

ASML

**Annual
Report
2020**



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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*).

The sections *Who we are and what we do*, *What we achieved in 2020*, *CFO financial review*, *How we manage risk*, *Leadership and governance* and *Directors' Responsibility Statement* together form the Management Report within the meaning of Section 2:391 of the Dutch Civil Code (and related Decrees).

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.

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Special note regarding forward-looking statements

In addition to historical information, this Annual Report contains statements relating to our future business and / or results. These statements include certain 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, expected semiconductor industry trends and 2024 market opportunities and roadmap, expected trends in markets served by our customers, expected market growth and drivers of such trends and growth, expected financial results, including expected sales, EUV revenue, service revenue, expected trends in working capital, gross margin, capital expenditures including expected capital expenditures, R&D and SG&A expenses, cash conversion cycle, target and expected effective annualized tax rate, sales targets and outlook for 2021 and other statements under "-Trend Information", annual revenue opportunity and potential and growth outlook for 2025, expected growth in 2021, expected continued growth in free cash flow generation, investments in the future and cash returned to shareholders, our Strengths, Weaknesses, Opportunities and Threats (SWOT), expected demand for upgrades, semiconductor industry dynamics and industry opportunities, expected trends in customer demand and demand for particular systems and upgrades and expected trends in end markets, including Memory, Logic and Foundry, including the continuation of investment by Logic customers in ramping new nodes and stronger lithography demand from memory customers, expected benefits of High-NA and planned target to start shipment of High-NA systems and high-volume production of systems using High-NA by 2025, 2024 market opportunities for semiconductor industry end markets, expected innovation drivers, expected drivers of long-term stakeholder value, expected trends in DUV systems revenue, expected DUV sales and the expectation that DUV will continue to drive value for our customers and be used in production in most layers of their chips, expected benefits of Holistic Lithography and expected installed based management revenues, our supply chain strategies and goals, customer, partner and industry roadmaps, ASML's applications business,

expected development of High-NA and its benefits, including the expected timing for development of future generation EUV systems, expected growth in EUV revenue the expected benefits of the indirect interest in Carl Zeiss SMT GmbH and the acquisition of Berliner Glas, expected EUV margins and margin improvement in our systems and service via cost reduction and value delivery, expected productivity and benefits of our tools, systems, and projects, EUV productivity targets and goals, potential future innovations and system performance, expected shipments of our tools and systems, including demand for and timing of shipments, statements with respect to DUV and EUV competitiveness, the development of EUV technology and EUV industrialization, expected productivity upgrade releases, enabling high-volume production of next generation chips and expected designs of such chips and their benefits, and revenue recognition, predicted growth in wafer production, sustainability targets, goals and strategies, shrink being a key driver supporting innovation and providing long-term industry growth, lithography enabling affordable shrink and delivering value to customers, sustainability strategy, goals and targets, including circular procurement goals, targeted greenhouse gas emission and waste reduction and recycling initiatives and investments, repair center expansion and targets, our expectation of the continuation of Moore's Law and that EUV will continue to enable Moore's Law and drive long-term value for ASML well beyond the current decade, tax strategy, capital allocation policy, dividend policy, our expectation to continue to return cash to our shareholders through share buybacks and dividends including our proposed dividend for 2020 and statements relating to our share buyback program for 2020-2022, and statements with respect to the expected impact of accounting standards.

These forward-looking statements are not historical facts, but rather are based on current expectations, estimates, assumptions and projections about the business and our 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.

2020 at a glance

Interview with our CEO



Peter Wennink, Chief Executive Officer

How do you look back on 2020?

It was a year that affected us all due to the global COVID-19 pandemic. The impact has been widely felt across societies and families, as well as in the ASML community. But it was also a year that brought new learnings. For me personally, for instance, if you'd asked me 12 months ago if I could lead a company of over 28,000 people of which over 80% were at home, I would have said: "Are you out of your mind? Of course that won't work!" But this is what happened in 2020 – and it has worked. We even managed to close the acquisition of Berliner Glas Group, and welcomed around 1,600 new colleagues into ASML.

While recognizing fully the severity of the pandemic, I also see 2020 as a year that underlined the importance of our work at ASML. Around the world people were abruptly confined to their homes and forced to work from their study, kitchen or bedroom. What was remarkable is that despite this widespread working from home, few companies experienced productivity loss.

And let's not forget the many colleagues in our factories, and those who went to customers' factories and worked under very difficult conditions. Those who had to take long-distance trips to serve our customers were quarantined for weeks and forced to stay in their hotel rooms. Their dedication is nothing short of amazing and reflects the true ASML spirit. For those who had to work from home, the trust we put in their hands was returned with incredible flexibility and commitment. We even had to urge our colleagues to take breaks to stay physically and mentally fit. All of this was possible because the digital tools that the high-tech industry has developed over the past two decades proved sufficiently mature to support individuals and, even more importantly, collaboration in virtual teams. ASML systems have contributed significantly to advance and make affordable the necessary electronic building blocks for this digital transformation.

