short-Term Incentive 2023

For 2023, the Supervisory Board has decided to apply the following STI performance measures:

EBIT Margin (%) (Non-GAAP measure)	60%
Customer Orientation	20%
Consisting of the following equally weighted sub-targets:	
Applications market share	5%
DUV output (systems)	5%
EUV availability	5%
TechInsights (f.k.a. VLSI) customer survey	5%
Technology Leadership Index	20%
Total	100%

In setting the target levels for the performance metric EBIT Margin % for 2023, the Supervisory Board has taken the assumption that the timing of revenue recognition of fast shipments will be the same as it was in 2022, in line with the 2022 normalization applied for fast shipments. In case of any change in accounting treatment, which would no longer result in a delay in revenue recognition, the Supervisory Board intends to increase the EBIT Margin % target levels accordingly.

Board of Management remuneration (continued)

Board of Management Remuneration in 2022 – Long-term incentive

Conditionally granted Long-term incentive 2022–2024 Plan in 2022

At the beginning of 2022, 19,105 performance shares were conditionally granted to the current members of the Board of Management for the 2022–2024 LTI performance plan. These conditional grants are based on the maximum achievable opportunity.

At the beginning of 2022, 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 2022–2024 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 long-term value creation. The rationale for amending the Remuneration Policy of the Board of Management including replacement of certain LTI metrics is included in the 2022 Remuneration Policy for the Board of Management of ASML Holding N.V.

For the 2022–2024 LTI Plan, the following performance metrics apply, in accordance with the 2022 Remuneration Policy for the Board of Management:

- Total shareholder return vs. Index (TSR): 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 2022 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) EUV energy use per wafer pass, (2) employee engagement and (3) the percentage of female employees in a job grade 13+.

Performance metric	Performance targets			
	Weight	Threshold	Target	Maximum
Relative TSR	30%	Lower quartile	Median	Upper quartile
Normalized three-years average Cash Conversion Rate %¹	30%	80.0%	90.0%	95.0%
ESG Measures	20%			
Consisting of:				
EUV energy use per wafer pass		7.0 kWh	6.5 kWh	6.0 kWh
Employee engagement		X2 – 4% point	X2 – 3% point	X2
% female representation in JG13+		10%	12%	14%
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.

Board of Management remuneration (continued)

Vesting under the Long-Term Incentive 2020–2022 Plan

Following the end of the three-year performance period 2020–2022, the Supervisory Board assessed the performance achieved against the LTI targets, in cooperation with the Technology Committee, Audit Committee and Remuneration Committee. The performance metrics that applied to the LTI 2020–2022 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.

Performance metric	Performance targets					Actual performance	Pay-out % ²
	Weight	Threshold	Target	Exceed	Stretch		
Relative TSR	30%	(20%)	0%	n/a	20%	41.4%	200%
ROAIC¹	40%	29.5%	31.0%	32.5%	34.0%	48.2%	200%
Technology Leadership Index	20%	4	6	8	10	8.3	158.3%
Sustainability	10%	≤13.5%	≤11%	n/a	≤6%	10.8%	104.9%
Total	100%					182.2%³	

1. The ROAIC (Non-GAAP measure) is based on a three-year 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, Short Term Investments, Current Liabilities and Long-term 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 Pay-out % is based on the pay-out levels as included in the 2020 Remuneration Policy Board of Management.

3. Total Actual Performance score of 182.2% is based on weighting of individual performance metrics multiplied by the pay-out %.

The total LTI outcome results in a share vesting of 182.2% of target.

LTI Plan 2023–2025

At the beginning of 2023, 28,604 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 for 2023.

For the 2023–2025 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	
Normalized three-year average Cash Conversion Rate %¹	30%	85%	90%	95%
ESG measures	20%			
Consisting of:				
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+ female Inflow		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.

Board of Management remuneration (continued)

Other remuneration

In 2022, 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 €115k) and a net pension element (for a salary above €115k). 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 2022 can be found in the table Total Remuneration Board of Management.

Expenses reimbursed by ASML in 2022 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, 2022. All members of the Board of Management complied with the minimum ownership guidelines per year end 2022.

Board of Management	Ownership guidelines	2022 base salary in € thousands	Number of outstanding vested shares	Ownership ratio ¹
P.T.F.M. Wennink	3x base	1,020	38,047	18.79
M.A. van den Brink	3x base	1,020	11,923	5.89
F.J.M. Schneider-Maunoury	2x base	694	17,903	13.00
R.J.M. Dassen	2x base	694	15,549	11.29
C.D. Fouquet	2x base	694	6,470	4.70

1. The Ownership ratio is calculated by multiplying the number of outstanding vested shares with the share price of €503.80 (based on the closing share price of December 30, 2022) 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 2022, 2021 and 2020 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	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
	2020	1,020	216	57	1,293	28.3 %	1,135	2,136	3,271	71.7 %	4,564	0.40
M.A. van den Brink	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
	2020	1,020	216	57	1,293	28.3 %	1,135	2,136	3,271	71.7 %	4,564	0.40
F.J.M. Schneider-Maunoury	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
	2020	694	122	36	852	29.1 %	773	1,302	2,075	70.9 %	2,927	0.41
R.J.M. Dassen	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
	2020	694	100	51	845	22.2 %	773	2,186	2,959	77.8 %	3,804	0.29
C.D. Fouquet	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
	2020	694	83	51	828	27.8 %	773	1,374	2,147	72.2 %	2,975	0.39
Total Board of Management	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
	2020	4,122	737	252	5,111	27.1 %	4,589	9,134	13,723	72.9 %	18,834	0.37

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
	2020	694	122	47	863	29.4 %	773	1,302	2,075	70.6 %	2,938	0.42

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	Market-based element				Non-market-based elements					Vesting date	Number of vested shares on publication date	Year-end closing share price in year of vesting	End of lock-up date
	Grant date	Status	Full control	Number of shares at target	Fair value at grant date	Number of shares at target	Fair value at grant date	Total number of shares at target	Total number of shares at maximum (200%)				
P.T.F.M. Wennink	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	No	1,053	635.6	2,455	454.9	3,508	7,016	1/1/24	n/a	n/a	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
	1/19/18	Unconditional	No	1,958	215.1	4,570	162.8	6,528	13,056	1/19/21	9,566	439.9	1/19/23
M.A. van den Brink	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	No	1,053	635.6	2,455	454.9	3,508	7,016	1/1/24	n/a	n/a	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
	1/19/18	Unconditional	No	1,958	215.1	4,570	162.8	6,528	13,056	1/19/21	9,566	439.9	1/19/23
F.J.M. Schneider-Maunoury	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	No	717	635.6	1,670	454.9	2,387	4,774	1/1/24	n/a	n/a	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
	1/19/18	Unconditional	No	1,125	215.1	2,626	162.8	3,751	7,502	1/19/21	5,496	439.9	1/19/23
R.J.M. Dassen	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	No	717	635.6	1,670	454.9	2,387	4,774	1/1/24	n/a	n/a	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
	7/20/18	Unconditional	No	657	274.6	1,531	185.0	2,188	4,376	1/19/21	3,207	439.9	1/19/23
C.D. Fouquet	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	No	717	635.6	1,670	454.9	2,387	4,774	1/1/24	n/a	n/a	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
	7/20/18	Unconditional	No	844	274.6	1,969	185.0	2,813	5,626	1/19/21	4,122	439.9	1/19/23

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 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	Total number of shares at target					
F.J. van Hout	1/22/21	Conditional	No	239	635.6	557	454.9	796	1,592	1/1/24	n/a	n/a	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
	1/19/18	Unconditional	No	1,125	215.1	2,626	162.8	3,751	7,501	1/19/21	5,496	439.9	1/19/23

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 2022 – Long-term incentive as included in this Remuneration Report.

The principal conditions applicable to the 2022 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	<p>The minimum holding period is two years after the vesting date.</p> <p>Upon termination of contract, the transfer restrictions will remain in place during the holding period except in case of decease.</p> <p>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.</p>

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)	2018 ¹	Change (in %) ¹	2019	Change (in %)	2020	Change (in %)	2021	Change (in %)	2022	Change (in %)
Net sales	10,944,016	22 %	11,820,001	8 %	13,978,452	18 %	18,610,994	33 %	21,173,448	14 %
Net income based on US GAAP	2,591,614	25 %	2,592,252	— %	3,553,670	37 %	5,883,177	66 %	5,624,209	(4)%
Net income based on EU-IFRS	2,525,515	16 %	2,581,107	2 %	3,696,813	43 %	6,134,595	66 %	6,395,775	4 %
ASML share price (closing price on Euronext Amsterdam in €)	137.2	(6)%	263.7	92 %	397.6	51 %	706.7	78 %	503.8	(29)%
Average number of payroll employees in FTEs	18,204	20 %	22,192	22 %	24,727	11 %	28,223	14 %	33,071	17 %
Remuneration P.T.F.M. Wennink (CEO)	3,433	(1)%	4,361	27 %	4,564	5 %	4,820	6 %	4,280	(11)%
Remuneration M.A. van den Brink	3,431	(1)%	4,360	27 %	4,564	5 %	4,819	6 %	4,279	(11)%
Remuneration R.J.M. Dassen	897	—	2,956	230 %	3,804	29 %	3,800	— %	2,834	(25)%
Remuneration C.D. Fouquet	1,125	—	2,203	96 %	2,975	35 %	3,137	5 %	2,798	(11)%
Remuneration F.J.M. Schneider-Maunoury	2,169	(4)%	2,724	26 %	2,927	7 %	3,158	8 %	2,844	(10)%
Average remuneration per FTE ² based on US GAAP	115	(2)%	114	(1)%	120	5 %	122	2 %	125	2 %
Average remuneration per FTE ² based on EU-IFRS	115	(2)%	114	(1)%	120	5 %	122	2 %	118	(3)%
Internal pay ratio (CEO versus employee remuneration based on US GAAP) ²	30	— %	38	27 %	38	— %	40	5 %	34	(15)%
Internal pay ratio (CEO versus employee remuneration based on EU-IFRS) ²	30	— %	38	27 %	38	— %	40	5 %	36	(10)%
Ratio of the percentage increase in annual total compensation for CEO to the percentage increase in average annual remuneration for all employees ³ based on US GAAP									(5.5)	n/a
Ratio of the percentage increase in annual total compensation for CEO to the percentage increase in average annual remuneration for all employees ³ based on EU-IFRS									3.7	n/a

1. The remuneration of the R.J.M. Dassen and C.D. Fouquet was lower in 2018 as they were appointed as members of the Board of Management during 2018.

2. The calculation approach of the internal pay ratio is disclosed in the section Relationship between CEO and average remuneration (pay ratio).

3. 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.

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 net sales. Since 2018, net sales have increased by 93%. The performance of the Company in that same period has increased significantly as well, reflected for example in Net Income (117% growth since 2018 based on US GAAP and 153% growth since 2018 based on EU-IFRS) and ASML share price (267% growth). As the table shows, the Company performance over the last five years has improved more significantly compared to the development of remuneration in that same period. The 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). Total remuneration for the Board of Management in 2022 was lower compared to 2021, due to the impact of supply chain issues and inflation on the STI score, and due to a lower number of granted shares at issuance date for the 2020-2022 LTI plan. 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 2022 of €4,280 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)/average number of payroll employees = €4,128 million / 33,071 = €125 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 decreased towards 34:1 in 2022 (2021 40:1) and based on EU-IFRS decreased towards 36:1 in 2022 (2021 40:1). Decrease is driven by lower remuneration for the Board of Management in 2022, due to the impact of supply chain issues and inflation on the STI score, and due to a lower number of granted shares at issuance date for the 2020-2022 LTI plan. In 2022, the remuneration of the employees was adjusted for CLA and merit increases in 2022. Furthermore, in addition to normalizing the STI score for fast shipments, the 2022 STI score for employees was also adjusted for the impact of supply chain issues and inflation in 2022, which is reflected in the 2022 US GAAP figures. 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 of 34:1 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 2021 Remuneration Policy for the Supervisory Board as adopted by the General Meeting on April 29, 2021, and as in force from April 1, 2021 onwards. It provides information about the implementation of the 2021 Remuneration Policy for the Supervisory Board in 2022 and contains the details of the Supervisory Board members' actual remuneration in 2022. The 2021 Remuneration Policy for the Supervisory Board can be found in the Governance section of our website.

Remuneration Policy

Remuneration objectives and principles

The 2021 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, which is focused on the creation of long-term value for all stakeholders.

The 2021 Remuneration Policy for the Supervisory Board is built on the following principles:

- Transparent – The Remuneration Policy and its execution are clear and practical
- Alignment – The Remuneration Policy is benchmarked to market practice
- Compliant – ASML adopts the highest standards of good corporate governance
- Simple – The Remuneration Policy and its execution are as simple as possible and easily understandable to all stakeholders
- Fair – The remuneration should reflect the time spent and the responsibilities of the role of the members of the Supervisory Board
- Independent – The remuneration of a Supervisory Board member may not be dependent on the results of the company

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 positioning in this group, enterprise value, revenue and number of employees are taken into account.

Supervisory Board remuneration (continued)

Summary of Remuneration Policy Supervisory Board

This table provides an overview and description of the elements of the 2021 Remuneration Policy for the Supervisory Board.

Fixed remuneration		Loans and guarantees	
Description	Value	Description	Value
Basic membership fee		Chair of Supervisory Board	€130,000
		Vice Chair of Supervisory Board	€94,000
		Member of Supervisory Board	€75,000
		Chair Audit Committee	€25,500
		Member Audit Committee	€18,000
		Chair of other Committees	€20,000
		Member of other Committees	€14,500
Extra allowance for intercontinental meetings		Shares and share ownership	
Description	Value	Description	Value
Extra, fixed allowance paid in connection with additional time commitment for intercontinental travel	€ 5,000 for each meeting that involves intercontinental travel	No (personal) loans or guarantees or the like will be granted	Not applicable
Expenses		Other arrangements	
Description	Value	Description	Value
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	Depending on level of expenses	(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
	Chair of Supervisory Board	€1,980	
	Member of Supervisory Board	€1,380	

Supervisory Board remuneration (continued)

Remuneration of the Supervisory Board in 2022

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 2022	Committee fees 2022	Allowances 2022	Proportion fixed vs. variable 2022	Total remuneration 2022	Total remuneration 2021	Total remuneration 2020	Total remuneration 2019	Total remuneration 2018
G.J. Kleisterlee	130	53	7	100:0	190	178	157	154	138
A.P. Aris	94	44	6	100:0	144	127	95	98	80
B.M. Coninx	75	18	6	100:0	99	63	n/a	n/a	n/a
D.M. Durcan	75	35	16	100:0	126	112	57	n/a	n/a
D.W.A. East	75	18	6	100:0	99	93	59	n/a	n/a
T.L. Kelly	75	35	16	100:0	126	107	88	101	60
R.D. Schwalb	75	40	1	100:0	116	113	104	101	88
A.F.M. Everke	50	10	6	100:0	66	n/a	n/a	n/a	n/a
A.L. Steegen	50	10	6	100:0	66	n/a	n/a	n/a	n/a
Total	699	263	70	100:0	1,032	793	560	454	366

1. Allowances consist of fixed-expense allowances and allowances for intercontinental meetings.

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 2021 Remuneration Policy for the Supervisory Board.

Remuneration of former Supervisory Board members

Overview of the remuneration awarded to the former Supervisory Board members in 2022, 2021 and 2020 (amounts are in € thousands):

	Membership fees 2022	Committee fees 2022	Allowances 2022	Proportion fixed vs. variable 2022	Total remuneration 2022	Total remuneration 2021	Total remuneration 2020
J.M.C. Stork	25	10	5	100:0	40	113	100
D.A. Grose	n/a	n/a	n/a	n/a	n/a	36	117
C.M.S. Smits Nusteling	n/a	n/a	n/a	n/a	n/a	31	95
W.H. Ziebart	n/a	n/a	n/a	n/a	n/a	n/a	30
Total	25	10	5		40	180	342

1. Allowances consist of fixed-expense allowances and allowances for intercontinental meetings.

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 2022 amounts to €18.1 million (2021: €23.3 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 N.V.

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 2022 and no variable remuneration has been clawed back.