During 2020, we collaborated closely with our partners in the supply chain to ensure we could continue to manufacture and ship systems to our customers. The situation was very dynamic and I am impressed with the way that we managed to deal with the many challenges. This is how, collectively, we limited the impact of COVID-19 on our company. We kept up our strong financial performance and we were able to continue to return capital through dividends and share buybacks.

What were the main factors behind ASML's strong performance in such a challenging year?

The global economic consequences of COVID-19 had a limited impact on ASML's results. Declining consumer spending on smartphones and automotive was offset by increasing investments in 'working-from-home' electronics, datacenters and the communications network infrastructure needed to support an economy where data is an important driver of economic value and productivity.

ASML does not produce these electronic devices or the software and digital services that run over them, but our systems are essential to manufacture the semiconductors that power this ecosystem. ASML and other semiconductor equipment peers are an integral part of this global electronic ecosystem of many dozens of companies that generates \$400 billion worth of annual taxable profit. It is the strong performance of our entire ecosystem that powered the demand for our products and services this year, and enabled us to deliver record results.

What were your customers' priorities in 2020?

We divide our customers into two main market segments. First, the customers who produce Logic chips, who kept their steady pace of increasing investments in new production nodes. This explains the increasing demand for our most-advanced EUV systems, which customers need for the ramp of 5 nm chip production and the preparation for 3 nm chips. These advanced chips, the size of a thumbnail, contain up to a dozen billion transistors, which will power the latest and greatest smartphones, computers and other data-processing devices.

Second, the market segment of customers who produce Memory chips, who started the year in a 'wait and see' mode, but showed signs of recovery throughout the year. The Memory segment routinely experiences supply and demand swings, which you need to visualize as a continuously upward swinging trend.

The underlying growth in Memory 'bit' demand is the result of continuously rising data traffic that needs to be stored on servers and consumer devices. Our customers can meet this increase largely by shrinking the size of the memory transistors on their chips. They do this by adding more advanced ASML systems to make the smallest features on the chip even smaller. If the global economy is strong or when new data-hungry applications are introduced, the demand for Memory rises even faster. In

this case, the Memory makers need to add new production lines or even entirely new fabs. To support the projected bit growth, we expect that customers will need to add more capacity, as observed in our Q4 results.

What do you expect for 2021?

The digital transformation and wider technology trends significantly shape our roadmap and are driving our industry forward. Our Logic customers are very clear that they will continue their investments in ramping new, more advanced nodes. The pace will depend on the health of the global economy, and even more so on the value provided by the electronics and semiconductor industries, which are enabling the world's digital transformation. For the Memory segment, demand did not outpace supply in 2020, due to COVID-19 uncertainty. Based on our customers' comments at the end of 2020, and improving market conditions, we expect to see stronger lithography demand from Memory customers in 2021 versus 2020.

Another significant revenue stream comes from service and upgrades of ASML systems installed at our customers' fabs. We expect our service revenue to grow with a growing installed base, whereas our upgrade business is more dependent on the release of new upgrades and the interest and capability of our customers.

In summary, although we are currently going through a period of near-term uncertainty, the outlook for 2021 is positive, and the long-term demand drivers have only increased confidence in our future sustainable growth outlook towards 2025.

Does anything stand in the way of that optimistic view?

When I am asked what the future holds, my first response is that of course there are many uncertainties in today's world. We don't know what the effects of the COVID-19 crisis will be. In addition, geopolitical tensions and export control issues could have a significant impact on our industry. Looking specifically at our company, short-term business cycles and fluctuations in the global economy may have an impact on our business performance, even when the long-term megatrends provide us with a solid foundation. Most important is that we continue to put the customer at the heart of our business. Listening to the customer may sound obvious, but having direct interaction and communication with our customers is no longer possible for all ASML employees. We are making an extra effort to bring the voice of our customers to all ASML employees, through the online and off-line channels at our disposal.

Everyone at ASML is constantly reminded of the reality that ASML systems are at the heart of our customers' fabs, and in many cases our systems are even at the heart of our customers' business strategies. This is a tremendous responsibility that should weigh heavily on all our shoulders. This feeling of responsibility and humility starts with the people who design and develop new systems and solutions. It continues with the folks who assemble the systems in our factories and our service engineers in the field. It is carried all the way to our office staff who provide support to their colleagues around the world. As long as we cherish this 'customer-centricity', we will continue to deserve the trust that our customers have put in us.