Deviations

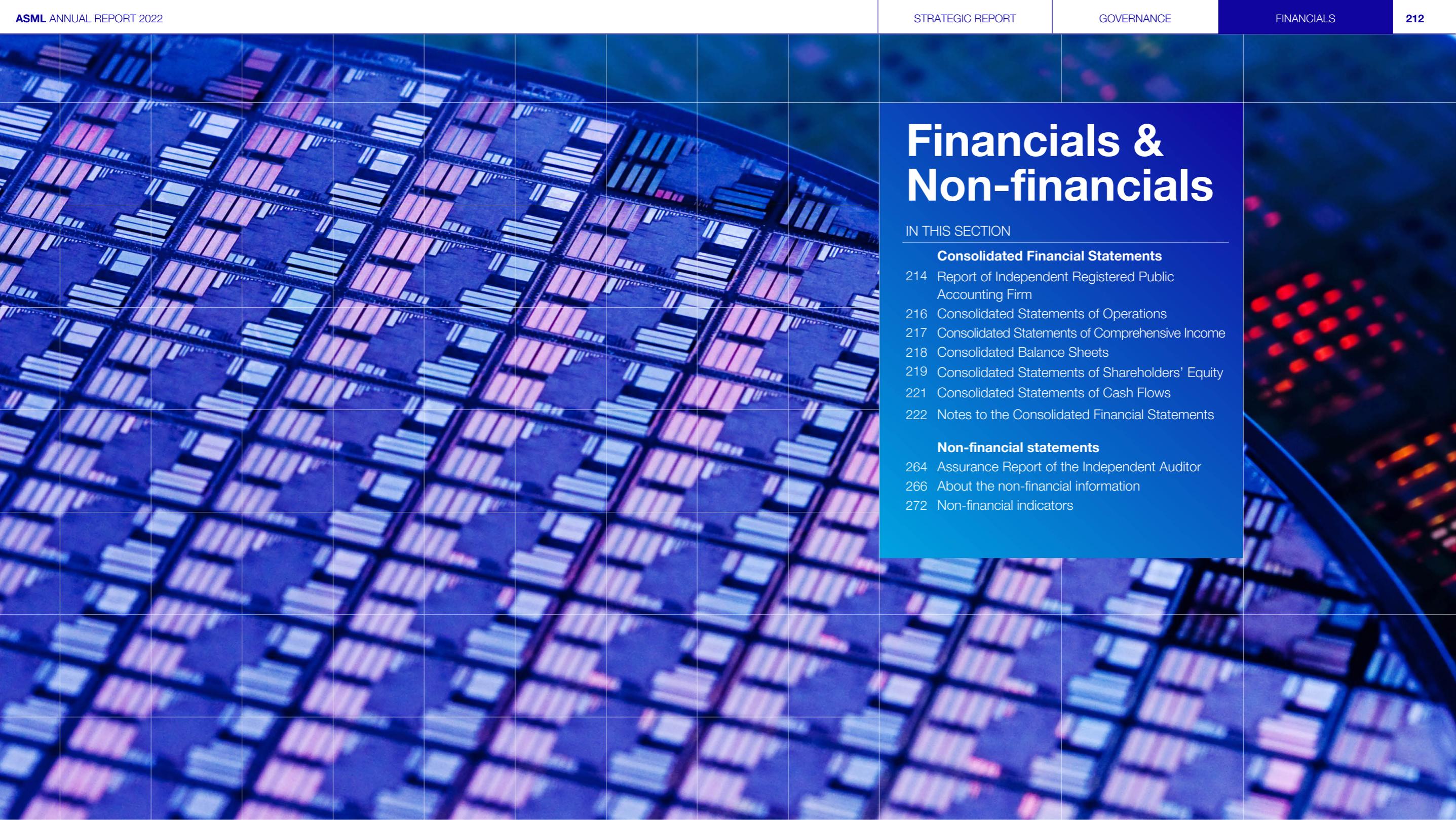
In 2022, no deviations took place from the decision-making process for the implementation of the 2021 Remuneration Policy for the Supervisory Board and the 2022 Remuneration Policy for the Board of Management and no temporary deviations took place from the 2022 Remuneration Policy for the Board of Management and the 2021 Remuneration Policy for the Supervisory Board.

Shareholder voting

At the 2022 AGM, the 2022 Remuneration Policy for the Board of Management was adopted with 93.18% of the votes cast in favor of the proposal.

The Remuneration Report for the financial year 2021 was submitted to the 2022 AGM for an advisory vote. 84.59% 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 remuneration.

This Remuneration Report will be submitted to the 2023 AGM for an advisory vote in line with Dutch law.



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Report of Independent Registered Public Accounting Firm

To the Shareholders and the Supervisory Board

ASML Holding N.V.:

Opinions on the Consolidated Financial Statements and Internal Control Over Financial Reporting

We have audited the accompanying consolidated balance sheets of ASML Holding N.V. and subsidiaries (the Company) as of December 31, 2022 and 2021, 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, 2022, 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, 2022, 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, 2022 and 2021, and the results of its operations and its cash flows for each of the years in the three-year period ended December 31, 2022, 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, 2022 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 disclosed in note 2 to the consolidated financial statements, net system sales was EUR 15,430.3 million for the year ended December 31, 2022. Sales of systems are usually entered into with customers under Volume Purchase Agreements (VPAs). These VPAs contain multiple performance obligations, for example delivery of goods, installation, warranty and training. Once these performance obligations are identified, the total contract consideration, including discounts, offer of free goods or services and credits that can be used towards future purchases, is allocated to the performance obligations.

We identified revenue recognition, and specifically the identification of performance obligations in certain VPAs as well as the allocation of the total contract consideration, including discounts, offer of free goods or services and credits that can be used towards future purchases, as a critical audit matter since it is inherently judgmental, and complex.

As a result, evaluating the Company's judgments regarding the identified performance obligations, notably the estimate of the number of systems to be delivered, and the allocation of the total contract consideration to these performance obligations required a high degree of auditor judgment.

The following are the primary procedures we performed to address this critical audit matter. We evaluated the design and tested the operating effectiveness of certain internal controls related to the critical audit matter. This includes controls related to VPA assessments for the identification of performance obligations and the allocation of the total contract consideration to these performance obligations, and the correct application to individual sales transactions. We evaluated the identification of performance obligations and the allocation of the total contract consideration by inspecting a selection of VPAs and the related documentation, performing inquiries with relevant operational functions in the Company, and performing sensitivity analyses, to assess the impact of the estimated number of systems to be delivered on the allocation. Furthermore, we tested a selection of recognized sales transactions under VPAs and performed a retrospective review of prior period estimates to assess management's ability to estimate the number of systems to be delivered. Finally, we checked the accuracy of the Company's model used to allocate the contract consideration to the identified performance obligations.

/s/ KPMG Accountants N.V.

We have served as the Company's auditor since 2015.

Amstelveen, the Netherlands
February 15, 2023

Consolidated Statements of Operations

Year ended December 31 (€, in millions, except per share data)	Notes	2020	2021	2022
Net system sales		10,316.6	13,652.8	15,430.3
Net service and field option sales		3,661.9	4,958.2	5,743.1
Total net sales	2, 3	13,978.5	18,611.0	21,173.4
Cost of system sales		(5,169.3)	(6,482.9)	(7,582.3)
Cost of service and field option sales		(2,012.0)	(2,319.1)	(2,891.0)
Total cost of sales¹		(7,181.3)	(8,802.0)	(10,473.3)
Gross profit		6,797.2	9,809.0	10,700.1
Research and development costs		(2,200.8)	(2,547.0)	(3,253.5)
Selling, general and administrative costs		(544.9)	(725.6)	(945.9)
Other income	10	—	213.7	—
Income from operations		4,051.5	6,750.1	6,500.7
Interest and other, net	16	(34.9)	(44.6)	(44.6)
Income before income taxes		4,016.6	6,705.5	6,456.1
Income tax expense	21	(551.5)	(1,021.4)	(969.9)
Income after income taxes		3,465.1	5,684.1	5,486.2
Profit from equity method investments	9	88.6	199.1	138.0
Net income		3,553.7	5,883.2	5,624.2
Basic net income per ordinary share	23	8.49	14.36	14.14
Diluted net income per ordinary share	23	8.48	14.34	14.13
Number of ordinary shares used in computing per share amounts:				
Basic	23	418.3	409.8	397.7
Diluted	23	419.1	410.4	398.0

1. Cost of sales includes amounts with related parties of €2,206.1 million, €1,855.2 million and €1,457.4 million in 2022, 2021, and 2020, respectively.

Consolidated Statements of Comprehensive Income

Year ended December 31 (€, in millions)	Notes	2020	2021	2022
Net income		3,553.7	5,883.2	5,624.2
Other comprehensive income:				
Proportionate share of OCI from equity method investments	(1.3)	22.0	37.7	
Foreign currency translation, net of taxes:				
Gain (loss) on foreign currency translation	(73.8)	93.3	66.0	
Financial instruments, net of taxes:				
Gain (loss) on derivative financial instruments	25	(21.0)	16.6	57.6
Transfers to net income	25	(2.3)	22.2	(66.5)
Other comprehensive income, net of taxes		(98.4)	154.1	94.8
Total comprehensive income, net of taxes		3,455.3	6,037.3	5,719.0
Attributable to equity holders		3,455.3	6,037.3	5,719.0

Consolidated Balance Sheets

As of December 31 (€, in millions, except share and per share data)	Notes	2021	2022
Assets			
Cash and cash equivalents	4	6,951.8	7,268.3
Short-term investments	4	638.5	107.7
Accounts receivable, net	5	3,028.0	5,323.8
Finance receivables, net	6	1,185.6	1,356.7
Current tax assets	21	42.0	33.4
Contract assets	2	164.6	131.9
Inventories, net	7	5,179.2	7,199.7
Other assets ¹	8	1,000.5	1,643.4
Total current assets		18,190.2	23,064.9
Finance receivables, net	6	383.0	—
Deferred tax assets	21	1,098.7	1,672.8
Loan receivable ²	26	124.4	364.4
Other assets ³	8	887.0	739.8
Equity method investments	9	892.5	923.6
Goodwill	11	4,555.6	4,555.6
Other intangible assets, net	12	952.1	842.4
Property, plant and equipment, net	13	2,982.7	3,944.2
Right-of-use assets	14	164.8	192.7
Total non-current assets		12,040.8	13,235.5
Total assets		30,231.0	36,300.4

As of December 31 (€, in millions, except share and per share data)	Notes	2021	2022
Liabilities and shareholders' equity			
Accounts payable ⁴			2,116.3
Accrued and other liabilities ⁵	15		1,875.9
Current tax liabilities	21		315.3
Current portion of long-term debt	16		746.2
Contract liabilities	2		12,481.0
Total current liabilities			12,298.0
Long-term debt	16		3,514.2
Deferred and other income tax liabilities	21		267.0
Contract liabilities	2		5,269.9
Accrued and other liabilities	15		454.9
Total non-current liabilities			7,792.4
Total liabilities			20,090.4
Ordinary shares; €0.09 nominal value; 700,000,000 shares authorized at December 31, 2022 (2021: 699,999,000) 394,589,411 issued and outstanding at December 31, 2022 (2021: 402,601,613)			
Issued and outstanding shares			36.5
Share premium			3,876.1
Treasury shares at cost			(2,422.8)
Retained earnings			8,317.3
Accumulated other comprehensive income			428.3
Total shareholders' equity	22	10,140.6	8,810.8
Total liabilities and shareholders' equity		30,231.0	36,300.4

1. Other assets – current includes amounts with related parties of €479.9 million and €288.5 million at December 31, 2022 and 2021, respectively.
2. Loan receivable includes amounts with related parties of €364.4 million and €124.4 million at December 31, 2022 and 2021, respectively.
3. Other assets – non-current includes amounts with related parties of €620.4 million and €694.3 million at December 31, 2022 and 2021, respectively.
4. Accounts Payable includes amounts with related parties of €269.2 million and €482.7 million at December 31, 2022 and 2021, respectively.
5. Accrued and other liabilities – current includes amounts with related parties of €111.2 million and €0.0 million at December 31, 2022 and 2021, respectively.

Consolidated Statements of Shareholders' Equity

(€, in millions)		Notes	Issued and Outstanding Shares			Treasury Shares			OCI ¹	Total
			Number	Amount	Share Premium	at Cost	Retained Earnings			
Balance at January 1, 2020			419.8	38.2	3,772.0	(1,019.6)	9,523.8	277.8	12,592.2	
Components of comprehensive income:										
Net income		—	—	—	—	—	3,553.7	—	3,553.7	
Proportionate share of OCI from equity method investments		—	—	—	—	—	—	(1.3)	(1.3)	
Gain (loss) on foreign currency translation		—	—	—	—	—	—	(73.8)	(73.8)	
Gain (loss) on financial instruments	25	—	—	—	—	—	—	(23.3)	(23.3)	
Total comprehensive income		—	—	—	—	—	3,553.7	(98.4)	3,455.3	
Purchase of treasury shares	22	(3.9)	—	—	(1,207.5)	—	—	—	(1,207.5)	
Cancellation of treasury shares	22	—	(0.7)	—	1,262.3	(1,261.6)	—	—	—	
Share-based payments	20	—	—	53.9	—	—	—	—	53.9	
Issuance of shares	20	0.6	0.1	(45.8)	101.6	(18.0)	—	—	37.9	
Dividend paid	22	—	—	—	—	(1,066.4)	—	—	(1,066.4)	
Balance at December 31, 2020		416.5	37.6	3,780.1	(863.2)	10,731.5	179.4	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	333.5	10,140.6	

Consolidated Statements of Shareholders' Equity (continued)

(€, in millions)		Notes	Issued and Outstanding Shares		Treasury Shares				
			Number	Amount	Share Premium	at Cost	Retained Earnings	OCI ¹	Total
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

1. As of December 31, 2022, accumulated OCI consists of €32.8 million gain relating to our proportionate share of other comprehensive income from equity method investments (2021: €4.9 million loss; 2020: €26.9 million loss), €387.9 million relating to foreign currency translation gain (2021: €321.9 million gain; 2020: €228.6 million gain) and €7.6 million relating to unrealized gains on financial instruments (2021: €16.5 million gains; 2020: €22.3 million losses).

Consolidated Statements of Cash Flows

Year ended December 31 (€, in millions)	Notes	2020	2021	2022
Cash Flows from Operating Activities				
Net income				
		3,553.7	5,883.2	5,624.2
Adjustments to reconcile net income to net cash flows from operating activities:				
Depreciation and amortization ¹	12, 13, 14	490.8	471.0	583.6
Impairment and loss (gain) on disposal	12, 13	5.5	(15.9)	39.3
Share-based compensation expense	18, 20	53.9	117.5	68.9
Gain on sale of subsidiaries	10	—	(213.7)	—
Inventory reserves	7	192.4	180.7	278.5
Deferred tax expense (benefit)	21	(211.3)	(419.6)	(564.2)
Equity method investments ²	9	11.0	(49.8)	15.3
Changes in assets and liabilities:				
Accounts receivable, net	5	507.5	(1,754.9)	(2,338.0)
Finance receivables, net	6	(1,125.4)	542.3	212.2
Inventories	7	(706.7)	(483.2)	(2,080.9)
Other assets	8	(75.1)	(222.2)	(864.3)
Accrued and other liabilities	15	47.5	347.6	439.7
Accounts payable		334.3	718.6	406.2
Current tax assets and liabilities	21	131.5	214.4	33.6
Contract assets and liabilities	2	1,418.0	5,529.8	6,632.7
Net cash provided by operating activities		4,627.6	10,845.8	8,486.8
Cash Flows from Investing Activities				
Purchase of property, plant and equipment ³	13	(962.0)	(900.7)	(1,281.8)
Purchase of intangible assets	12	(38.8)	(39.6)	(37.5)
Purchase of short-term investments	4	(1,475.5)	(1,162.7)	(334.3)
Maturity of short-term investments	4	1,359.1	1,826.4	864.7
Loans issued and other investments	26	(12.2)	(124.4)	(240.0)
Proceeds from sale of subsidiaries (net of cash disposed of)	10	—	329.0	—
Acquisition of subsidiaries (net of cash acquired)	10	(222.8)	—	—
Net cash used in investing activities		(1,352.2)	(72.0)	(1,028.9)

Year ended December 31 (€, in millions)	Notes	2020	2021	2022
Cash Flows from Financing Activities				
Dividend paid				
	22	(1,066.4)	(1,368.3)	(2,559.8)
Purchase of treasury shares	22	(1,207.5)	(8,560.3)	(4,639.7)
Net proceeds from issuance of shares	20	37.9	49.0	81.8
Net proceeds from issuance of notes, net of issuance costs	16	1,486.3	—	495.6
Repayment of debt and finance lease obligations	14, 16	(3.3)	(12.1)	(516.2)
Net cash used in financing activities		(753.0)	(9,891.7)	(7,138.3)
Net cash flows				
Effect of changes in exchange rates on cash		(5.3)	20.3	(3.1)
Net increase (decrease) in cash and cash equivalents		2,517.1	902.4	316.5
Cash and cash equivalents at beginning of the year	4	3,532.3	6,049.4	6,951.8
Cash and cash equivalents at end of the year		6,049.4	6,951.8	7,268.3
Supplemental Disclosures of Cash Flow Information:				
Unpaid portion of property, plant and equipment, excluded in investing activities, included in Accounts payable		(46.9)	29.3	50.3
Interest received		32.1	36.6	42.4
Interest paid		(64.1)	(83.0)	(82.2)
Income taxes paid, net of refunds		(650.2)	(1,235.0)	(1,734.6)

1. Depreciation and amortization include depreciation of property, plant and equipment, amortization of intangible assets, depreciation of right-of-use 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 R&D and supply chain support funding as disclosed in Note 26 Related parties and variable interest entities. The dividend received is a cash inflow of €178.7 million (2021: €168.0 million, 2020: €128.1 million).
3. Purchase of property, plant and equipment includes a cash outflow of €33.8 million (2021: €69.2 million, 2020: €203.7 million) to related parties, which was initially recognized as part of Other assets.

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 39,000 FTEs with 143 different nationalities across 3 continents. 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, the Russia-Ukraine conflict, COVID-19 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 continuously 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 customer)
- Recoverability of deferred taxes for capitalized R&D expenditures (see Note 21 Income taxes)

Principles of consolidation

The Consolidated Financial Statements include the Financial Statements of ASML Holding N.V. 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.

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 2022, 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 the year ended December 31, 2022, 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 purchases 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.

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.

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.

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. 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.

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

Notes to the Consolidated Financial Statements (continued)

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
New systems (established technologies)	<p>New systems sales include i-line, KrF, ArF, ArFi and EUV-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 of a system undergoing a FAT, and recognition of revenue related to this system, will occur upon delivery of the system.</p> <p>A system not undergoing a FAT or for which some of the testing in our factory is skipped (fast shipments), transfer of control of such a system and revenue recognition will occur upon customer acceptance of the system at SAT after installation is complete.</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>
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>

Goods or services	Nature, timing of satisfying the performance obligations, and significant payment terms
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 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>
	<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>
Warranties	<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>

Notes to the Consolidated Financial Statements (continued)

Goods or services	Nature, timing of satisfying the performance obligations, and significant payment terms
Time-based licenses and related service	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.
Application projects	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.
Service contracts	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.
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)	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.
OnPulse Maintenance	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.