How would you describe ASML's footprint in the broader society?

It's clear there is increasing interest in companies' ecological and social footprints. We continue to apply corporate responsibility standards in the pursuit of our business ambitions. Our innovation ecosystem, energy-efficient products, circular use of materials and a responsible supply chain are our key sustainability priorities. These are vital for the long-term success of our business and long-term value we create for all our stakeholders.

“Although we are currently going through a period of near-term uncertainty, the outlook for 2021 is positive.”

We continue to accelerate talent development and we promote a diverse and inclusive workplace that drives creativity and new ideas. We also drive collaborative innovation in environmentally friendly solutions for our customers. We are strongly committed to ethical business behavior, and we play an active role in promoting high standards of business conduct across the value chain. Outside the walls of our organization, we are committed to supporting schools with science, technology, engineering and math (STEM) subjects, particularly among female students, to support children and young adults to unlock their potential.

Do ASML's customers demand different things now than they did in the past?

Our customers run very tight operations in gigantic fabs worth tens of billions of euros. A small disruption in the production process can disrupt their supply of chips for weeks. This means that the quality and availability of ASML systems are more important than ever before. In addition, as our industry grows, the impact that we and our customers have on our societies and communities also grows. All our customers have ambitious sustainability targets and they expect ASML to help them achieve those targets by, for instance, reducing energy consumption and also by being a responsible employer and good corporate citizen.

We welcome these ambitions, because they align perfectly with our purpose, our vision and our values.



Please scan the QR-code in order to read more information on our website.

2020 Highlights

Financial

Total net sales	Gross margin	Net income	Free cash flow
€14.0bn (€11.8bn in 2019)	45.6% (41.5% in 2019)	€3.7bn (€2.6bn in 2019)	€3.6bn (€2.4bn in 2019) <i>based on US GAAP</i>
Dividend per share	Net income per share		
€2.75 (proposed) (€2.40 in 2019)	€8.84 (€6.13 in 2019)		

Operational

Lithography systems sold	Customer support	R&D expenses	IP portfolio
258 (229 in 2019)	4.5m hours (3.8m hours in 2019)	€2.2bn (€2.0bn in 2019) <i>based on US GAAP</i>	>14,100 patents (>13,700 patents in 2019)
CO ₂ emissions footprint	Waste intensity	Material recycling rate	Systems refurbished
15.4 kt scope 1 & 2 (22.2 kt in 2019)	360 kg per €m revenue (417 kg in 2019)	85% (80% in 2019)	31 (26 in 2019)

Social

Total employees	Engagement score	Attrition rate	Nationalities
28,073 FTE (24,900 FTE in 2019)	80% (77% in 2019)	3.8% (4.3% in 2019)	120 (118 in 2019)
Community engagement	ASML Foundation projects supported	Startups and scaleups in-kind support	COVID-19 donations
€4.0m (€4.9m in 2019)	22 (17 projects in 2019)	1,550 hours (1,300 hours in 2019)	€2.7m

Governance

Supervisory Board	Supervisory Board diversity	Corporate Governance	Annual General Meeting resolutions
100% independent (100% in 2019)	33% female members (38% in 2019)	100% compliant (100% in 2019)	98.4% average votes For (98.6% in 2019)

Business as (un)usual: how COVID-19 shaped 2020

In every part of the world, the entire year was dominated by COVID-19, a novel virus that in the blink of an eye changed the world we live in. It affected how we lived, interacted with each other, and worked – in every country, region, village and community. Businesses and entire industries had to adapt to a new situation overnight, and many struggled to stay afloat. Countries came to a complete standstill, and there were uncountable stories of personal tragedy. This was a year where people had to pull together in unprecedented ways to tackle the pandemic.

Of course, our company was impacted by the pandemic too, and in this Annual Report, we will describe its effect on our organization, the challenges we faced, and how we overcame these to continue to run our business.

Two priorities

At ASML, as with many other companies, there was an intense period at the start of the year when we had to introduce, develop and communicate our crisis-management measures. In a very short time, we moved from a policy of 'stay home if you have flu-like symptoms' to 'stay at home, period'. Fortunately, and in accordance with strict safety measures, our colleagues working directly in the production of our scanners, in the clean rooms, logistics or other supporting departments were able to continue their work in otherwise deserted locations.

We have two very clear priorities in our crisis response and communications, then and now. Our number one priority is to ensure the health and safety of our people and their families. The second priority is to ensure business continuity: manufacture our products, provide service to our customers, and develop future products according to our roadmap.

In all our health and safety measures, we follow the guidelines of the World Health Organization and local health authorities. And although we developed an ASML-specific policy worldwide, we follow national government measures in the regions where we operate.