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
2022		
EUV	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		
EUV	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
2020		
EUV	31	4,463.8
ArFi	68	3,917.0
ArF dry	22	427.0
KrF	103	1,012.3
I-line	34	146.4
Metrology & Inspection	137	350.1
Total	395	10,316.6

Notes to the Consolidated Financial Statements (continued)

Net system sales per end-use were as follows:

Year ended December 31		Net system sales in units	Net system sales in € millions
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
2020			
Logic		260	7,393.0
Memory		135	2,923.6
Total		395	10,316.6

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.

Significant changes in the contract assets and the contract liabilities balances during the periods are as follows.

Year ended December 31 (€, in millions)	2021		2022	
	Contract Assets	Contract Liabilities	Contract Assets	Contract Liabilities
Balance at beginning of the year	119.2	5,594.1	164.6	11,160.9
Transferred from contract assets to accounts receivables	(268.2)	—	(393.4)	—
Revenue recognized during the year ending in contract assets	199.7	—	116.5	—
Revenue recognized that was included in contract liabilities	—	(3,767.0)	—	(6,326.6)
Changes as a result of cumulative catch-up adjustments arising from changes in estimates	—	39.7	—	(118.0)
Remaining performance obligations for which considerations have been received, or for which we have an unconditional right to consideration	—	9,180.2	—	12,790.4
Transfer between contract assets and liabilities	113.9	113.9	244.2	244.2
Total	164.6	11,160.9	131.9	17,750.9

The increase in the net contract liabilities to €17.6 billion as of December 31, 2022 compared to €11.0 billion as of December 31, 2021 is mainly driven by the recognition of down payments for systems which will be shipped in the future, and consideration received for fast shipment systems that have been delivered, but for which revenue has not yet been recognized. 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.

Notes to the Consolidated Financial Statements (continued)

As of December 31, 2022, the remaining performance obligations amount to €45.4 billion (December 31, 2021: €28.9 billion). We estimate that 56% (December 31, 2021: 61%) of these anticipated revenues will be recognized during the next 12 months. The remaining anticipated revenues mainly include orders related to EUV systems and our next-generation EUV platform, High-NA, which are expected to be recognized in revenue in 2024 or later.

3. Segment disclosure

ASML has one reportable segment, since we are an integrated 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 the 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)	2020	2021	2022
New systems	10,160.8	13,446.1	15,152.3
Used systems	155.8	206.7	278.0
Net system sales	10,316.6	13,652.8	15,430.3

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
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

Year ended December 31 (€, in millions)	Total net sales	Long-lived assets
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

Year ended December 31 (€, in millions)	Total net sales	Long-lived assets
2020		
Japan	542.8	8.3
South Korea	4,151.6	34.1
Singapore	84.9	2.1
Taiwan	4,731.3	164.3
China	2,324.4	17.8
Rest of Asia	1.6	0.4
Netherlands	1.6	1,625.2
EMEA	483.3	129.2
United States	1,657.0	488.9
Total	13,978.5	2,470.3

In 2022, 2 customers exceed more than 10% of total net sales, totaling €11.8 billion, or 55.8%, of total net sales. In 2021, 2 customers exceeded more than 10% of total net sales and in 2020, 3 customers exceeded more than 10% of total net sales, in 2021 totaling €12.5 billion, or 67.2% (2020: €9.9 billion, or 71.2%). Our three largest customers (based on total net sales) accounted for €5.3 billion, or 78.6%, of accounts receivable and finance receivables at December 31, 2022, compared with €3.9 billion, or 83.7%, at December 31, 2021 and €2.8 billion, or 80.1%, at December 31, 2020.

Notes to the Consolidated Financial Statements (continued)

The increase in total net sales of €2.6 billion, or 13.8%, to €21.2 billion in 2022, from €18.6 billion in 2021 is driven by the global chip shortage, the acceleration of the digital infrastructure and the push for ‘technological sovereignty’. This resulted in higher sales volumes for DUV systems, whereas the increase in EUV sales is mainly attributable to the NXE:3600D value proposition. It has also led to growth in our service and field options business, which has benefited from a growing installed base. The Logic sector continued to be strong in 2022 and was the largest consumer of our most advanced EUV systems. Memory demand continued growing in 2022, resulting from strong data center demand. Taiwan and Japan saw the largest geographic sales growth in support of expanding capacity to meet worldwide demand.

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.

Cash and cash equivalents and short-term investments consist of the following:

Year ended December 31 (€, in millions)	2021	2022
Deposits with financial institutions, governments and government related bodies	2,131.7	2,548.1
Investments in money market funds	2,928.3	3,196.7
Bank accounts	1,891.8	1,523.5
Cash and cash equivalents	6,951.8	7,268.3
Deposits with financial institutions, governments and government related bodies	638.5	107.7
Short-term investments	638.5	107.7

Cash and cash equivalents and short-term investments are mainly impacted by strong 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.

The 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 S&P, 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, 2022, no restrictions on usage of cash and cash equivalents exist (2021: 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. 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)	2021	2022
Accounts receivable, gross	3,032.5	5,327.9
Allowance for credit losses	(4.5)	(4.1)
Accounts receivable, net	3,028.0	5,323.8

The increase in accounts receivable as of December 31, 2022, compared to December 31, 2021, is mainly due to an increase in our sales, the timing of cash receipts and systems purchased at the end of the free-use or evaluation period, and an increase in down payment receivables related to future system deliveries.

In 2022, no receivables were sold through factoring arrangements (2021: €2.3 billion).

Notes to the Consolidated Financial Statements (continued)

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, 2022 and 2021:

Year ended December 31 (€, in millions)	2021	2022
Finance receivables, gross	1,570.0	1,356.7
Unearned interest	(1.4)	—
Finance receivables, net	1,568.6	1,356.7
Current portion of finance receivables, gross	1,187.0	1,356.7
Current portion of unearned interest	(1.4)	—
Non-current portion of finance receivables, net	383.0	—

The decrease in finance receivables as of December 31, 2022, compared to December 31, 2021, is the result of the expiration of free-use and evaluation periods of systems shipped, partly offset by new sales-type leases by providing additional systems with a free-use or evaluation period. 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 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 amounts to €429.1 million during 2022 (2021: €514.2 million; 2020: €830.2 million).

At December 31, 2022, payment of the finance receivables in the next five years and thereafter are:

(€, in millions)	Amount
2023	1,356.7
2024	—
2025	—
2026	—
2027	—
Thereafter	—
Finance receivables, gross	1,356.7

In 2022, 2021 and 2020 we did not record any expected credit losses from finance receivables. As of December 31, 2022, 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)	2021	2022
Raw materials	2,668.3	3,198.9
Work-in-process	1,749.9	2,163.9
Finished products	1,179.0	2,303.8
Inventories, gross	5,597.2	7,666.6
Inventory reserves	(418.0)	(466.9)
Inventories, net	5,179.2	7,199.7

The increase in inventory in 2022, compared to 2021, is driven by the increased demand from customers reflected through an increased number of fast shipments during 2022. Systems that are fast shipped to our customers are not recognized into revenue until formal customer acceptance at SAT and thus remain part of ASML Finished products. Additionally, inventory increased in 2022 due to higher costs of our latest technologies and growing install base.

Notes to the Consolidated Financial Statements (continued)

A summary of movements in the inventory reserves is as follows:

Year ended December 31 (€, in millions)	2021	2022
Balance at beginning of year	(473.2)	(418.0)
Additions for the year	(180.7)	(278.5)
Effect of changes in exchange rates	(6.1)	(1.1)
Utilization of the reserve	242.0	230.7
Balance at end of year	(418.0)	(466.9)

The additions for 2022, 2021 and 2020 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.

8. Other assets

Other current and non-current assets consist of the following:

Year ended December 31 (€, in millions)	2021	2022
Advance payments to Carl Zeiss SMT GmbH ¹	288.5	479.9
Prepaid expenses	374.3	678.6
Derivative financial instruments ²	52.2	17.3
VAT receivable	136.7	201.2
Other assets	148.8	266.4
Other current assets	1,000.5	1,643.4
Advance payments to Carl Zeiss SMT GmbH ¹	694.3	620.4
Prepaid expenses	41.0	32.4
Derivative financial instruments ²	47.3	—
Compensation plan assets	81.4	71.1
Non-current accounts receivable	8.0	—
Other assets	15.0	15.9
Other non-current assets	887.0	739.8

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 €515.3 million (2021: €261.2 million). Prepaid expenses further include prepayments for maintenance and the contract balance related to the joint development program with imec of €16.3 million as of December 31, 2022 (2021: €30.3 million). At the end of 2018 we started the new joint development program with imec under which we mainly deliver systems and services upfront and receive R&D services throughout the contract period up until 2024.

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 14.1 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, 2022, we recorded a profit from equity method investments of €138.0 million (2021: €199.1 million) in our Consolidated Statements of Operations. This profit includes the following components:

- Profit of €169.1 million (2021: €246.5 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 (2021: €26.7 million)
- Cost due to intercompany profit elimination of €4.4 million (2021: €20.7 million)

In 2022, we received a dividend of €178.7 million (2021: €168.0 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

On October 30, 2020, we concluded the acquisition of Berliner Glas (ASML Berlin GmbH), a provider of optical key components. We obtained control through acquiring 100% of the issued share capital for a total consideration of €257.1 million.

The total consideration was allocated to goodwill of €87.9 million, assets acquired of €312.1 million, and liabilities assumed of €142.9 million. The contingent consideration was paid in cash in 2021. The majority of the goodwill arising on the acquisition of Berliner Glas (ASML Berlin GmbH) is attributable to the fact that the acquisition will help us achieve our strategic objective to secure the ramp-up and roll-out of future lithography systems. All goodwill has been allocated to the ASML reporting unit. None of the goodwill recognized is expected to be deductible for income tax purposes.

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, 2022, is €4,555.6 million (2021: €4,555.6 million).

We have identified two reporting units: Reporting Unit ASML and Reporting Unit Cymer Light Sources. As of December 31, 2022, the goodwill allocated to Reporting Unit ASML amounts to €4,093.3 million (2021: €4,093.3 million) and Reporting Unit Cymer Light Sources amounts to €462.3 million (2021: €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, 2022. The accumulated impairment as of December 31, 2022 is nil (2021: 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, 2022, 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, 2021	38.9	144.8	1,230.1	228.6	145.9	1,788.3
Additions	—	—	—	—	45.6	45.6
Divestment	—	—	(9.9)	—	(0.8)	(10.7)
Disposals	—	—	—	—	(0.5)	(0.5)
Effect of changes in exchange rates	—	—	—	—	(0.2)	(0.2)
Balance at December 31, 2021	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
Accumulated amortization						
Balance at January 1, 2021	11.1	78.8	510.7	95.9	42.9	739.4
Amortization	1.9	8.4	84.2	12.7	25.8	133.0
Divestment	—	—	(0.9)	—	(0.4)	(1.3)
Disposals	—	—	—	—	(0.4)	(0.4)
Effect of changes in exchange rates	—	—	—	—	(0.3)	(0.3)
Balance at December 31, 2021	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
Carrying amount						
December 31, 2021	25.9	57.6	626.2	120.0	122.4	952.1
December 31, 2022	24.0	51.3	542.8	107.3	117.0	842.4

Notes to the Consolidated Financial Statements (continued)

The Consolidated Statements of Operations include the following amortization charges:

Year ended December 31 (€, in millions)	2020	2021	2022
Cost of Sales	101.8	107.8	105.9
R&D Costs	12.0	14.5	18.2
SG&A	9.7	10.7	11.0
Total Amortization	123.5	133.0	135.1

As of December 31, 2022, the intangible assets not yet available for use, as included in Other, amount to €34.0 million (2021: €23.6 million) and are allocated to Reporting Unit ASML.

During 2022 we recorded €9.2 million impairment charges (2021: €0.0 million; 2020: €0.0 million).

As of December 31, 2022, the estimated amortization expenses for intangible assets for the next five years and thereafter is as follows:

€, in millions	Amount
2023	130.8
2024	124.8
2025	119.3
2026	113.0
2027	109.1
Thereafter	245.4
Total	842.4

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 Inventory 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 and constructions	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, 2021					
Additions	2,432.2	1,828.9	340.3	420.6	5,022.0
Divestment	372.7	389.6	33.2	65.3	860.8
Disposals	(17.9)	(13.4)	—	(4.7)	(36.0)
Net non-cash movements to/from Inventories	(0.5)	(199.1)	(7.5)	(70.3)	(277.4)
Effect of changes in exchange rates	—	11.9	—	—	11.9
Balance at December 31, 2021	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
 Accumulated depreciation and impairment					
Balance at January 1, 2021					
Depreciation	842.6	1,126.2	297.3	285.6	2,551.7
Impairment charges	95.6	167.1	15.9	43.0	321.6
Divestment	3.1	8.2	0.2	—	11.5
Disposals	(0.6)	(4.4)	—	(2.5)	(7.5)
Net non-cash movements to/from Inventories	(0.4)	(181.2)	(3.9)	(69.7)	(255.2)
Effect of changes in exchange rates	—	(7.9)	—	—	(7.9)
Balance at December 31, 2021	947.7	1,115.6	311.0	258.1	2,632.4

Notes to the Consolidated Financial Statements (continued)

€, in millions	Land and buildings	Machinery and equipment	Leasehold improvements	Furniture, fixtures and other	Total
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

Carrying amount

December 31, 2021	1,856.0	913.1	57.6	156.0	2,982.7
December 31, 2022	2,223.4	1,465.3	68.9	186.6	3,944.2

As of December 31, 2022, the carrying amount includes assets under construction of €869.8 million (2021: €695.9 million) consisting of primarily buildings, as well as Machinery and equipment.

As of December 31, 2022, the carrying amount of land amounts to €178.7 million (2021: €137.5 million).

The additions in 2022 in Land and buildings, as well as Furniture, fixtures and other mainly relates 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 2022 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 2022 in Leasehold Improvements mainly relate to installation of cleanrooms and office space for leased properties in both the United States and Taiwan. During 2022, we entered into 23 leases that will require further Leasehold Improvement investments amounting €33.3 million.

The Consolidated Statements of Operations include the following depreciation charges:

Year ended December 31 (€, in millions)	2020	2021	2022
Cost of Sales	205.9	188.6	248.2
R&D Costs	119.9	101.4	163.7
SG&A	25.9	31.6	33.3
Total Depreciation	351.7	321.6	445.2

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 for operating leases 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)	2021	2022
Properties	149.7	148.9
Cars	6.7	5.1
Equipment	—	—
Warehouses	7.5	38.0
Other	0.9	0.7
Right-of-use assets	164.8	192.7

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, 2022, Lease liabilities under an operating lease arrangement increased by €35.0 million, mainly due to new leases of warehouses that commenced during 2022.

Year ended December 31 (€, in millions)	2021	2022
Current	46.6	47.6
Non-current	120.3	151.5
Lease liabilities	166.9	199.1

The Consolidated Statements of Operations include the following depreciation charges relating to these leases:

Year ended December 31 (€, in millions)	2020	2021	2022
Properties	51.7	52.2	52.3
Cars	5.5	4.8	2.7
Equipment	7.0	—	—
Warehouses	6.6	3.0	4.0
Other	5.9	2.4	1.4
Depreciation charge right-of-use assets	76.7	62.4	60.4

The total cash flows relating to the lease liabilities are as follows:

Year ended December 31 (€, in millions)	2020	2021	2022
Total Cash Flows	61.7	68.9	57.9

The weighted average remaining lease term and weighted average discount rate related to the leases are as follows:

Year ended December 31 (€, in millions)	2020	2021	2022
Weighted average remaining lease term (months)	147	62	67
Weighted average discount rate (%)	1.3 %	1.9 %	2.2 %

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)	2021	2022
Costs to be paid ¹	352.0	511.6
Personnel-related items	864.7	1,070.9
Derivative financial instruments ²	2.8	261.2
Operating lease liabilities ³	161.7	196.7
Provisions	91.2	90.5
Standard warranty reserve	145.3	143.6
Other	68.9	56.3
Accrued and other liabilities	1,686.6	2,330.8
Less: non-current portion of accrued and other liabilities	251.1	454.9
Current portion of accrued and other liabilities	1,435.5	1,875.9

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 2022 and 2021, are as follows:

Year ended December 31 (€, in millions)	2021	2022
Balance at beginning of year	119.1	145.3
Additions for the year	188.6	191.5
Utilization of the reserve	(162.8)	(193.5)
Effect of exchange rates	0.4	0.3
Balance at end of year	145.3	143.6

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 as of December 31, 2022, include VAT payables and accrued costs for unbilled services provided by suppliers including contracted labor, outsourced services and consultancy. Cost 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.

Personnel-related items mainly consist of accrued annual short-term incentive 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.

Notes to the Consolidated Financial Statements (continued)

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.

Long-term debt consists of the following:

Year ended December 31 (€, in millions)	2021	2022
€500 million 0.625% senior notes issued July 2016 and principal due July 7th 2022 interest annually payable on July 7th, carrying amount	500.5	—
€750 million 3.375% senior notes issued September 2013 and principal due September 19th 2023 interest annually payable on September 19th, carrying amount	780.6	744.6
€1,000 million 1.375% senior notes issued July 2016 and principal due July 7th 2026 interest annually payable on July 7th, carrying amount	1,003.2	893.9
€750 million 1.625% senior notes issued November 2016 and principal due May 28th 2027 interest annually payable on May 28th, carrying amount	769.3	666.8
€750 million 0.250% senior notes issued February 2020 and principal due February 25th 2030 interest annually payable on February 25th, carrying amount	741.7	742.7
€750 million 0.625% senior notes issued May 2020 and principal due May 7th 2029 interest annually payable on May 7th, carrying amount	747.1	747.5
€500 million 2.250% senior notes issued May 2022 and principal due May 17th 2032 interest annually payable on May 17th, carrying amount	—	440.3
Debt acquired from Berliner Glas (ASML Berlin GmbH)	36.4	22.3
Other	5.3	2.3
Long-term debt	4,584.1	4,260.4
Less: current portion of long-term debt	509.1	746.2
Non-current portion of long-term debt	4,075.0	3,514.2

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 due date.

Our obligations to make principal repayments under our senior notes and other borrowing arrangements excluding interest expense as of December 31, 2022:

€, in millions	Amount
2023	753.8
2024	2.0
2025	2.0
2026	1,002.0
2027	752.0
Thereafter	2,012.9
Total debt maturities	4,524.7

For the year 2023, the obligations mainly relate to principal repayment of the senior notes due on September 19, 2023. The years thereafter mainly relate to repayments of principals under the long-term senior notes.

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)	2021	2022
Amortized cost amount	4,478.5	4,479.0
Fair value interest rate swaps ¹	63.9	(243.2)

Carrying amount

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 and the carrying amount of the Eurobonds is adjusted for these fair value changes. We did not enter into additional interest rate swaps in connection with the Eurobonds issued in 2020.

Notes to the Consolidated Financial Statements (continued)

The following table summarizes the estimated fair value of our Eurobonds:

Year ended December 31 (€, in millions)	2021	2022
Principal amount	4,500.0	4,500.0
Carrying amount	4,542.4	4,235.8
Fair value ¹	4,673.9	4,072.8

1. Source: Bloomberg Finance LP.

The fair value of our Eurobonds is estimated based on quoted market prices as of December 31, 2022. 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 €22.3 million with an annual interest rate of 0.5%, repayable in 2034. Debt decreased compared to 2021, due to repayments made in 2022.

Lines of credit

We maintain an available committed credit facility, with a group of banks, of €700.0 million as of December 31, 2022 and as of December 31, 2021. No amounts were outstanding under the committed credit facility at the end of 2022 and 2021. This facility of €700.0 million was renegotiated on July 3, 2019, with an original maturity date of July 3, 2024. The facility included two 1-year extension options. The second one-year extension was exercised in June 2021. This extends the maturity from July 2025 to July 2026. 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.

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, 2022, an amount of €23.4 million has been provided as guarantee. In addition, ASML has a non-committed credit facility for our Chinese subsidiary of €130.0 million. The non-committed credit facility covers bank guarantees, standby letters of credit, as well as advances up to €75.0 million. No amounts were outstanding under this facility. 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 2022, the interest expense component is €60.8 million (2021: €54.6 million; 2020: €43.3 million). The expenses mainly relate to interest expense on our Eurobonds, interest rate swaps and hedges, amortized financing costs, and to negative interest on Cash and cash equivalents.

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, 2022 can be summarized as follows:

Payments due by period (€, in millions)	Total	1 year	2 year	3 year	4 year	5 year	>5 years
Long-Term Debt Obligations, including interest ¹	4,837.1	823.5	46.3	46.4	1,046.3	782.4	2,092.2
Lease Obligations ²	199.1	49.9	37.4	28.8	24.7	21.1	37.2
Purchase Obligations	11,815.1	9,703.9	1,152.5	729.9	165.5	51.1	12.2
Total Contractual Obligations	16,851.3	10,577.3	1,236.2	805.1	1,236.5	854.6	2,141.6

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. The general terms and conditions of the agreements relating to the major part of our purchase obligations as of December 31, 2022, 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 cyclicity 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. Further, ASML has been 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 has reported the incident to relevant authorities.

Notes to the Consolidated Financial Statements (continued)

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, 2022, 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.

18. Personnel expenses and employee information

Personnel expenses for all payroll employees were as follows:

Year ended December 31 (€, in millions)	2020	2021	2022
Wages and salaries	2,519.6	2,842.7	3,502.5
Social security expenses	208.1	249.8	300.7
Pension and retirement expenses	182.6	229.2	255.9
Share-based payments	53.9	117.5	68.9
Personnel expenses	2,964.2	3,439.2	4,128.0

The continued increase in personnel expenses is mainly due to an increase in payroll employees to support the continued growth of our business. The personnel expenses in 2020 do not include any expenses from Berliner Glas (ASML Berlin GmbH), since ASML consolidated Berliner Glas (ASML Berlin GmbH) using a one-quarter lag.

The average number of payroll employees in FTEs was:

Average number of payroll employees in FTEs	2020	2021	2022
Netherlands	12,812	14,222	16,722
Worldwide (including Netherlands)	24,727	28,223	33,071

The total number of payroll and temporary employees as of December 31 in FTEs per sector was:

Year ended December 31 (in FTE)	2020	2021	2022
Customer Support	6,429	7,485	8,901
Manufacturing and Supply Chain Management	7,680	8,237	9,953
Strategic Supply Management	346	707	1,541
General & Administrative	2,061	2,761	3,768
Sales and Mature Products and Services	744	766	742
Research & Development	10,813	12,060	14,181
Total	28,073	32,016	39,086
Less: Temporary employees	1,459	2,155	2,974
Payroll employees	26,614	29,861	36,112

Short-term incentive bonus plans

We have annual performance-related short-term incentive (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 2022 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 2023.

The STI bonus expenses for the (former) Board of Management and other employees were as follows:

Year ended December 31 (€, in millions)	2020	2021	2022
Board of Management	5.4	4.4	3.8
Former Board of Management	—	0.2	—
Other employees	402.5	423.5	629.6
Total STI bonus expenses	407.9	428.1	633.4

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 part 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, 2022, 2021 and 2020, were:

Year ended December 31 (€, in millions)	2020	2021	2022
Pension plan based on multi-employer union plan	126.8	161.7	181.2
Pension plans based on defined contribution and other plans	55.8	67.5	74.7
Pension and retirement expenses	182.6	229.2	255.9

The accrued pension premiums were €53.2 million as at December 31, 2022 and €10.8 million as at December 31, 2021.

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 18,631 number of eligible payroll employees in the Netherlands (51.6% 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 1,565 companies and approximately 173,743 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 2022, the contribution percentage was 28.0% (2021:

27.6%, 2020: 22.7%). For 2022, our contribution to this multi-employer union plan (including the premiums paid by employees), was 15.7% (2021: 13.6%, 2020: 14.0%) of the total contribution to the plan. For 2023, we expect to contribute around €300.0 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% (2021: 104.3%). During 2022, the coverage ratio of PME improved to 110.4% as per December 31, 2022 (December 31, 2021: 107.9%).

Defined contribution and other 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 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 2022, 2021 and 2020. As of December 31, 2022, our liability under deferred compensation plans was €70.5 million (2021: €82.4 million). The related compensation plan assets are €71.1 million (2021: €81.4 million).

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.

Notes to the Consolidated Financial Statements (continued)

As part of our long-term incentive (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 pay-out 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 2022.

LTI performance plan criteria	Market/Non-Market element	Weight
Relative TSR	Market	30%
Cash Conversion Rate % (3-year average)	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	2020	2021	2022
Share price in € at grant date	270.7	462.9	548.0
Expected volatility ASML	28.9 %	38.5 %	41.8 %
Expected volatility PHLX index	24.7 %	35.3 %	n/a
Average volatility of the peer group (market practice)	n/a	n/a	47.8 %
Vesting period	2.9 years	2.9 years	2.7 years
Dividend yield	0.9 %	0.6 %	1.0 %
Risk free interest rate (Eurozone)	(0.6)%	(0.8)%	0.5 %
Risk free interest rate (US)	1.5 %	0.2 %	2.8 %

Expenses for LTI plans, including the Board of Management, were as follows:

Year ended December 31 (€, in millions)	2020	2021	2022
Total incurred expenses	53.9	117.5	68.9
Recognized income tax benefit (excluding excess income tax benefits)	6.6	8.2	10.2
Total expected expenses in future periods	85.9	125.4	113.0
Weighted average period in which these expected expenses are to be recognized	1.6 years	1.7 years	1.4 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		
	2020	2021	2022	2020	2021	2022
Total fair value at vesting date of shares vested during the year (in millions)	124.9	156.9	120.6	133.9	164.0	149.6
Weighted average fair value of shares granted	297.05	547.79	578.65	302.75	498.64	553.61

Notes to the Consolidated Financial Statements (continued)

A summary of the status of conditionally outstanding shares as of December 31, 2022, and changes during the year ended December 31, 2022, 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, 2022	452,205	303.32	297,001	416.07
Granted	88,432	578.65	230,568	553.61
Vested	(239,685)	247.17	(273,861)	418.03
Forfeited	(8,187)	239.82	(15,314)	487.93
Conditional shares outstanding at December 31, 2022	292,765	434.10	238,394	542.22

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 are 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		
	2020	2021	2022	2020	2021	2022
Weighted average share price at the exercise date of stock options	302.20	583.33	494.14	355.44	658.16	565.39
Aggregate intrinsic value of stock options exercised (in millions)	4.8	5.7	4.4	3.7	4.1	1.6
Weighted average remaining contractual term of currently exercisable options (in years)	3.55	2.81	2.08	3.66	2.93	2.09
Aggregate intrinsic value of exercisable stock options (in millions)	22.4	36.7	20.3	16.9	24.9	14.6
Aggregate intrinsic value of outstanding stock options (in millions)	22.4	36.7	20.3	16.9	24.9	14.6

The number and weighted average exercise prices of stock options as of December 31, 2022, 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, 2022	57,923	73.87	35,251	90.36
Granted ¹	—	—	—	—
Exercised	(10,016)	55.49	(3,113)	64.73
Forfeited	—	—	—	—
Expired	(300)	40.03	—	—
Outstanding, December 31, 2022	47,607	77.95	32,138	92.84
Exercisable, December 31, 2022	47,607	77.95	32,138	92.84

1. As of 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, 2022, 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	5,268	0.96	50–60	—	0.00
60–70	10,773	0.96	60–70	278	0.06
70–80	10,109	2.35	70–80	828	0.30
80–90	10,791	2.83	80–90	8,855	1.90
90–100	10,666	2.73	90–100	15,308	2.05
100–110	—	0.00	100–110	6,869	2.74
Total	47,607	2.08	Total	32,138	2.09

Employee Purchase Plan

Additionally, we also 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, we 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 2022, ASML received €81.8 million (2021: €49.0 million and 2020: €37.9 million) from issuance of shares for this 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, 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 the 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)	2020	2021	2022
Netherlands	3,574.6	5,982.8	5,881.0
Foreign	442.0	722.7	575.1
Income before income taxes	4,016.6	6,705.5	6,456.1
Income tax expense current	(407.7)	(865.0)	(818.4)
Income tax expense deferred	1.4	(28.6)	(44.4)
Income tax expense Netherlands	(406.3)	(893.6)	(862.8)
Income tax expense current	(375.3)	(523.5)	(678.3)
Income tax expense deferred	230.1	395.7	571.2
Income tax expense Foreign	(145.2)	(127.8)	(107.1)
Total income tax expense current	(783.0)	(1,388.5)	(1,496.7)
Total income tax expense deferred	231.5	367.1	526.8
Total income tax expense	(551.5)	(1,021.4)	(969.9)
Current and deferred tax expense can be further broken down into:			
Year ended December 31 (€, in millions)	2020	2021	2022
Current year tax expense	(743.7)	(1,367.2)	(1,440.9)
Prior year tax expense	(39.3)	(21.3)	(55.8)
Total current tax expense	(783.0)	(1,388.5)	(1,496.7)
Year ended December 31 (€, in millions)	2020	2021	2022
Changes to recognition of operating losses and tax credits	(56.9)	(37.2)	(41.2)
Prior year tax expense	27.0	(2.4)	79.2
Tax rate changes	15.0	1.5	(1.1)
Origination and reversal of temporary differences, operating losses and tax credits	246.4	405.2	489.9
Total deferred tax expense	231.5	367.1	526.8

The Dutch statutory tax rate was 25.8% in 2022 (25.0% for 2021 and 2020). Tax amounts in other jurisdictions are calculated at the rates prevailing in the relevant jurisdictions.

The effective tax rate decreased to 15.0% in 2022, compared with 15.2% in 2021. The lower rate is mainly driven by adjustments of estimated tax positions for prior years following from final tax returns filed.

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)	2020	% ¹	2021	% ¹	2022	% ¹
Income before income taxes	4,016.6	100.0 %	6,705.5	100.0 %	6,456.1	100.0 %
Income tax expense based on ASML's domestic rate	(1,004.1)	25.0 %	(1,676.4)	25.0 %	(1,665.7)	25.8 %
Effects of tax rates in foreign jurisdictions	0.9	— %	(4.6)	0.1 %	13.0	(0.2)%
Adjustments in respect of tax-exempt income	0.2	— %	—	— %	—	— %
Adjustments in respect of tax incentives	510.4	(12.7)%	727.3	(10.8)%	741.2	(11.5)%
Adjustments in respect of prior years' current taxes	(39.3)	1.0 %	(21.3)	0.3 %	(55.8)	0.9 %
Adjustments in respect of prior years' deferred taxes	27.0	(0.7)%	(2.4)	— %	79.2	(1.2)%
Movements in the liability for unrecognized tax benefits	(41.0)	1.0 %	(21.6)	0.3 %	(9.9)	0.2 %
Tax effects in respect of acquisition/restructuring related items	—	— %	35.9	(0.5)%	—	— %
Change in valuation allowance	(56.9)	1.4 %	(37.2)	0.6 %	(41.2)	0.6 %
Equity method investments	(20.9)	0.5 %	(46.7)	0.7 %	(38.3)	0.6 %
Effect of change in tax rates	15.0	(0.4)%	1.5	— %	(1.1)	— %
Other (credits) and non-tax deductible items	57.2	(1.4)%	24.1	(0.4)%	8.7	(0.1)%
Income tax expense	(551.5)	13.7 %	(1,021.4)	15.2 %	(969.9)	15.0 %

1. As a percentage of income before income taxes.

The individual line items in the table above are explained in more detail below.

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.

Notes to the Consolidated Financial Statements (continued)

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

In past years in certain jurisdictions part of the income generated was tax exempted. In conjunction with changed facts and circumstances this effect is significantly reduced as of 2020.

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% as of 2021. The effective innovation box tax rate was 7.0% in 2020. 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 that is applicable for the years through 2023 assuming facts and circumstances do not change.

Furthermore, this category includes the benefit of the Foreign Derived Intangible Income (FDII) deduction which is 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.

The higher amount in 2021 and 2022 compared to 2020 is mainly caused by an increase in innovation box benefit resulting from an increased level in income before tax at the level of our Dutch group companies.

The increase in relative weight of this item in the effective tax rate reconciliation for 2022 as compared to 2021 is mainly caused by increase in the general Dutch CIT rate to 25.8% as of 2022 (2021: 25%).

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 corporate income tax returns filed or arrangements agreed upon with tax authorities. To the main extent these are 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 corporate income tax returns filed. This is mainly caused by modifications in temporary differences on contract liabilities.

Movements in the liability for unrecognized tax benefits

In 2022, similar to prior years, the effective tax rate was impacted by movements in the liability for unrecognized tax benefits. The movement for 2022 is mainly driven by continued dialogues with Dutch and foreign tax authorities in the area of transfer pricing, as well as by uncertainties in FDII deduction and R&D credits claimed at the level of our US group companies. 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 is, to a large extent, exempt for income tax purposes. No such transaction has taken place in 2020 or 2022.

Change in valuation allowance

Changes in valuation allowance mainly relate to newly recognized 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.

Equity method investments

This line includes the income tax expense relating to our investment in Carl Zeiss SMT Holding GmbH & Co. KG. The increased effect in 2021 and 2022 compared to 2020 is mainly caused by an increase in the profit from the equity method investment as well as – for 2021 – tax accounting consequences following from adjustment in the outside basis difference for the equity investment.

Effect of change in tax rates

The 2022 tax rate change impact relates to reduction in the corporate income tax rate in South Korea, slightly impacting the valuation of deferred tax positions at the level of our South Korean group entities. The impact on the effective tax rate for the years 2020 and in 2021 is mainly caused by changes in the general Dutch corporate income tax rate as well as the innovation box rate enacted in respective years.

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 onwards, not retrospectively as permitted by aforementioned regulations. With regard to GILTI and BEAT, the decision has been taken to treat these as a period permanent item.

On August 9, 2022, the U.S. 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 expected regulations, it is currently uncertain whether the Company will claim the investment tax credit to which we may be entitled as of 2023.

Additionally, on August 16, 2022, the US enacted the Inflation Reduction Act of 2022, 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. Based on our current analysis of the law, we do not believe the IRA will have a material impact on our consolidated financial statements for years 2022 and onwards.

Global minimum tax

To address concerns about uneven profit distribution and tax contributions of large multinationals corporations, various agreements have been reached at global level, including an agreement by over 135 jurisdictions to introduce a global minimum tax rate of 15%. We continuously monitor the developments with regard to Global Minimum Tax. At December 31, 2022, only jurisdiction in which we operate that already has made some legislative changes related to top-up tax is South Korea, with effective date of January 1, 2024. The same is expected however for other countries where we operate, like the EU and the UK. At this moment we are not able to assess quantitative impact of these (potential) new rules in full detail yet, but in general the impact is 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)	2020	2021	2022
Liability for unrecognized tax benefits	(200.4)	(205.9)	(215.5)
Deferred tax assets	671.5	1,098.7	1,672.8
Deferred tax liabilities	(37.9)	(34.7)	(51.5)
Deferred and other tax assets (liabilities)	433.2	858.1	1,405.8

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, 2022, the liability for unrecognized tax benefit (excluding interest and penalties) amounts to €160.0 million (2021: €144.3 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 €139.2 million benefit (2021: €190.9 million benefit).