Challenge, Collaborate, Care

We know that COVID-19 is not behind us, but looking back on 2020, we can say we have delivered on our priorities.

We have also learned how important ASML's company values are, and why we need them now more than ever. When the future is uncertain and there are no easy answers, these values of Challenge, Collaborate and Care have and will provide a strong foundation for everything we do. In 2020, we really lived our values, and they united us in many ways. They are our DNA. For example:

- With every local lockdown and travel restriction that came into effect, we challenged ourselves and others to come up with creative ways to do our work and fulfil our obligations. Our can-do mentality was evident in so many ways.
- Our ability to collaborate proved to be extremely valuable in these times. We were not in the crisis alone, and we made sure our partners, customers and colleagues knew we supported them.
- We united in our care for our colleagues, suppliers, customers and communities. Colleagues around the world went above and beyond to provide support at all levels. This included voluntarily going into quarantine far from home to support a customer, to delivering critical medical equipment and protective clothing to organizations in need.

Prioritizing our colleagues, their families and our business

Throughout the year, our people were our top priority: keeping them safe by creating a secure workplace, providing mental and physical health support, and staying in close contact even when working remotely. Undoubtedly, this experience has made us stronger as a global team.

Then, although it was not always easy, we were able to continue to run our business and serve our customers. Our operational capabilities returned to normal in the second quarter. We were able to source the modules and parts for our products, complete installs and upgrades, and service our customers across the globe.

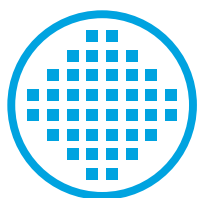
One of ASML's strengths as a company has always been that its people pull together when we need to most. The past year certainly stands as testimony to this strength.



**Who we are
and what we do**

Our company

We are a global innovation leader in the chip industry. We provide chipmakers with hardware, software and services to mass produce patterns on silicon through lithography. What we do increases the value and lowers the cost of a chip, which advances us all towards a smarter, more connected world.



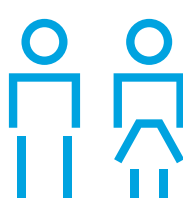
1984

Year founded



>60

Locations across
3 continents, headquartered
in the Netherlands



28,073

Total employees
12,918 in operations
10,543 in R&D
3,020 in sales and support
1,592 Berliner Glas¹



€14.0bn

Net sales
€11.8bn Asia
€1.7bn US
€0.5bn EMEA

¹ Berliner Glas Group has been reflected throughout this report, with the exception of our non-financial reporting.

Our purpose

For all the ways we have moved forward as a society, the world faces crucial challenges for the future. We must change how we think and act on themes that impact everyone, like energy use, climate change, mobility and access to healthcare and nutrition.

At ASML, we believe that the chip 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. So whether it's transitioning to sustainable energy, improving global health, increasing the safety and efficiency of transport, tackling pollution, bridging the digital divide, or feeding eight billion people without exhausting the earth's resources, our vision is that we will enable the groundbreaking technology that will help solve some of humanity's toughest challenges.

As the innovation leader that makes vital systems for chip manufacturing, we are proud to not only be a part of these solutions, but also the ones who are making them possible. We can only play this role if we continue to challenge the status quo, tap into the collective knowledge of our global ecosystem and create an environment where people can contribute, learn and grow. At ASML, we believe our purpose is to unlock the potential of people and society by pushing technology to new limits.

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. One of the main drivers of shrink is the resolution that systems can achieve, which is mainly determined by the wavelength of the light used and the numerical aperture of the optics. A shorter wavelength – like a finer brush used for painting – can print smaller features. A larger numerical aperture can focus the

light more tightly, which also leads to better resolution. To enable shrink, what we do – lithography – is key.

As such, we are a focused supplier of holistic lithography solutions to all of the world's major chipmakers. Our mission, together with our partners, is to provide leading patterning solutions that drive the advancement of microchips. Through our sustained investment in, and dedication to, research and development, we innovate at least at the same pace as our customers. We put our innovations in the hands of chipmakers as quickly as possible by engineering in parallel, not sequentially, while ensuring their quality, reliability, manufacturability, and serviceability.

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, Care.

We challenge

We challenge boundaries, question the status quo and stand up for the ideas we believe in. We're comfortable with discussion and debate, because it is often inherent to stress-testing and championing an idea. This is what enables us to push technology forward, keep things simple and do things with care and attention. We always challenge ourselves to add value for our customer, ensuring we continually improve across key aspects, like safety, quality, efficiency and cost.

We collaborate

As a system architect and system integrator, 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. What we do is unique, and we need each other to make it possible. As we continue to grow and our ecosystem of partners expands, this collaborative mindset becomes even more essential to success.