Interest and penalties related to the liability for unrecognized tax benefits amount to €55.5 million (2021: €61.6 million) and are included in the total liability position as specified below. P&L impact of accrued interest and penalties in 2022 amount to a benefit of €5.0 million (2021: €9.7 million benefit; 2020: €14.2 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)	2020	2021	2022
Balance as at January 1	(150.7)	(138.0)	(144.3)
Gross presentation for different tax jurisdictions	(27.3)	—	—
Gross increases – tax positions in prior period	(66.6)	(21.6)	(11.7)
Gross decreases – tax positions in prior period	0.5	8.9	2.0
Gross increases – tax positions in current period	(21.6)	(18.8)	(23.1)
Settlements	106.6	2.5	6.8
Lapse of statute of limitations	14.5	32.0	13.2
Effect of changes in exchange rates	6.6	(9.3)	(2.9)
Total liability for unrecognized tax benefits	(138.0)	(144.3)	(160.0)
Balance of accrued interest and penalties	(62.4)	(61.6)	(55.5)
Total liabilities for unrecognized tax benefits including interest and penalties	(200.4)	(205.9)	(215.5)

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 €11.9 million (excluding interest and penalties) within the next 12 months, mainly as a result of expiration of statute of limitations.

For 2020 gross increases of tax positions in prior period and settlements were in essence mainly relating to finalization of a tax audit at the level of our South Korean group companies. Settlements in 2022 mainly relate to final settlement of 2018 and 2019 corporate income tax returns of our Dutch fiscal unity.

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	2019-2022
US	2017-2022
Taiwan	2017-2022
South Korea	2019-2022
China	2012-2022

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, 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	98.1	—	4.4	—	3.3	105.8
Standard warranty reserve	11.3	—	(4.1)	—	0.9	8.1
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 ¹	(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. 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, 2021	Credits and other	Consolidated Statements of Operations	Income tax recognized in Other Comprehensive Income	Effect of changes in exchange rates	December 31, 2021
Deferred tax assets:						
Capitalized R&D expenditures	287.1	—	106.8	—	26.5	420.4
R&D & other tax credit carry forwards	117.2	21.4	16.4	—	7.7	162.7
Inventories	37.2	—	(7.2)	—	1.5	31.5
Contract liabilities	125.2	—	288.0	—	10.0	423.2
Accrued and other liabilities	87.8	—	5.7	—	4.6	98.1
Standard warranty reserve	16.4	—	(6.3)	—	1.2	11.3
Operating loss carry forwards	27.1	—	(19.9)	—	0.2	7.4
Property, plant and equipment	26.9	—	(10.8)	—	2.5	18.6
Lease liabilities	6.5	—	16.2	—	0.5	23.2
Other intangible assets	143.5	—	—	—	—	143.5
Share-based payments	7.2	—	1.8	—	0.6	9.6
Other temporary differences	23.9	—	7.5	(1.0)	(2.9)	27.5
Total deferred tax assets, gross	906.0	21.4	398.2	(1.0)	52.4	1,377.0
Valuation allowance ¹	(122.5)	—	(37.2)	—	(7.9)	(167.6)
Total deferred tax assets, net	783.5	21.4	361.0	(1.0)	44.5	1,209.4
Deferred tax liabilities:						
Other intangible assets	(93.9)	2.9	17.1	—	(6.0)	(79.9)
Goodwill	(15.6)	—	(5.3)	—	—	(20.9)
Right-of-use assets	(6.5)	—	(16.2)	—	(0.5)	(23.2)
Property, plant and equipment	(5.4)	—	(4.3)	—	(1.2)	(10.9)
Contract liabilities	(18.2)	—	10.3	—	—	(7.9)
Long-term debt	(1.6)	—	0.1	—	—	(1.5)
Other temporary differences	(8.7)	2.5	4.4	—	0.7	(1.1)
Total deferred tax liabilities	(149.9)	5.4	6.1	—	(7.0)	(145.4)
Net deferred tax assets (liabilities)	633.6	26.8	367.1	(1.0)	37.5	1,064.0
Classified as:						
Deferred tax assets – non-current	671.5					1,098.7
Deferred tax liabilities – non-current	(37.9)					(34.7)
Net deferred tax assets (liabilities)	633.6					1,064.0

1. 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 & other tax credit carry forwards recognized as per December 31, 2022, are almost fully reserved. R&D & other tax credit carry forwards for the amount of €178.9 million have no expiration date. The remaining R&D & other tax credit carry forwards of €34.4 million have an expiration date between 2023 and 2036. The operating loss carry forwards of €12.2 million have an expiration date between 2023 and 2029.

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 cashflows, freely available funds of the respective entity and the capital adequacy requirements in the respective country allow/require for this. At December 31, 2022 no plans exist to distribute taxable undistributed retained earnings of our non-Dutch subsidiaries. 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, 2022, the aggregate amount of unrecognized temporary differences approximately amounts to €451.3 million (2021: €283.4 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	2020	2021	2022
Issued ordinary shares with nominal value of €0.09	416,514,034	402,601,613	394,589,411
Issued ordinary treasury shares with nominal value of €0.09	2,983,454	3,873,663	8,548,631
Total issued ordinary shares with nominal value of €0.09	419,497,488	406,475,276	403,138,042

87,875,651 ordinary shares were held by 280 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 Transactions 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. Following the amended Articles of Association that were adopted by the General Meeting during the 2022 AGM, the capital structure changed. Due to these changes, we no longer have the ordinary share class B. With the removal of the ordinary share class B, 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. Currently, only one participating customer still holds (directly or indirectly) ordinary shares issued in the CCIP. Certain voting restrictions apply in respect of ordinary shares issued in connection with the CCIP. These voting restrictions in respect of these ordinary shares are set out in the underlying agreement between ASML and the relevant customer. The shares issued in the CCIP were held by foundations which issued depository receipts to participants in the CCIP. A total of 96,566,077 depository receipts for ordinary shares were issued at the launch of the CCIP. This number has since decreased with the sell-down by the relevant customers following expiry of the lock-up.

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

Notes to the Consolidated Financial Statements (continued)

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.

At our 2022 AGM, the Board of Management was authorized from April 29, 2022 through October 29, 2023, 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 29, 2022, plus an additional 5% of our issued share capital at April 29, 2022, that may be issued in connection with mergers, acquisitions and/or (strategic) alliances. Our shareholders also authorized the Board of Management through October 29, 2023, 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 2022 AGM, the Board of Management was authorized, subject to Supervisory Board approval, to repurchase through October 29, 2023, up to a maximum of 10% of our issued share capital at April 29, 2022, 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, 2022, 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.

Notes to the Consolidated Financial Statements (continued)

ASML intends to declare a total dividend in respect of 2022 of €5.80 per ordinary share. Recognizing the interim dividend of €1.37 per ordinary share paid in August 2022, November 2022 and February 2023, this leads to a final dividend proposal to the General Meeting of €1.69 per ordinary share. The total 2022 dividend is a 5.5% increase compared to the 2021 total dividend of €5.50 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 31 December 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.

In 2022, we repurchased 8,538,787 shares (2021: 14,358,838 shares) for a total consideration of €4,639.7 million (2021: €8,560.3 million) of which 355,324 shares for a consideration of €200.0 million were purchased under the new program. In 2022, we canceled 3,337,825 shares (2021: 13,023,016 shares canceled), of which 3,337,825 shares that were repurchased under the 2021-2023 program.

The share buyback program may be suspended, modified or discontinued at any time.

The following table provides a summary of shares repurchased by ASML in 2022:

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 3 - 31, 2022	1,107,187	630.21	1,107,187	3,741.9
February 1 - 28, 2022	1,150,011	572.80	2,257,198	3,083.2
March 1 - 31, 2022	1,241,647	575.99	3,498,845	2,368.0
April 1 - 30, 2022	808,095	573.12	4,306,940	1,904.9
May 1 - 31, 2022	675,117	522.70	4,982,057	1,552.0
June 1 - 30, 2022	717,092	488.27	5,699,149	1,201.9
July 1 - 31, 2022	666,112	467.26	6,365,261	890.6
August 1 - 31, 2022	673,412	541.36	7,038,673	526.1
September 1 - 30, 2022	907,391	466.94	7,946,064	102.4
October 1 - 31, 2022	237,399	431.23	8,183,463	—
November 1 - 30, 2022	152,323	568.91	8,335,786	11,913.3
December 1 - 23, 2022	203,001	558.33	8,538,787	11,800.0
Total	8,538,787	543.37		

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.

Notes to the Consolidated Financial Statements (continued)

The basic and diluted net income per ordinary share has been calculated as follows:

Year ended December 31 (€, in millions, except per share data)	2020	2021	2022
Net income	3,553.7	5,883.2	5,624.2
Weighted average number of shares outstanding	418.3	409.8	397.7
Basic net income per ordinary share	8.49	14.36	14.14
Weighted average number of shares outstanding	418.3	409.8	397.7
Plus shares applicable to options and conditional shares	0.8	0.6	0.3
Diluted weighted average number of shares	419.1	410.4	398.0
Diluted net income per ordinary share	8.48	14.34	14.13

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.

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)	2021		2022	
	Impact on net income	Impact on equity	Impact on net income	Impact on equity
US dollar	(6.9)	51.5	(7.2)	65.3
Japanese yen	(2.2)	(32.9)	(0.1)	(16.6)
Taiwanese dollar	(3.7)	—	(12.8)	—
Other currencies	6.2	—	(1.3)	—
Total	(6.6)	18.6	(21.4)	48.7

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 2022. The negative effect on net income as presented in the table above for 2022 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 2022 compared to 2021 for both US dollar and Japanese yen is mainly the result of the change in outstanding cash flow hedges.

Notes to the Consolidated Financial Statements (continued)

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, 2022 are respectively USD 1.0 billion, JPY 43.9 billion, TWD 18.5 billion, KRW 99.0 billion and CNY 1.0 billion (2021: USD 0.6 billion, JPY 44.5 billion, TWD 2.5 billion, KRW 11.9 billion and CNY 0.6 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 2022, we recognized a transfer to net income of €66.5 million gain (2021: €22.2 million loss; 2020: €2.3 million gain) 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 €3.6 million gain in the Consolidated Statements of Operations resulting from derivative financial instruments measured at fair value through profit or loss (2021: €7.9 million loss; 2020: €28.2 million gain), 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, 2022, outstanding accumulated OCI includes €5.5 million representing the total anticipated gain to be released to cost of sales (2021: gain €20.8 million and 2020: loss €26.1 million), (net of taxes: 2022: gain €4.7 million 2021: gain €17.7 million; 2020: loss €22.7 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, 2022, outstanding accumulated OCI includes gain €3.4 million (2021: loss €1.2 million; 2020: gain €0.4 million), (net of taxes: 2022: gain €2.9 million 2021: loss €1.0 million; 2020: gain €0.4 million), representing the total anticipated gain to be released to sales.

The effectiveness of all contracts for which we apply hedge accounting is monitored on a quarterly basis throughout the life of the hedges. During 2022, 2021 and 2020, no ineffective hedge relationships were recognized.

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)	2021		2022	
	Impact on net income	Impact on equity	Impact on net income	Impact on equity
Effect of a 1.0% increase in interest rates	45.9	—	43.8	—

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, 2022 was €3.0 billion (2021: €3.0 billion). During 2022, 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.

Notes to the Consolidated Financial Statements (continued)

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 for instance S&P, 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 that relate to the 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 current requirements, including our expected capital expenditures 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.

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, 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), which is consistent with the rating on December 31, 2021. Our current credit rating from Fitch is A (Stable), this rating was upgraded in April 2022 from A-.

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.

Notes to the Consolidated Financial Statements (continued)

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.

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)	2021		2022	
	Notional amount	Fair Value	Notional amount	Fair Value
Forward foreign exchange contracts	27.5	12.8	158.5	(18.8)
Interest rate swaps	3,000.0	83.9	3,000.0	(225.1)

The following table summarizes our derivative financial instruments per category:

Year ended December 31 (€, in millions)	2021		2022	
	Assets	Liabilities	Assets	Liabilities
Interest rate swaps — fair value hedges	83.9	—	1.7	226.8
Forward foreign exchange contracts — cash flow hedges	15.0	2.2	3.0	18.1
Forward foreign exchange contracts — no hedge accounting	0.6	0.6	12.6	16.3
Total	99.5	2.8	17.3	261.2
Less non-current portion:				
Interest rate swaps — fair value hedges	47.3	—	—	179.0
Total non-current portion	47.3	—	—	179.0
Total current portion	52.2	2.8	17.3	82.2

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.

Notes to the Consolidated Financial Statements (continued)

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 of our outstanding Eurobonds, with a combined principal amount of €3 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. No hedging is applied for our Eurobonds issued in 2020. 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.

The following tables present our financial assets and financial liabilities that are measured at fair value on a recurring basis:

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

Year ended December 31, 2021 (€, in millions)	Level 1	Level 2	Level 3	Total
Assets measured at fair value				
Derivative financial instruments ¹	—	99.5	—	99.5
Money market funds ²	2,928.3	—	—	2,928.3
Short-term investments ³	—	638.5	—	638.5
Total	2,928.3	738.0	—	3,666.3
Liabilities measured at fair value				
Derivative financial instruments ¹	—	2.8	—	2.8

Year ended December 31, 2021 (€, in millions)	Level 1	Level 2	Level 3	Total
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
Assets measured at fair value				
Derivative financial instruments ¹	—	99.5	—	99.5
Money market funds ²	2,928.3	—	—	2,928.3
Short-term investments ³	—	638.5	—	638.5
Total	2,928.3	738.0	—	3,666.3
Liabilities measured at fair value				
Derivative financial instruments ¹	—	2.8	—	2.8
Assets and Liabilities for which fair values are disclosed				
Loan receivable	—	—	124.4	124.4
Long-term debt ⁴	4,673.9	—	—	4,673.9

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, 2022 and December 31, 2021.

Notes to the Consolidated Financial Statements (continued)

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

The money market and investment funds qualify as available for sale securities. The fair value is close to the carrying value due to short-term nature and since related to investment with investment grade credit ratings. Allowances for credit losses and total unrealized gains and losses are close to nil. 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. Realized gain and losses on these money market funds are not significant given low interest rates and high credit ratings. Costs of securities were close to nil. ASML does not have trading securities as of December 31, 2022.

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. Allowance for credit losses and total unrealized gains and losses are close to nil. 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 2021 and 2022, 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 2021 and 2022. For fair value measurements in relation to the acquisition of Berliner Glas (ASML Berlin GmbH) in 2020 and the subsequent divestment of the non-semiconductor businesses in 2021, we refer to Note 10 Business combinations and divestitures.

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 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 aligned our business interests in order to focus on supporting our end customers. 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 years grace period
- Interest rate subject to a floor of 0.01% and a cap of 1%
- Voluntary prepayment option without penalty
- The loan is secured by a parental guarantee from Zeiss AG

The two companies agreed in the 2021 framework agreement to perpetually continue their strategic alliance in order to meet end customer demand, even in case of termination of the new framework agreement.

Notes to the Consolidated Financial Statements (continued)

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 2022, this amount was determined to be €76.6 million (€61.2 million in 2021). Under the previous High-NA agreement, we incurred R&D costs of €96.1 million in 2020.

An initial loan of €124.4 million has been provided on September 29, 2021 and a second loan of €240.0 million has been provided on September 30, 2022. The loan to Carl Zeiss SMT GmbH is valued at amortized cost and presented within the Consolidated Balance Sheet as Loan receivable. Under the previous High-NA agreement, we provided support for capital expenditures and supply chain investments in 2020 of €221.4 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.

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)	2021	2022	Maximum exposure to loss
Advance payments included in Other assets	982.8	1,100.3	1,100.3
Advance payments included in Property, plant & equipment	82.1	70.0	70.0
Loan receivable	124.4	364.4	364.4
Investment agreement for 24.9% equity	892.5	923.6	923.6
Accounts payable	482.7	269.2	—
Cost to be paid included in Accrued and other liabilities	—	111.2	—

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)	2020	2021	2022
Total purchases	1,623.9	2,070.3	2,693.6

Other related party considerations

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 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 15, 2023, which is the date the Consolidated Financial Statements included in this Annual Report were approved.

On January 25, 2023 a total dividend for the year 2022 of €5.80 per ordinary share was announced.

An interim dividend of €1.37 per ordinary share will be made payable on February 15, 2023.

Recognizing this interim dividend and the two interim dividends of €1.37 per ordinary share paid in 2022, this leads to a final dividend proposal to the General Meeting of €1.69 per ordinary share.

Veldhoven, the Netherlands
February 15, 2023

/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 N.V.

Our conclusion

We have reviewed the non-financial information of ASML Holding N.V. (hereafter: 'the Company') for the year ended 31 December 2022 (hereafter: the non-financial information) included in the Annual Report 2022 of ASML Holding N.V. (hereafter: the Annual Report). A review is aimed at obtaining a limited level of assurance.

Based on the procedures performed nothing has come to our attention that causes us to believe that the non-financial information included in the Annual Report is not prepared, in all material respects, 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 chapter (pages 4-149) as well as the Non-financial statements (pages 263-289) 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 41-43), Financial performance (pages 44-50), Risk (pages 52-68) and Our stories (pages 8,22,30,40,51,69,149).

Basis for our conclusion

We performed our review 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 N.V. 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). 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 N.V. 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.

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 N.V. 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 entity level.

By performing our review procedures at entity level, together with additional review procedures at corporate level, we have been able to obtain sufficient and appropriate assurance evidence about the group's non-financial information to provide a conclusion about the non-financial information.

Limitations to the scope of our review

The non-financial information includes prospective information such as ambitions, strategy, plans, expectations and estimates. Inherently the actual future results are uncertain. 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'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 choices made by the Board of Management regarding the scope of the non-financial information Report name and the reporting policy are summarized within the section "About the non-financial information" (pages 266-271 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.

Assurance Report of the Independent Auditor (continued)

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 skepticism 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;
- Identifying areas of the non-financial information where a material misstatement, whether due to fraud or error, is most likely to occur, designing and performing assurance procedures responsive to these areas, and obtaining assurance information that is sufficient and appropriate to provide a basis for our conclusion. 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 the disclosures, reflects the purpose of the reporting criteria used.

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, 15 February 2023

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 2022 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 chapter.

This Annual Report generally covers the performance of ASML from January 1, 2022 to December 31, 2022, and will be published on February 15, 2023.

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 on the website.