We care

As we push technology further together, we have to do so with care. As an industry leader, we realize our impact extends from people, to society, to the planet. We care not only for those we work with, but for our customers, suppliers, the world we live in, and the communities where we do business. We believe in integrity and respect for people and their human rights. 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, learn, make mistakes, and grow. We also take care to create clarity in how we organize ourselves to achieve our goals, making sure we have a clear framework for what we do and how we do it.

These values will help our company and our employees to make smart decisions that will benefit all stakeholders. Our values and purpose, together with the great responsibility we have as an industry leader, make us keenly optimistic for the future.

Where we come from

Our company was founded in 1984 in Eindhoven under the name of ASM Lithography, a joint venture between Philips and ASM International. As they moved into their new space near the Philips factories at Strijp-T in Eindhoven, our first employees could never have imagined that in just three decades, ASML would be a global innovation leader.

We've grown from our humble beginnings to a global force through relentless focus on innovation, sheer customer focus through tough times, and a willingness to rely on others to come to a better result.

Although we're constantly looking to the future, where we have come from is just as important to us as we evolve. These pioneering behaviors have been key to our success over the past 36 years, and they've become even more important to us as we continue to define our purpose and articulate the values that underpin everything we do. Understanding what made us successful in the past will help us maintain our success in the future.

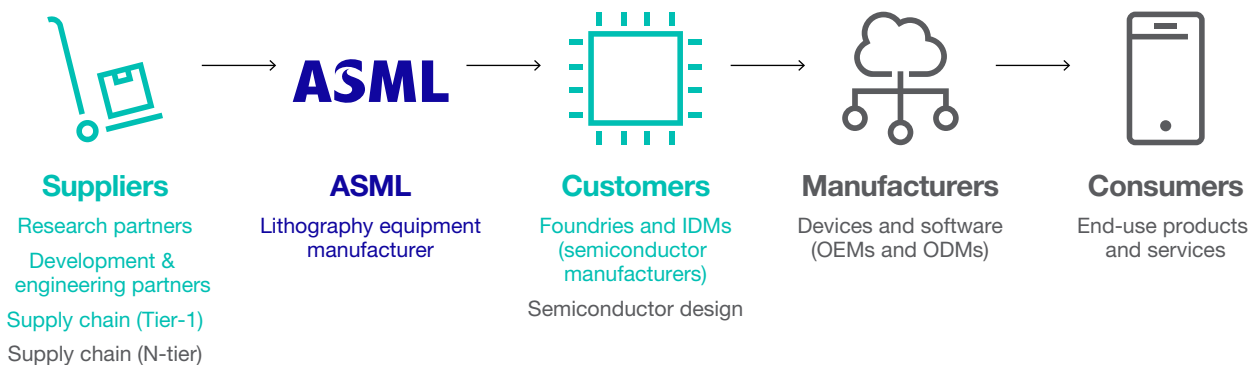
What guides us

Innovation is rarely a straight line. We've always known that it takes laser focus, multidisciplinary teamwork and a keen eye for how we can best help our customers. And even then, we've had to show grit. It took a decade of tenacity to get our technology off the ground. We've cared for this company like it was our own, and are proudly committed to its success. We believed then as we do now that even the biggest challenge can be overcome by chipping away, if necessary with hundreds of people over many years.

We also learned to rely on others to come to a better result – without losing focus. That meant expanding our own knowledge and skills by building an ecosystem of expert suppliers, strategic partners, academia and service providers. We also acquired leading companies with unique technologies that strengthened our ability to deliver better solutions to our customers. We started to see ourselves as architects and integrators, inspiring our partners to innovate on the cutting edge of engineering while sharing risk and reward. And like us, some of our earliest customers are now leaders in the chip industry.

We are geared towards providing long-term value to our customers and other stakeholders. Our direct value chain consists of our R&D partners, supply chain and customers, as well as our own manufacturing and service activities. Together we enable product and service manufactures, so-called Original Equipment Manufacturers (OEMs), and Original Design Manufacturers (ODMs), to create end-use devices and services for the consumer market.

Our position in the semiconductor industry



The role of lithography

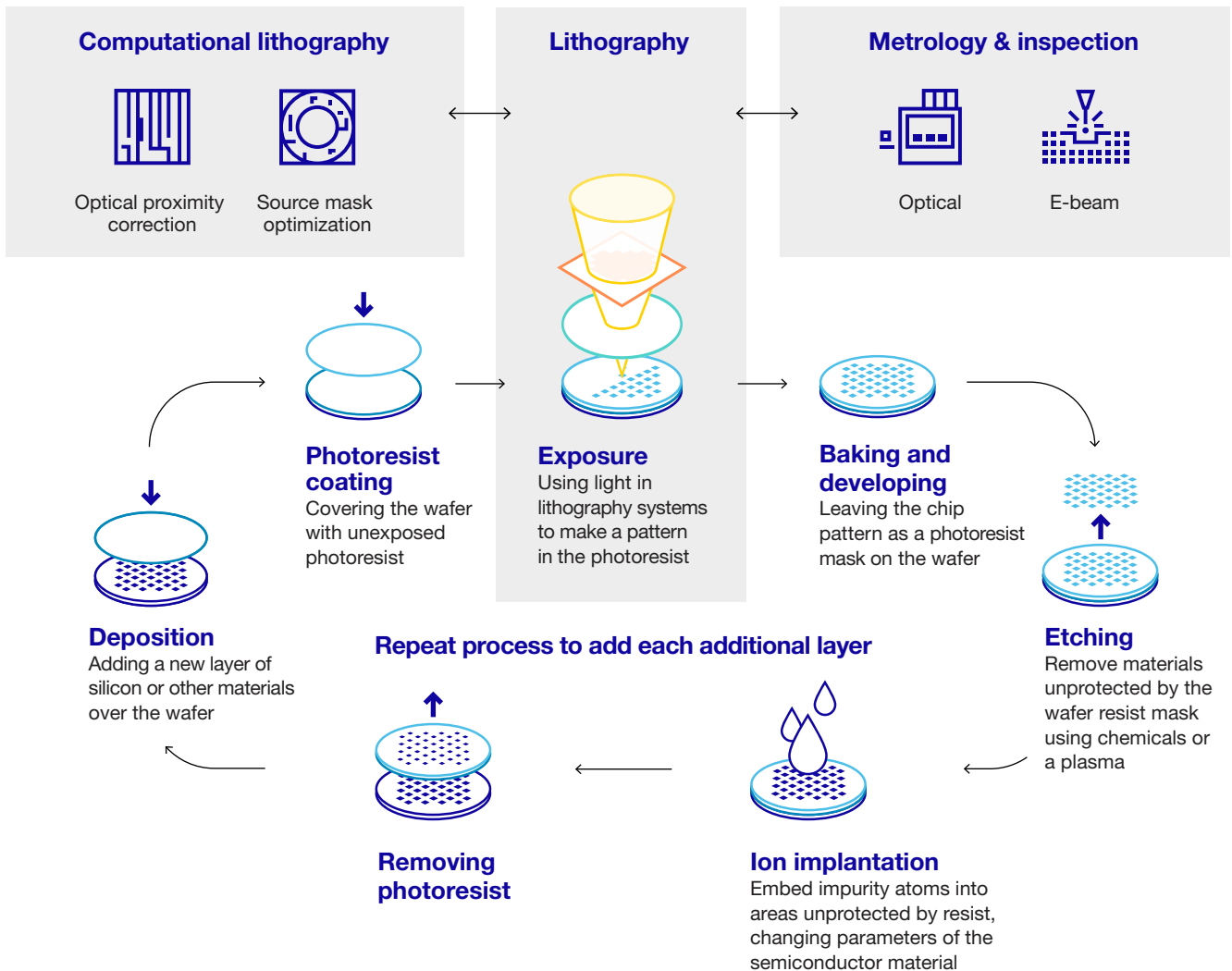
Lithography is a driving force in the creation of more powerful, faster and cheaper chips. Today's most advanced processors, based on the Logic N5 node, contain billions of transistors. But shrinking transistors further is becoming increasingly difficult. We aren't as close to the fundamental limits of physics as some would think. Next-generation chip designs will include more advanced materials, new packaging technologies, and more complex 3D designs, which will create the electronics of the future.

The manufacturing of chips becomes increasingly complex as semiconductor feature sizes shrink, while the imperative to mass produce at the right 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. Our computational models enable our customers to optimize their mask design and tape-out time. This works through mask-correction software to prepare and modify the design for optimized exposures, while the inspection solutions help in analyzing and controlling the manufacturing process in real time.

A lithography system is essentially a projection system. Light is projected through a blueprint of the pattern that will be printed (known as a 'mask' or '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 layer after layer, stacking the patterns to create an integrated circuit (IC). The simplest chips have around 10 layers, while the most complex can have over 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 for the most critical layers with the smallest features to ArF, KrF, and i-line DUV systems for less critical layers with larger features.