1. We publish two annual reports. One version of the annual report is prepared in conformity with US GAAP. The other version of the annual report is prepared in accordance with EU-IFRS and also complies with Article 362.9 of Book 2 of the Dutch Civil Code. For internal and external reporting purposes, we apply US GAAP. US GAAP is our primary accounting standard for setting financial and operational performance targets.

Reporting process

Each theme has an owner who is responsible for the theme ambition, strategy and relevant performance indicators, 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 Finance. Starting in 2022 a new team was set up for ESG reporting, with the aim 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 within 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 sustainability 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. 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 the year, no significant changes in emissions occurred that triggered recalculations of base year emissions. The DEFRA (UK Department for Environment, Food & Rural Affairs) 2021 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.

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 Pyeong-Taek), 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.

Direct (Scope 1) GHG emissions

Scope 1 emissions are expressed in kt. The CO₂ footprint consists of the combustion of fossil fuels (of which only natural gas is relevant for ASML). It 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 offset any of the remaining emissions, there is no difference between gross and net emissions, so the split is no longer reported.

Energy indirect (Scope 2) GHG emissions

Scope 2 emissions are also expressed in kt and the CO₂ footprint is calculated by multiplying electricity consumption of the manufacturing locations 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, we reported as gross our emissions before purchase of EACs via the market-based method. We also included the market-based emissions (after purchase of EACs) as net. As ASML currently does not offset any of the remaining emissions, there is no difference between our gross and net emissions and we only report the market-based emissions (after purchase of EACs). This is the first year location-based emission factors are also being reported.

About the non-financial information (continued)

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 resulted 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 euro spend).

When using the reported information, the following methodology, assumptions and data reliability needs 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, 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. BEIS, DEFRA, and The National Renewable Energy Laboratory emission databases are used.
- Cat.4 Upstream transportation & 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: We use the distance-based method and select the appropriate emission factors based on the distance and 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 use the distance-based method, which involves collecting data on commuting patterns from employees in the Netherlands (distance travelled and mode of transportation) and applying the appropriate emission factors for the modes used. We take the badge swipe numbers to count the average number of employees that come to the office. 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 full time and idle time machine user scenarios 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.
- 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 divided by total ASML revenue. The only gas included is CO₂, since the 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 chapter. 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), sulphur oxides (SOx), and other significant air emissions

We currently measure and report on Volatile Organic Compounds (VOCs) for the Netherlands and Wilton. The data are reported in myEHS. For VOC's we calculate the air emissions to be the difference between what we have purchased and what we have disposed to the waste vendor. For Veldhoven, the purchase value comes from our SAP system and the disposed figures are confirmed by the waste vendor. For Wilton, the usage is monitored manually. We plan to assess the materiality of VOCs for San Diego, San Jose, Linkou and Taiwan in 2023. We also plan on reassessing the materiality of this indicator in 2023 to identify whether it is relevant to report on other significant air emissions going forward.

About the non-financial information (continued)

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 masterplan period. The current masterplan 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 mainly reductions in the consumption of natural gas and electricity. The reported energy savings are annualized savings from projects finalized in the reporting year and projects implemented 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 for ASML manufacturing locations. 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 [TJoules] 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 (Worldbank), 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 & 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 MGO due to the restrictions in the 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.

- Cat.6 Business travel: The DEFRA emission database is used and the following methods are applied:

- Air travel: The emissions reported 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 the energy is estimated based on the energy consumed for each tonne of waste.

About the non-financial information (continued)

As this is the first year of reporting, this indicator is based on data currently available in open-source databases. 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 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 NXE and NXT machine, scaled to 100% availability. For NXE we include source, scanner, laser, PVAC & abatement and relevant cabinets. For NXT we exclude laser but include 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 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 the other HR reporting.

In an update from last year, we now report this indicator more granularly. 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 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.

The EHS reporting system is assessed against the ISO 14001 standard as part of the internal audit. 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 preexisting 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%.

About the non-financial information (continued)

- 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 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, 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

My EHS incident data is used to extract ill health related incidents. Mental illnesses are out of scope of 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.

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 subchapters.

(Sub)chapter Annual Report	Scope
Our company	
How we innovate	ASML worldwide
Customer intimacy	ASML worldwide, excluding Cymer and Berliner Glas (ASML Berlin GmbH) NOTE: Techinsights ASML only
Financial performance	
Financial performance indicators	ASML worldwide
Energy efficiency and climate action	
Energy management and carbon footprint (scope 1 and 2)	ASML locations above 250 FTE, excluding Berliner Glas (ASML Berlin GmbH)
Energy management and carbon footprint (scope 3)	ASML worldwide: except category 8,9,10,13,14 and 15
Energy management and carbon footprint: Product use at our customers	ASML Products that reached a certain stage of maturity and have been measured
Circular economy	
Reduce waste in our operations	ASML locations above 250 FTE, excluding Berliner Glas (ASML Berlin GmbH)
Re-use parts and materials	ASML worldwide material flows NOTE: Re-use rate and Savings from re-used parts are excluding packaging
Refurbish mature products	ASML products, excluding YieldStar and SBI/MBI metrology tools.
Water management	
	ASML locations above 250 FTE, excluding Berliner Glas (ASML Berlin GmbH) – except for Total Ultra-pure water consumption and Total water recycled and re-used, which is Veldhoven (the Netherlands), Linkou (Taiwan) and HMI Tainan (Taiwan) only.
Attractive workplace for all	
Inspiring a unified culture	ASML worldwide, excluding Berliner Glas (ASML Berlin GmbH)
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
Enabling strong leadership	ASML worldwide, excluding Berliner Glas (ASML Berlin GmbH)

About the non-financial information (continued)

Ensuring employee safety	ASML worldwide, excluding Berliner Glas (ASML Berlin GmbH)
Valued partner in our communities	
Community engagement program	ASML worldwide, excluding Berliner Glas (ASML Berlin GmbH) NOTE: Volunteering hours Technology promotion and Campus promotion ASML Netherlands only Volunteering hours for Community engagement: excludes HMI
ASML Foundation	
Innovation ecosystem	
Public-private partnerships	ASML worldwide
Partnerships with academia and research institutes	ASML worldwide
Supporting startups and scaleups	ASML Netherlands
Our supply chain	
Supply Chain	ASML worldwide, excluding Berliner Glas (ASML Berlin GmbH)
Supplier performance management	ASML worldwide, excluding Berliner Glas (ASML Berlin GmbH)
Supply chain risk management	ASML worldwide, excluding Berliner Glas (ASML Berlin GmbH)
Responsible Supply Chain	ASML worldwide, excluding Cymer, HMI and Berliner Glas (ASML Berlin GmbH)
Responsible business	
Business ethics and Code of Conduct	ASML worldwide, excluding Berliner Glas (ASML Berlin GmbH)
Product safety	ASML worldwide, excluding HMI
Rest	ASML worldwide

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.

For KPMG's assurance report, including details of the work they carried out, read more in:

[Non-financial statements - Assurance Report of the Independent Auditor.](#)

Scope changes and restatements

Compared to the 2021 Annual Report, the following scope changes have occurred:

- For Community engagement we have expanded our reporting scope to include the US and Asia, as well as the Netherlands, regarding the value of donations.
- As of 2022, our scope 3 emission consists of nine months of actual data and three months of estimated data. In the 2023 reporting year, we will adjust the 2022 figure reported with full-year actual 2022 data. In past years, we have reported scope 3 emission data with a one-year lag.
- We have also started reporting on our population for which gender is unknown in all of our workforce indicators.
- Finally, the methodology was changed for the attractive employer ranking for the US for 2020/2021, so the comparative figures have been revised based on the new segmentation.

Non-financial indicators

The non-financial Key Performance Indicators (KPIs) are reported in the different chapters of our sustainability reporting within ESG. The other non-financial performance indicators (PIs) are reported in the tables below.

Customer intimacy

Description	2020	2021	2022	Comments
Overall Loyalty Score (Customer Feedback Survey)	72.6 %	n/a	78.3 %	The survey takes place every 24 months (the last survey was held in September 2022). As of 2022, the score shows consolidated and weighted results for ASML, Brion and HMI surveys.

TechInsights

Large suppliers of chipmaking equipment - score (scale 0 to 10)	9.3	9.2	9.4	
Suppliers of Fab equipment - score (scale 0 to 10)	9.3	9.2	9.4	
Technical leadership for lithography equipment - score (scale 0 to 10)	9.7	9.5	9.8	

Non-financial indicators (continued)

Energy efficiency and climate action – Energy

Description	2020	2021	2022	Comments
Energy consumption (in TJ)	1,412	1,689	1,633	
Energy savings worldwide through projects (in TJ)	114	13	19	In 2021, we started a new masterplan period for 2021-2025 with a target to achieve 100 TJ 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 figure from 2020 is related to the masterplan 2016-2020. The savings reported are cumulated compared with the base year; therefore, they are not comparable.
Energy intensity (per €m revenue)	n/a	n/a	0.08	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 (consumed) (in TJ).
Energy consumption outside of the organization (in TJ)	n/a	n/a	93,962	
Electricity purchased per location (in TJ)				
Veldhoven	802	881	837	
Wilton	114	120	130	
Linkou	35	34	34	
San Diego	167	176	188	
San Jose	—	28	25	In scope for this indicator since 2021.
Tainan	—	36	43	In scope for this indicator since 2021.
Other	—	47	50	In scope for this indicator since 2021. Other includes the locations with more than 250 FTE combined.
Total	1,118	1,322	1,307	
Fossil fuels consumed from non-renewable sources (in TJ)¹				Fossil fuels consumed consists of only natural gas.
Veldhoven	141	184	149	
Wilton	112	127	121	
Linkou	—	—	—	No natural gas is used by this manufacturing location.
San Diego	40	43	43	
San Jose	—	5	6	In scope for this indicator since 2021.
Tainan	—	—	—	In scope for this indicator since 2021. No natural gas is used by this manufacturing location.
Other	—	8	7	In scope for this indicator since 2021. Other includes the locations with more than 250 FTE combined.
Total	293	367	326	
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	2020	2021	2022	Comments
Emission intensity net scope 1+2+3 (in kton/€m revenue)	0.63	0.62	0.56	Comparison figures have been recalculated to eliminate the one-year lag in scope 3 emission data. In 2022, we made efforts to collect the emissions data in a more timely manner so we are able to report for the 2022 year, nine months of actual data and three months of estimate. Gases included is only CO ₂ , as the other gases are negligible.
Net emission footprint change in % (Scope 1+2) - Market-based	(31)%	156 %	(3)%	
Scope 2 CO ₂ e emissions (in kton) Location-based	n/a	n/a	193	
Purchased CO ₂ (in kton)	0.9	0.9	0.7	
Type of Energy Attribute Certificates (in TJ)				
Guarantee of Origins (GOs)	802	883	840	
Renewable Energy Certificates (RECs)	281	331	351	
I-RECs	35	—	3	
Total	1,118	1,214	1,194	
Reduction in greenhouse gas emissions (GHG) split by (in kton):				
Scope 1	n/a	n/a	0.16	
Scope 2	n/a	n/a	2.41	
Total	n/a	n/a	2.57	
Significant air emissions – VOC	n/a	n/a	13,289	
Number of significant fines and non-monetary sanctions	1	—	—	In 2020, there was one fine for HMI Beijing due to the fact that they had no environmental permit.
The monetary value of significant fines for non-compliance with environmental laws and regulations (in € thousands)	70	—	—	

Non-financial indicators (continued)

Circular economy – Waste management

Description	2020	2021	2022	Comments
Total waste generated (in 1,000 kg)^{1 & 2}				
Total non-hazardous waste	4,654	5,284	6,295	
Total hazardous waste	372	395	380	
Total construction waste	231	199	238	
Total	5,257	5,878	6,913	Total waste is treated offsite, no waste treatment onsite.
Total waste by disposal (in 1,000 kg)¹				
Waste diverted from disposal	4,466	4,544	5,186	
Waste directed to disposal	791	1,334	1,727	
Total	5,257	5,878	6,913	
Waste diverted from disposal: Recycling (in 1,000 kg)¹				We apply recycling of waste. Other categories like preparation for re-use and composting are not applicable to ASML.
Total non-hazardous waste	3,911	4,028	4,719	
Total hazardous waste	349	346	309	
Total construction waste	206	170	158	
Total	4,466	4,544	5,186	
Waste directed to disposal: Incineration (with energy recovery) (in 1,000 kg)¹				
Total non-hazardous waste	411	938	1,246	2021 and 2022 saw an increase due to change in waste treatment by supplier. We have engaged with vendors and suppliers to improve the recycling rate in the future.
Total hazardous waste	9	16	37	
Total construction waste	20	17	74	
Total	440	971	1,357	
Waste directed to disposal: Incineration (without energy recovery) (in 1,000 kg)¹				
Total non-hazardous waste	3	51	66	
Total hazardous waste	13	27	24	
Total construction waste	0	0	0	
Total	16	78	90	

Non-financial indicators (continued)

Circular economy – Waste management

Description	2020	2021	2022	Comments
Waste directed to disposal: Landfill (in 1,000 kg)¹				
Total non-hazardous waste	329	267	264	
Total hazardous waste	1	6	10	
Total construction waste	5	12	6	
Total	335	285	280	
Total waste disposed (% of total waste from operations)¹				
Incineration (with energy recovery)	8 %	17 %	19 %	
Incineration (without energy recovery)	— %	1 %	2 %	
Landfill	7 %	5 %	4 %	
Total	15 %	23 %	25 %	

1. The waste disposal methods are determined by information provided by the waste disposal contractor. As of 2021, we split total waste into waste directed to disposal and waste diverted from disposal, as required by the GRI. The comparison figures for 2020 are adjusted to disclose this split.

2. During the dismantling of the Combined Heat and Power (CHP) system in Wilton, a spill of glycol onto the soil surface occurred. Because of this spill, we disposed 12.7 tons of glycol impacted soil and 3.6 tons 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)

Circular economy – Water management

Description	2020	2021	2022	Comments
Water consumption (in 1000 m³), split by:				
Veldhoven	658	728	834	
San Diego	80	105	115	
Wilton	94	95	90	
Linkou	28	26	22	
San Jose	—	21	32	In scope for this indicator since 2021.
Tainan	—	30	33	In scope for this indicator since 2021.
Other	—	36	36	In scope for this indicator since 2021. Other includes the locations with more than 250 FTE combined.
Total	860	1,041	1,162	Municipal water supply.
Total ultrapure water consumption (in 1000 m ³)	127	84	86	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 re-used (in %)	1.8 %	1.2 %	1.6 %	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)	62	56	55	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			2022
	2020	2021	2022	2020	2021	2022	2020	2021	2022	2020	2021	2022	
Payroll employees (in FTE)	25,082	28,747	34,719	6,027	7,404	8,840	13,627	15,444	18,660	5,428	5,899	7,219	
Female (in %)	17	18	19	17	17	18	17	18	20	17	17	19	
Male (in %)	83	82	81	83	83	82	83	82	80	83	83	81	
Unknown (in %)	n/a	n/a	—	n/a	n/a	—	n/a	n/a	—	n/a	n/a	—	
Temporary employees (in FTE)	1,399	2,095	2,924	30	26	31	1,087	1,786	2,607	282	283	286	
Female (in %)	16	18	19	28	19	23	19	20	20	7	8	2	
Male (in %)	84	82	73	72	81	71	81	80	80	93	92	18	
Unknown (in %)	n/a	n/a	8	n/a	n/a	6	n/a	n/a	—	n/a	n/a	80	
Total	26,481	30,842	37,643	6,057	7,430	8,871	14,714	17,230	21,267	5,710	6,182	7,505	
Total number of FTEs (by age group)													
<30	4,798	6,344	8,837	1,518	2,191	2,736	2,381	3,041	4,449	899	1,112	1,652	
30-50	16,848	19,058	22,736	4,300	4,933	5,778	9,615	11,007	13,170	2,933	3,118	3,788	
>50	4,556	5,158	5,792	238	305	355	2,718	3,182	3,647	1,600	1,671	1,790	
Unknown	279	282	278	1	1	2	—	—	1	278	281	275	
Total	26,481	30,842	37,643	6,057	7,430	8,871	14,714	17,230	21,267	5,710	6,182	7,505	
Total number of FTEs (payroll and temporary)													
Female (in %)	17	18	19	n/a	n/a	18	n/a	n/a	20	n/a	n/a	18	
Male (in %)	83	82	80	n/a	n/a	82	n/a	n/a	80	n/a	n/a	79	
Unknown (in %)	n/a	n/a	1	n/a	n/a	—	n/a	n/a	—	n/a	n/a	3	

Attractive workplace for all – Workforce indicators¹

Number of payroll FTEs (split into full-time and part-time)	Total ASML			Asia			EMEA			US			2022
	2020	2021	2022	2020	2021	2022	2020	2021	2022	2020	2021	2022	
Full-time payroll FTEs													
Female (in %)	15	16	18	17	17	18	14	15	17	17	17	19	
Male (in %)	85	84	82	83	83	82	86	85	83	83	83	81	
Unknown (in %)	n/a	n/a	—	n/a	n/a	—	n/a	n/a	—	n/a	n/a	—	
Total	23,317	26,847	32,635	6,024	7,401	8,835	11,878	13,560	16,594	5,415	5,886	7,206	

Non-financial indicators (continued)