Semiconductor manufacturing process



Rayleigh's equation that drives Moore's Law

Moore's Law, a prediction made over half a century ago, set the pace for our industry. Gordon Moore predicted that computing would dramatically increase in power, and decrease in relative cost, at an exponential pace. In other words, the number of transistors (tiny electrical switches) on an integrated circuit will double every two to three years at the same cost. This opens up two options to make microchips faster and more powerful: by using the same number of transistors on a chip at half the cost, or by doubling the number of transistors at the same cost. Even today the power of this prediction is the fundamental principle of the semiconductor industry and the driving force for innovations that benefit our daily lives.

At ASML, our job is to help the industry continue Moore's Law. Our goal has always been to reduce the critical dimension (CD) – the smallest structure that a lithography system can print. This is defined by Rayleigh's criterion, the equation on which all our innovation is based:

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

- CD is the critical dimension, a measure of how small the smallest structures are that the lithography system can print.
- λ (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 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 as 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 and with larger NA lenses/ mirrors smaller structures can be printed. Besides larger lenses ASML 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 high-NA where we push the NA 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.

ASML's goal has always been to reduce the critical dimension. By reducing the wavelength and increasing the numerical aperture, our systems can print IC structures in increasingly smaller feature sizes. If our customers can print smaller structures, the chips can be smaller and the cost per transistor become cheaper, which in turn makes it more profitable for our customers.

Extending Moore's Law is becoming increasingly complex and costly. What will always be needed is a way to mass produce IC designs at the right cost. That's where the full scope of ASML's product portfolio will continue to play a big role to ensure affordable transistor shrink. We continue to push our entire system portfolio to new productivity levels and imaging performance. Our EUV and High-NA lithography will enable tomorrow's most advanced chips. In our computational lithography solutions, we're bringing machine learning and big data to the forefront in predicting both lithography and metrology processes with 100% accuracy. Finally, we have developed an entirely new class of e-beam inspection systems to help our customers control defectivity in manufacturing in next-generation chip nodes, as those smaller structures can hardly be detected with optical inspection.



Our products and services

The semiconductor industry is driven by affordable scaling (the ability to make smaller transistors at the right price). This in turn is powered by ASML's holistic lithography product portfolio. We provide our customers with a suite of patterning solutions to mass produce patterns on silicon, allowing them to increase the value and lower the cost of a chip. Our portfolio is aligned with industry trends and our customers' product roadmaps, which require lithography-enabled shrink beyond the current decade.

We continue to push our lithography systems to new levels of productivity and imaging performance so that chipmakers can continue to shrink nodes. However, as shrink continues, our customers face unprecedented engineering, material, structural and manufacturing difficulties. Our holistic lithography solutions integrate products from across our portfolio to help address these challenges. We help customers achieve their pattern fidelity requirements through increased control over the quality and consistency of the patterns being printed on the chip with our metrology and inspection systems and computational lithography solutions. In addition, we support our growing installed base with best-in-class customer support. Our highly differentiated solutions provide unique value drivers for our customers and ASML, working together to ensure affordable shrink.

Extreme ultraviolet (EUV) lithography systems

More than two decades ago we started with the development of EUV technology. For sure it was "no walk in the park" and since the start we invested more than €6 billion in R&D, as well as acquired Cymer to accelerate EUV source technology, and helped to solve several technical challenges to enable the EUV infrastructure to meet our customers high-volume manufacturing requirements. This partially explains why ASML is the world's only manufacturer of EUV lithography systems.

Our EUV platform extends our customers' Logic and Memory roadmaps by delivering resolution improvements, state-of-the-art overlay performance and year-on-year cost reductions. EUV lithography uses light with a wavelength of just 13.5 nm. This is a reduction of almost 15 times compared to the other lithography solution in advanced chipmaking, deep ultraviolet (DUV) lithography, which uses 193 nm light. This allows our customers to use EUV single exposure instead of very complex multiple-patterning ArF immersion exposures, and allows them to further shrink the structures. Our EUV product roadmap is intended to drive affordable scaling to 2030 and beyond.

TWINSKAN NXE:3400C is our latest-generation EUV lithography system. It combines productivity, highest resolution, state-of-the-art overlay and focus performance, while also improving availability. Our next EUV model on this platform, the NXE:3600D, is planned for delivery in

mid-2021 and will provide further productivity gains plus a significant improvement in overlay.



TWINSKAN NXE:3400C

High-NA

We are also developing the next generation of EUV lithography systems with a higher numerical aperture (NA), known as High-NA technology. Our customers have ordered R&D system to evaluate the high-volume production opportunities in the 2025 time frame. This technology will enable geometric chip scaling beyond the current decade, offering resolution and overlay capability that is 70% better than our current EUV platform.

Deep ultraviolet (DUV) lithography systems

Although EUV is entering the high-volume manufacturing era, DUV lithography still produces the majority of layers in a customer device today and will remain important for future devices. Therefore, ASML continues to develop DUV systems to improve value for our customers. We offer immersion and dry lithography solutions that help manufacture a broad range of semiconductor nodes and technologies. 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, while continuing to deliver value for the matured nodes.