Number of payroll FTEs (split into full-time and part-time)			Total ASML			Asia			EMEA			US		
Part-time payroll FTEs														
Female (in %)	37	37	38	—	—	28	37	37	38	46	27	30		
Male (in %)	63	63	62	100	100	72	63	63	62	54	73	70		
Unknown (in %)	n/a	n/a	—	n/a	n/a	—	n/a	n/a	—	n/a	n/a	—		
Total	1,765	1,900	2,084	3	3	5	1,749	1,884	2,066	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 FTEs)	Total ASML			Asia			EMEA			US		
	2020	2021	2022	2020	2021	2022	2020	2021	2022	2020	2021	2022
Number of new hires	1,932	4,373	7,130	598	1,848	2,057	879	1,737	3,306	455	788	1,767
New hires as a % of the total payroll employees	8	15	21	10	25	23	6	11	18	8	13	25
Gender												
Female	454	896	1,724	123	313	415	216	432	903	115	151	406
Male	1,478	3,477	5,400	475	1,535	1,641	663	1,305	2,402	340	637	1,357
Unknown	n/a	n/a	6	n/a	n/a	1	n/a	n/a	1	n/a	n/a	4
Total	1,932	4,373	7,130	598	1,848	2,057	879	1,737	3,306	455	788	1,767
Age group												
<30	854	2,392	3,581	338	1,213	1,321	329	783	1,457	187	396	803
30-50	947	1,789	3,241	253	627	730	491	848	1,708	203	314	803
>50	131	190	308	7	6	6	59	106	141	65	78	161
Unknown	—	2	—	—	2	—	—	—	—	—	—	—
Total	1,932	4,373	7,130	598	1,848	2,057	879	1,737	3,306	455	788	1,767

Non-financial indicators (continued)

Attractive workplace for all – Workforce indicators

Employee attrition (in FTE)	Total ASML			Asia			EMEA			US		
	2020	2021	2022	2020	2021	2022	2020	2021	2022	2020	2021	2022
Number of involuntary employee attrition	186	199	226	38	41	34	102	101	119	46	57	73
Number of voluntary employee attrition	723	1,234	1,678	201	421	530	239	341	503	283	472	645
Total	909	1,433	1,904	239	462	564	341	442	622	329	529	718
Gender												
Female	189	258	372	56	78	107	69	89	129	64	91	136
Male	720	1,175	1,532	183	384	457	272	353	493	265	438	582
Unknown	n/a	n/a	—	n/a	n/a	—	n/a	n/a	—	n/a	n/a	—
Total	909	1,433	1,904	239	462	564	341	442	622	329	529	718
Age group												
<30	218	337	516	73	143	220	67	69	121	78	125	175
30-50	479	806	1,063	149	292	326	179	257	383	151	257	354
>50	212	290	325	17	27	18	95	116	118	100	147	189
Total	909	1,433	1,904	239	462	564	341	442	622	329	529	718

Attractive workplace for all – Workforce indicators

Description	2020	2021	2022	Comments
Workers who are not employees (in FTE) ¹	n/a	n/a	1,682	

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	2020	2021	2022	Comments
Female	80 %	78 %	77 %	
Male	80 %	78 %	78 %	
Benchmark	73 %	76 %	74 %	

Non-financial indicators (continued)

Attractive workplace for all – Employee engagement

Description	2020	2021	2022	Comments
Employee Attrition (in %)	3.8	5.4	6.0	
Open positions filled by internal candidates (in %)	30	29	27	

Attractive workplace for all – Employee engagement

Description	2020	2021	2022	Comments
Total training expenses (in € millions)	12	27	47	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 (€)	494	1,020	1,491	

Total number of training hours per FTE

Female	26	25	41	
Male	29	30	52	
Unknown	n/a	n/a	304	

Weighted average

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.
Female	22	22	41	
Male	27	29	50	
Unknown	n/a	n/a	347	

Weighted average

Number of non-product-related training hours per FTE				Excluding nomination courses (leadership development programs).
Female	7	8	11	
Male	4	5	8	
Unknown	n/a	n/a	27	

Weighted average

Nomination courses: Leadership development programs				
Number of training hours	22,896	6,264	47,454	Due to COVID-19 only two ECAP programs started in 2021.
Number of employees attending (unique)	216	48	322	

Non-financial indicators (continued)

Attractive workplace for all – Diversity & inclusion

Description	Gender			Gender ratio			Age group				Comments	
	Female	Male	Unknown	Total	Female	Male	Unknown	< 30	30 - 50	>50	Unknown	Total
Male/female in managerial positions and on Supervisory Board (in headcount)¹												
Supervisory Board	4	5	—	9	44 %	56 %	— %	—	—	9	—	9
Board of Management	—	5	—	5	— %	100 %	— %	—	1	4	—	5
Senior management	78	623	—	701	11 %	89 %	— %	—	311	390	—	701
Middle management	469	2,869	1	3,339	14 %	86 %	— %	1	1,994	1,344	—	3,339
Junior management	312	1,502	—	1,814	17 %	83 %	— %	64	1,480	270	—	1,814
Other	5,962	23,369	4	29,335	20 %	80 %	— %	7,714	18,001	3,620	—	29,335
Total	6,825	28,373	5	35,203	19 %	81 %	— %	7,779	21,787	5,637	—	35,203

Male/female split by sector (in FTE)	Gender			Gender ratio								
	Female	Male	Unknown	Total	Female	Male	Unknown					
Customer Support	1,055	7,741	8	8,804	12 %	88 %	— %					
Manufacturing and Supply Chain Management	1,732	7,142	91	8,965	19 %	80 %	1 %					
Research and Development	2,203	11,598	121	13,922	16 %	83 %	1 %					
General and Administrative	1,520	2,217	7	3,744	41 %	60 %	— %					
Sales and Mature Product Services	116	552	—	668	17 %	83 %	— %					
Strategic Supply Management	545	983	12	1,540	35 %	64 %	1 %					
Total	7,171	30,233	239	37,643	19 %	80 %	1 %					

1. Temporary employees are not included in the headcount numbers.

Non-financial indicators (continued)

Attractive workplace for all – Diversity & inclusion

Description	2020	2021	2022	Comments
Number of nationalities working for ASML				
Asia	35	33	40	
EMEA	103	108	124	
US	86	90	101	
Worldwide total	120	122	143	
Foreign nationals working for ASML (in %)				
Asia	6	5	5	
EMEA	32	33	38	
US	27	28	25	
Worldwide total	25	26	28	

Attractive workplace for all – Labor relations

Description	2020	2021	2022	Comments
Percentage of employees covered by collective bargaining agreements	53 %	52 %	53 %	

Non-financial indicators (continued)

Attractive workplace for all – Fair remuneration²

Description	2020	2021	2022	Comments
Ratio of base salary of women to men total¹				
Senior management	99 %	99 %	100 %	
Middle management	98 %	99 %	99 %	
Non-management	98 %	98 %	98 %	
Ratio of base salary of women to men Asia¹				
Senior management	n/a	n/a	102 %	
Middle management	n/a	n/a	98 %	
Non-management	n/a	n/a	95 %	
Ratio of base salary of women to men EMEA¹				
Senior management	n/a	n/a	99 %	
Middle management	n/a	n/a	98 %	
Non-management	n/a	n/a	98 %	
Ratio of base salary of women to men US¹				
Senior management	n/a	n/a	100 %	
Middle management	n/a	n/a	100 %	
Non-management	n/a	n/a	100 %	
Ratio of total cash of women to men total¹				
Senior management	99 %	99 %	102 %	
Middle management	98 %	99 %	98 %	
Non-management	97 %	98 %	97 %	
Ratio of total cash of women to men Asia¹				
Senior management	n/a	n/a	110 %	
Middle management	n/a	n/a	92 %	
Non-management	n/a	n/a	96 %	
Ratio of total cash of women to men EMEA¹				
Senior management	n/a	n/a	101 %	
Middle management	n/a	n/a	98 %	
Non-management	n/a	n/a	98 %	

Non-financial indicators (continued)

Attractive workplace for all – Fair remuneration²

Description	2020	2021	2022	Comments
Ratio of total cash of women to men US¹				
Senior management	n/a	n/a	96 %	
Middle management	n/a	n/a	100 %	
Non-management	n/a	n/a	100 %	
Internal pay ratio (CEO versus employee remuneration)³	38	40	34	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). We revised our calculation approach to the internal pay ratio based on the December 2020 guidance from the Monitoring Committee Dutch Corporate Governance Code in section 3.4.1.iv of the Dutch Corporate Governance Code effective as of 2021. The comparative historical numbers of the internal pay ratio have therefore been restated to include the social security expenses in the internal pay ratio numbers. 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 include 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 and parental leave benefits.

Non-financial indicators (continued)

Attractive workplace for all – Employee safety

Description	2020	2021	2022	Comments
ASML recordable incident rate ¹	0.18	0.17	0.18	Includes illness and injuries.
Number of recordable incidents (employees)	46	48	63	
Number of recordable incidents (contractors)	n/a	n/a	9	
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	n/a	—	
Number of recordable injuries	n/a	n/a	48	
Rate of recordable injuries	n/a	n/a	0.14	
Number of high-consequence injuries	n/a	n/a	2	
Rate of high-consequence injuries	n/a	n/a	0.01	

Main types of work-related injuries by employees (split by hazard group)

Electrical	n/a	n/a	1	
Ergonomics	n/a	n/a	17	
Facilities	n/a	n/a	88	
Hazardous substances & materials	n/a	n/a	9	
Hoisting & lifting	n/a	n/a	10	
Mechanical	n/a	n/a	147	
Pressure systems	n/a	n/a	1	
Thermal	n/a	n/a	2	
Travel	n/a	n/a	10	
# hours worked	n/a	n/a	68,746,820	

Workers who are not employees with work-related injuries split by:

Number of recordable injuries	n/a	n/a	8	
Number of high-consequence injuries	n/a	n/a	—	

Non-financial indicators (continued)

Attractive workplace for all – Employee safety

Description	2020	2021	2022	Comments
Main types of work-related injuries by workers who are not employees (split by hazard group)				
Electrical	n/a	n/a	1	
Ergonomics	n/a	n/a	3	
Facilities	n/a	n/a	18	
Hazardous substances & materials	n/a	n/a	1	
Hoisting & lifting	n/a	n/a	5	
Mechanical	n/a	n/a	29	
Pressure systems	n/a	n/a	2	
Travel	n/a	n/a	1	
Employees with work-related ill health split by:				
Number of recordable ill-health	n/a	n/a	15	
Main types of work-related ill health by employees (split by hazard group)				
Ergonomics	n/a	n/a	—	
Facilities	n/a	n/a	22	
Hazardous gasses	n/a	n/a	4	
Hazardous substances & materials	n/a	n/a	—	
Hoisting & lifting	n/a	n/a	4	
Mechanical	n/a	n/a	2	
Pressure systems	n/a	n/a	1	
Workers who are not employees with work-related ill health split by:				
Number of recordable ill-health	n/a	n/a	1	
Main types of work-related ill health by workers who are not employees (split by hazard group)				
Ergonomics	n/a	n/a	2	
Hazardous gasses	n/a	n/a	1	
Mechanical	n/a	n/a	1	

1. The 2020 and 2021 recordable incident rates include recordable incidents related to workers who are not employees. From 2022, and in line with 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.

Non-financial indicators (continued)

Our supply chain – Responsible supply chain

Description	2020	2021	2022	Comments
Suppliers assessed on sustainability (in #), split by:				
Audits	—	—	2	In 2020 and 2021, the audits were put on hold due to the COVID-19 restrictions.
RBA Self-Assessment Questionnaire (SAQ)	59	56	59	

Our supply chain – Supply chain

Description	2020	2021	2022	Comments
Total number of suppliers				
Number of suppliers per region:				
Asia	1,313	1,319	1,348	
EMEA (excl. Netherlands)	684	702	745	
Netherlands	1,477	1,459	1,584	
North America	1,275	1,177	1,307	
Total	4,749	4,657	4,984	
Number of suppliers, split by:				
Product-related	779	772	789	
Non-product-related	3,970	3,885	4,195	
Total	4,749	4,657	4,984	The majority are Tier 1 suppliers.
Number of suppliers, split by:				
Critical	222	229	245	Critical suppliers are Tier 1 suppliers of strategic importance.
Non-critical	4,527	4,428	4,739	
Total	4,749	4,657	4,984	
Number of critical suppliers, split by:				
Product-related	188	197	216	
Non-product-related	34	32	29	
Total	222	229	245	
Number of suppliers in scope for risk management	235	243	264	This includes 19 critical Tier 2 suppliers.
Total sourcing spend (in million EUR)	7,645	9,045	12,402	
Sourcing spend per supplier group (in %)				
Product-related	68 %	70 %	69 %	
Non-product-related	32 %	30 %	31 %	

Non-financial indicators (continued)

Our supply chain – Supply chain

Description	2020	2021	2022	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 United States. The manufacturing location in Tainan is immaterial for this indicator.
Veldhoven	47 %	45 %	45 %	A relatively large amount of the total supplier spend for Veldhoven relates to Carl Zeiss (non-local).
Linkou	48 %	50 %	53 %	
San Diego	94 %	92 %	92 %	
Wilton	71 %	64 %	71 %	

Governance – Business ethics

Description	2020	2021	2022	Comments
Total number of Speak Up messages, split by:	229	396	414	
Anti-corruption & bribery Speak Up messages	19	37	31	None of the Speak Up messages indicated any violation of anti-corruption laws.
Human rights	69	187	165	
- of which discrimination and harassment	n/a	n/a	106	

Governance – Product safety

Description	2020	2021	2022	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, 2022 and 2021. 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 2022 and 2021:

Year ended December 31 (€, in thousands)	2021			2022		
	KPMG Accountants N.V.	KPMG Network	Total	KPMG Accountants N.V.	KPMG Network	Total
Audit fees	2,449	1,047	3,496	3,203	1,064	4,267
Audit-related fees	90	—	90	150	—	150
Tax fees	—	—	—	—	—	—
All other fees	27	—	27	47	9	56
Principal accountant fees	2,566	1,047	3,613	3,400	1,073	4,473

Audit fees and audit-related fees

Our independent registered public accounting firm is KPMG Accountants N.V. (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 100% of the external audit plan and audit fees for the years 2022 and 2021.

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 €2,223.4 million as of December 31, 2022, compared with €1,856.0 million as of December 31, 2021. 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 2022, 2021 and 2020, amounted to €1,281.8 million, €900.7 million and €962.0 million, respectively. Capital expenditures in 2022 increased compared to 2021 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 2023, will be approximately €2.4 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 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 partner (as defined in the Dutch Personal Income Tax Act 2001), owns 5.0% or more of our 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 share capital, is deemed to have a substantial interest in our shares, or our options, as applicable. 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.

Income tax consequences for individual non-resident holders on owning and disposing of the ordinary shares

An individual who is a Non-Resident Holder will 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 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 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 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.

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.

Appendix - Dutch taxation (continued)

Under certain circumstances, a reduction of Dutch dividend withholding tax can be obtained:

- An exemption at source is available if the participation exemption applies and the ordinary shares are attributable to a business carried out in the Netherlands;
- An exemption at source is available for dividend distributions to certain qualifying EU/EEA resident corporate holders, 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;
- An exemption at source is available for dividend distributions to certain qualifying corporate holders that are a resident of a non-EU/EEA jurisdiction with which the Netherlands has concluded a tax treaty that includes a dividend article, 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;
- 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 corporate income tax which would have been due if they were resident of the Netherlands.

Furthermore, a Non-Resident Holder of ordinary shares can 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. 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%, 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.

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 Holder, 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.

Appendix - Dutch taxation (continued)

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.

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 2022 and that we will not be a passive foreign investment company in 2023. 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.

Appendix - Dutch taxation (continued)

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.

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 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 by the uncertainties of the global economy, the bulky character of our business and the specific characteristics of 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 expected requirements, including our expected capital expenditures, research and development 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)

	2021	2022
Deposits with financial institutions, governments and government related bodies	2,131.7	2,548.1
Investments in money market funds	2,928.3	3,196.7
Bank accounts	1,891.8	1,523.5
Cash and cash equivalents	6,951.8	7,268.3
Deposits with financial institutions, governments and government related bodies	638.5	107.7
Short-term investments	638.5	107.7

We maintain an available committed credit facility, with a group of banks, of €700.0 million, under which no amounts were outstanding at the end of 2022 and 2021. This facility has a maturity date of July 2026. We further maintain a local uncommitted credit facility with a bank in China ensuring local liquidity and operational requirements are met at all times, also given existing regulatory restrictions regarding flexible intercompany funding.

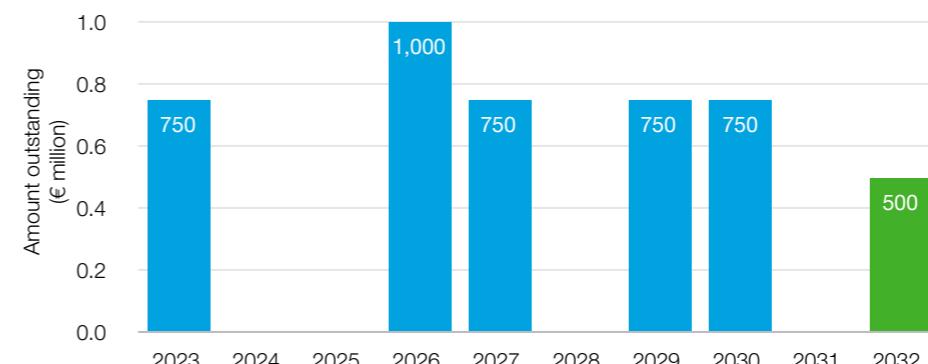
Capital structure

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, 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), which is consistent with the rating on December 31, 2021. Our current credit rating from Fitch is A (Stable), this rating was upgraded in April 2022 from A-.

We have Eurobonds outstanding with an aggregate principal amount of €4.5 billion, having the following maturities:

Outstanding Eurobond Maturity Amounts



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.

ASML intends to declare a total dividend in respect of 2022 of €5.80 per ordinary share. Recognizing the interim dividend of €1.37 per ordinary share paid in August 2022, November 2022 and February 2023, this leads to a final dividend proposal to the General Meeting of €1.69 per ordinary share. The total 2022 dividend is a 5.5% increase compared to the 2021 total dividend of €5.50 per ordinary share.

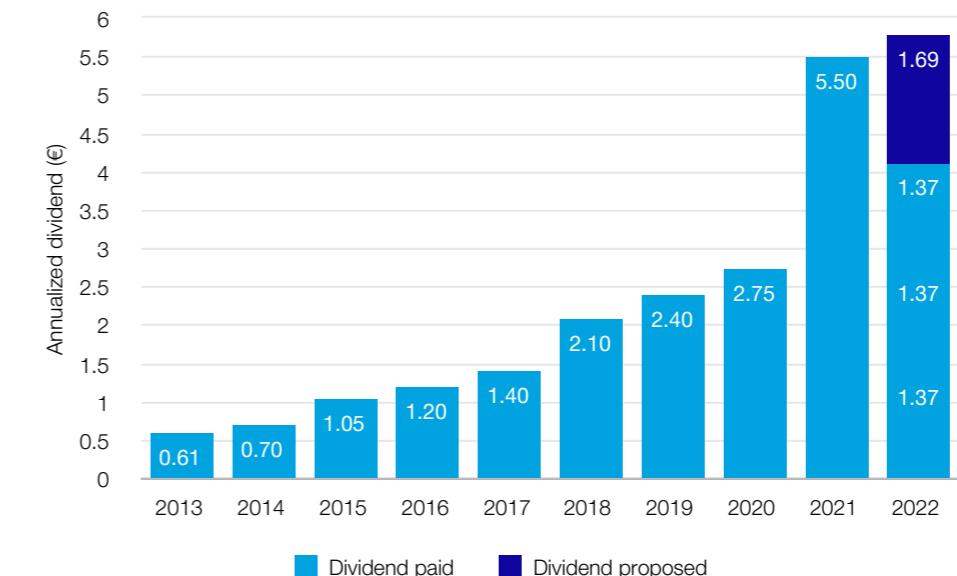
In addition to dividend payments, we intend to return cash to our shareholders on a regular basis through share buybacks or capital repayment, subject to our actual and anticipated level of liquidity requirements and other relevant factors.

On November 10, 2022, we announced a new share buyback program to be executed by 31 December 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.

In 2022, we repurchased 8,538,787 shares (2021: 14,358,838 shares) for a total consideration of €4,639.7 million (2021: €8,560.3 million) of which 355,324 shares for a consideration of €200.0 million were purchased under the new program.

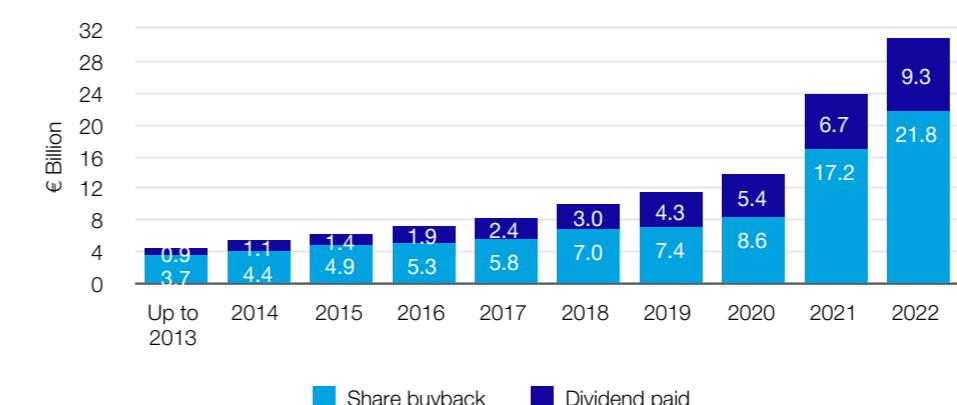
Dividend per share history

(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 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 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, 2022, the Transfer Agent contributed USD 0.7 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 - Material contracts

Framework agreement between ASML and Carl Zeiss SMT GmbH

On September 14, 2021, ASML Netherlands B.V. and Carl Zeiss SMT GmbH signed a new overall framework agreement covering the entire spectrum of their relationship (the ASML-SMT Business Agreement).

For further details see:

[Consolidated Financial Statements - Notes to the Consolidated Financial Statements - Note 26 Related parties and variable interest entities.](#)

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, 2022, 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, 2022, 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, 2022, 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, 2022, 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 N.V., 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, 2022, 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 19, 2023

Announcement of First Quarter results for 2023

April 26, 2023

Annual General Meeting

July 19, 2023

Announcement of Second Quarter results for 2023

October 18, 2023

Announcement of Third Quarter results for 2023

Fiscal Year

ASML's fiscal year ends on December 31, 2023

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
www.asml.com.

Appendix - Reference table 20-F

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2	Offer Statistics and Expected Timetable	Not applicable				Note 17 Commitments and contingencies	240
3	Key Information				C. Research and Development, and Licenses, etc.	Note 25 Financial risk management	255
	B. Capitalization and Indebtedness	Not applicable				Q&A with the CTO	20
	C. Reasons for the Offer and Use of Proceeds	Not applicable				How we innovate	12
	D. Risk Factors	Risk - Risk factors	56			Financial performance - Research and development costs	46
4	Information on the Company				D. Trend Information	Innovation ecosystem	118
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		Our company	9		E. Critical Accounting Estimates	Long-term growth opportunities	49
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10	Additional Information			Part III				
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	C. Material Contracts	Appendix - Material contracts	301	19	Exhibits	Exhibit index	317	
	D. Exchange Controls	Appendix - Exchange controls	302	This document contains information required for the Annual Report on Form 20-F for the year ended December 31, 2022, of ASML Holding N.V. 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 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, or the Exhibits themselves, shall not be deemed to be incorporated by reference, shall not be part of the 2022 Annual Report on Form 20-F and is furnished to the Securities and Exchange Commission for information only.				
	E. Taxation	Appendix - Dutch taxation	293					
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12	Description of Securities Other Than Equity Securities	Appendix - Offer and listing details	300					
Part II								
13	Defaults, Dividend Arrearages and Delinquencies	None		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.				

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
Annual Report	Annual Report on Form 20-F
Applied Materials Inc.	Semiconductor equipment company
ARCNL	Advanced Research Center for Nanolithography
ArF	Argon fluoride
ArFi	Argon fluoride immersion
ASC	Accounting Standards Codification
ASC 740	Accounting Standards Codification provision for income taxes
ASML	ASML Holding N.V. and/or any of its subsidiaries
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.
B	
BAPA	Bilateral advance pricing agreements
BEAT	Base erosion and anti-abuse tax
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
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.
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.
CMD	Capital Markets Day
CMO	Chief Marketing Officer

Definitions (continued)

Name	Description
CMOS	Complementary metal–oxide semiconductor
CO ₂	Carbon dioxide
Code	The Dutch Corporate Governance Code
Code of Conduct	Code of ethics and conduct
Company	ASML Holding N.V.
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 Operating 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
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	
Deloitte	Deloitte Accountants B.V.
D&I	Diversity and inclusion
DJSI	Dow Jones Sustainability Index
DRAM	Dynamic random-access memory
DUV	Deep ultraviolet
E	
EAC	Energy attribute certificates
EBIT	Earnings before interest and taxes

Name	Description
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
EURIBOR	Euro Interbank Offered Rate
Eubond	A bond denominated in Euros
Euroclear Nederland	The Dutch Central Securities Depository (Nederlands Centraal Instituut voor Giroaalf Effectenverkeer B.V.)
Euronext Amsterdam	Euronext Amsterdam N.V.
EUV	A lithography technology that uses extreme ultraviolet light with a wavelength of 13.5 nm. This is currently the cutting edge of lithography, enabling technology nodes of 16 nm and beyond. It is used for only the most critical layers with the smallest features.
EVP	Executive Vice President
EVP HRO	Executive Vice President Human Resources and Organization
Exchange Act	US Securities Exchange Act of 1934
ExCom	Executive Committee
F	
Fab	Semiconductor fabrication plant

Definitions (continued)

Name	Description	Name	Description
Fast shipment	A fast shipment process skips 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	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 solutions to analyze and control the manufacturing process in real time
FAQ	Frequently asked questions	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
Farmout supplies	Our suppliers that we work with as co-investors	HR&O	Human Resources & Organization
FAT	Factory acceptance test	HTSC	High Tech Systems Center
FDII	Foreign-derived intangible income	Huisman	Huisman Equipment BV
Feature	The elements that make up the pattern for a given layer of a microchip	HVAC	Heating, ventilation, and air conditioning
FFHA	Foundation for Hospital Art	I	
Fitch	A leading provider of credit ratings, commentary and research for global capital markets	IAS	International accounting standards
Flash	A type of non-volatile memory used for storing and transferring information	IBM	Installed base management
Foundry	A contract manufacturer of logic chips	IC	Integrated circuit
Fraunhofer	Applied research organization in Germany	ICT	Information and communication technology
FTEs	Full-time equivalents	ID2PPAC	Integration of processes and modules for the 2 nm node meeting Power Performance Area and Cost requirements
FTSE4Good	Series of ethical investment stock market indices launched in 2001 by the FTSE Group.	IDM	Integrated device manufacturer
G		IFRS	International financial reporting standards
G-SEED	Green Standard for Energy and Environmental Design	Internal Control - Integrated Framework 2013	Criteria issued by the Committee of Sponsoring Organizations of the Treadway Commission.
GAAP	Generally accepted accounting principles	IP rights	Intellectual property rights
GDP	Gross domestic product	IRA	Inflation Reduction Act of 2022
GDPR	General data protection regulation	IIRC	International Integrated Reporting Council
GeSI	Global e-Sustainability Initiative	I-REC	International renewable energy certificate
GHG	Greenhouse gas	IRS	Internal Revenue Service of the United States
GILTI	Global intangible low-tax income	i-line	Light with a wavelength of 365 nm, generated by mercury vapor lamps and used in some lithography systems
GPU	Graphics processing unit	ILO	International Labor Organization
GRI	Global Reporting Initiative	Imaging	The transfer of a pattern onto the photoresist on a wafer using light
GRI standards	GRI sustainability reporting standards	imec	Interuniversitair Micro-Elektronica Centrum
H		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.
H2	Molecular hydrogen		
HDD	Hard disk drive		
HMI	The brand name for ASML's range of electron beam (e-beam) wafer inspection and metrology systems		

Definitions (continued)

Name	Description	Name	Description
Inclusion Index	The overall score related to the questions included in the we@ASML survey that specifically relate to 'inclusion'	Memory	Microchips, such as NAND Flash and DRAM, that store information. Also refers to companies that manufacture such chips.
Intel	Intel Corporation	Metalektro	Multi-employer union plan is managed by PME (Stichting Pensioenfonds van de Metalektro).
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	Metrology	The science of weights and measures or of measurement.
IT2	IC Technology for the 2nm Node (EU project)	mm	Millimeter (one thousandth of a meter)
IPR	Intellectual property rights	MNP	Make Next Platform
ISO	International Organization for Standardization	Moody's	An American credit rating agency that provides corporate ratings.
J		MPS	Mature Products and Services
JG+13	Job grade 13 and higher	MSCI	Morgan Stanley Capital International
JP Morgan Chase	A US-based global leader in financial services offering solutions to the world's most important corporations, governments and institutions	Mt	Megatonne, a metric unit equivalent to 1 million (10^6) tonnes, or 1 billion (10^9) kilograms
K		MW	Megawatt, a metric unit equivalent to one million (10^6) watt
KLA-Tencor	KLA-Tencor Corporation	N	
KPI	Key performance indicator	NA	Numerical aperture
KPMG	KPMG Accountants N.V.	NAND	A binary logical operator that gives an output when it receives one or no input; a composite of 'NOT AND'.
K-Reach	Act on the Registration and Evaluation of Chemicals in South Korea	Nanoscale	The nanoscopic scale (or nanoscale) usually refers to structures with a length scale applicable to nanotechnology, usually cited as 1–100 nanometers.
KrF	Krypton fluoride	NASDAQ	NASDAQ Stock Market LLC
kt	Kilotonne or 1,000 tonnes (1 tonne = unit of mass equal to 1,000 kilograms)	Net bookings	Net bookings include all system sales orders and inflation related adjustments, for which written authorizations have been accepted.
kWh	Kilowatt-hour	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.
L		NGO	Nongovernmental organization
LED	Light-emitting diode	NIIT	Net investment income tax
LEED	Leadership in Energy and Environmental Design	Nikon	Nikon Corporation
LGBTQIA+	Lesbian, gay, bisexual, transgender, queer, intersex, asexual and other identities	NL	The Netherlands
LIBOR	London Interbank Offered Rate	nm	Nanometer (one billionth of a meter)
Lithography	Lithography, or photolithography, is the process in microchip manufacturing that uses light to pattern parts on a silicon wafer.	Node	A steppingstone 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.
Logic	Integrated devices such as microprocessors, microcontrollers and GPUs. Also refers to companies that manufacture such devices.	Non-GAAP	A company's historical or future financial performance, financial position, or cash flows that are not calculated or presented in accordance with the most comparable GAAP measure.
LTI	Long-term incentive		
LXP	Learning eXperience Platform		
M			
MBA	Master of Business Administration		

Definitions (continued)

Name	Description
NPR	Non-product-related
NRE	Non-recurring engineering
NXE	The original TWINSCAN system platform for EUV lithography
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
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 3nm Semiconductor Technology
PIs	Performance Indicators
PME	Bedrijfstakpensioenfonds Metalektro
Preference shares foundation	Stichting Preferente Aandelen ASML

Name	Description
Preference share option	An option to acquire cumulative preference shares in our capital
Q	
Q&As	Questions and answers
QLTCS	Quality, logistics, technology, cost and sustainability
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 N.V.
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	
S&P	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

Definitions (continued)

Name	Description	Name	Description
SEC	The United States Securities and Exchange Commission	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
SEMI	Semiconductor Equipment and Materials International	Thales NL	Dutch branch of the international Thales Group
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	Throughput	The number of wafers a system can process per hour
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	Tier 1 (2,3) supplier	Tier 1 suppliers are direct suppliers whereas Tier 2, 3 and beyond refer to suppliers of our suppliers
SG&A	Selling, general and administrative expenses	TJ	Terajoule (one trillion joules)
Shrink	The process of developing smaller transistors for more advanced chips.	TNO	Nederlandse Organisatie voor Toegepast Natuurwetenschappelijk Onderzoek (Netherlands Organisation for Applied Scientific Research)
SMART Photonics	Foundry for integrated photonic circuits	Transistor	A semiconductor device that is the fundamental building block of microchips
SoC	System on a chip	TSCA	Toxic Substances Control Act
SPE Shareholders	A syndicate of three banks for the purpose of leasing ASML's headquarters in Veldhoven.	TSMC	Taiwan Semiconductor Manufacturing Company Ltd.
SPIE	International society for optics and photonics	TSR	Total shareholder return
S&SC	Sourcing and supply chain	TWINSCAN	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
SSD	Solid-state drive	U	
Springplank 040	Social care organization in Eindhoven offering support and guidance to homeless people	UNGP	United Nations guiding principles
SSRA	Safety risk assessment	US	United States
STEM	Science, technology, engineering and mathematics	US GAAP	Generally accepted accounting principles in the United States of America
STI	Short-term incentive	US ITC	United States International Trade Commission
STR	Stichting Technology Rating, a non-profit organization.	V	
Sub fab	Located under the cleanroom floor, the sub fab contains auxiliary equipment such as the drive laser	Vanderlande	A material handling and logistics automation company based in the Netherlands
SWOT	Strengths, weaknesses, opportunities and threats	VAT	Value-added tax
T		VIE	Variable interest entity
TAPES3	Technology Advances for Pilot line of Enhanced Semiconductors for 3nm	VLSI	VLSI Research Inc.
TCFD	Task force on climate-related disclosures	VNO-NCW	The Confederation of Netherlands Industry and Employers
TC	ASML's Technology Committee	VOC	Volatile organic compound
TCC	Total Cash Compensation	VP	Vice president
TCFD	Task Force on Climate-related Financial Disclosures	VPA	Volume purchase agreement
TCJA	Tax Cuts and Jobs Act	VPC	Volume parts contract
TDC	Total direct compensation	W	
		WACC	Weighted average cost of capital
		Wafer inspection	The process of locating and analyzing individual chip defects on a wafer

Definitions (continued)

Name	Description
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 B.V.
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 N.V. 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 N.V. (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 15, 2023

/s/ Roger J.M. Dassen
Name: Roger J.M. Dassen
Title: Executive Vice President, CFO and member of the Board of Management
Dated: February 15, 2023

Exhibit index

Exhibit No.	Description
1	Articles of Association of ASML Holding N.V. (English translation) (Incorporated by reference to Amendment No. 13 to the Registrant's Registration Statement on Form 8-A/A, filed with the SEC on February 8, 2013)
2.1	Description of Securities registered under Section 12 of the Exchange Act (Incorporated by reference to the Registrant's Annual Report on Form 20F for the year ended December 31, 2021)
4.1	Form of Indemnity Agreement between ASML Holding N.V. 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 N.V. 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 N.V. 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 N.V. (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 N.V. 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 N.V. 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 B.V. 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
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 they are both (i) not material and (ii) the registrant customarily and actually treats the information as private or confidential.

ASML is party to six 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:

- 3.375% ASML Holding NV Fixed Rate Senior Notes due 2023 (XS0972530561) at Luxembourg Stock Exchange;
- 1.375% ASML Holding NV Fixed Rate Senior Notes due 2026 (XS1405780963) at Luxembourg Stock Exchange;
- 1.625% ASML Holding NV Fixed Rate Senior Notes due 2027 (XS1527556192) at Luxembourg Stock Exchange;
- 0.625% ASML Holding NV Fixed Rate Senior Notes due 2029 (XS2166219720) at Luxembourg Stock Exchange;
- 0.250% ASML Holding NV Fixed Rate Senior Notes due 2030 (XS2010032378) at Luxembourg Stock Exchange; and
- 2.250% ASML Holding NV Fixed Rate Senior Notes due 2032 (XS2473687106) at Luxembourg Stock Exchange.