Immersion systems

An enhancement to ArF lithography, immersion lithography maintains a thin film of water between the last lens element and the wafer, increasing NA and improving 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.

TWINSKAN NXT:2050i is our current state-of-the-art immersion system and is being ramped up in high-volume manufacturing of the 5 nm Logic and third generation of 10 nm DRAM nodes. The NXT:2050i is based on a new version of the NXT platform, which includes new developments in the reticle stage, wafer stage, projection lens, and exposure laser. Thanks to these innovations, the system delivers better overlay control at higher productivity than its predecessor.



TWINSCAN NXT:2050i

Dry systems

Our portfolio of dry systems offers tool types for all wavelengths currently used in the semiconductor industry, from i-line using 365 nm wavelength, KrF using 248 nm and ArF using light of 193 nm supporting the continued progress to enable shrink.

TWINSCAN NXT:1470 is our latest dry ArF lithography system. It is also the first dry NXT system, building on our successful immersion platform, and delivers improvements in matched machine overlay, productivity and its footprint in the fab.

TWINSCAN XT:860M is our most popular KrF system, supporting high-volume 200 mm and 300 mm wafer production at and below 110 nm resolution. For more critical KrF layers, the higher-NA TWINSCAN XT:1060K is our most advanced KrF lithography system, and offers best-in-class resolution and overlay.

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



TWINSCAN NXT:1470

Metrology and inspection systems

Delivering speed and accuracy, our metrology and inspection portfolio covers every step of the manufacturing process, from R&D to mass production. The information captured through our metrology and inspections systems helps us to control the thousands of knobs in the scanner to enlarge the process window and improve yield for our customers. Together with our computational lithography and patterning-control software solutions, these systems help chipmakers achieve the highest yield and best performance in mass production.

Optical metrology and inspection

Our YieldStar optical metrology solutions can quickly and accurately measure the quality of patterns on the wafer.

YieldStar 385H offers the latest in-resist post lithography overlay and focus metrology, with enhanced throughput and accuracy. Overlay, how well one layer is aligned to its previous layer, is becoming more important as structures get smaller and error tolerance reduces. Compared to 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.



YieldStar 385H

YieldStar 1375F is the only optical tool on the market for fast, accurate in-device overlay and metrology. Capable of measuring multiple layers at once, it helps customers 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 possibilities for process control. Historically, e-beam solutions were too slow to monitor volume production processes. However, ASML has made progress in various methods for increasing the throughput of e-beam systems.

Our pattern fidelity metrology option draws data from a wide variety of sources, analyzing it using predictive models to identify hotspots where defects are most

probable or most critical. This insight is used to guide the e-beam inspection system and optimize scan strategies, increasing the effective productivity.

In addition, in 2020 we shipped the first multiple e-beam (multibeam) inspection system. The HMI eScan 1000 demonstrated successful multibeam operation, simultaneously scanning with nine beams. It increases throughput by up to 600% compared to single e-beam systems, thus reducing the cost of inspection.



eScan 1000

Computational lithography

Our computational lithography and software solutions revolve around creating applications that enhance the setup of the lithography system so chipmakers can print exactly what they want to print. Accurate simulation models of the lithography process are a foundational element for all these applications. These models represent

a wide variety of physical and chemical effects. Machine learning solutions are now broadly used in the simulation models as well as in the applications.

Managing our installed base systems

The installed base of ASML systems continues to grow, with many systems finding second or even third lives at new owners in new markets and applications. To provide all our customers with the best possible value proposition, we offer an extensive Installed Base Management portfolio, including a wide range of service and upgrade options.

We develop and sell product options and enhancements designed to improve throughput, patterning performance and overlay. Through field-upgrade packages, it is possible to upgrade older systems to newer models in the field. This enables customers to optimize their cost of ownership over the system's lifetime.

Meanwhile, our Mature Products and Services (MPS) business refurbishes used lithography equipment and offers associated services. We focus on the refurbishment of three product families: the 'classic' PAS 5500, the first generation AT systems, and the early generation NXT and XT systems. We are investing to be able to extend the lifetime of the PAS platform until at least 2030.

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 6,200 customer support employees, including service engineers and applications specialists, 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.

Visit www.asml.com for more product details and specifications.



Our markets

Our customers are the world's leading microchip manufacturers, and our success is inextricably linked with theirs. We design our machines based on their input, engage in helping them achieve their technology and cost roadmaps, and work together to make sure our machines are running smoothly in their fabs.

Our customers can be grouped into Memory and Logic chipmakers.

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 Memory: NAND and DRAM.

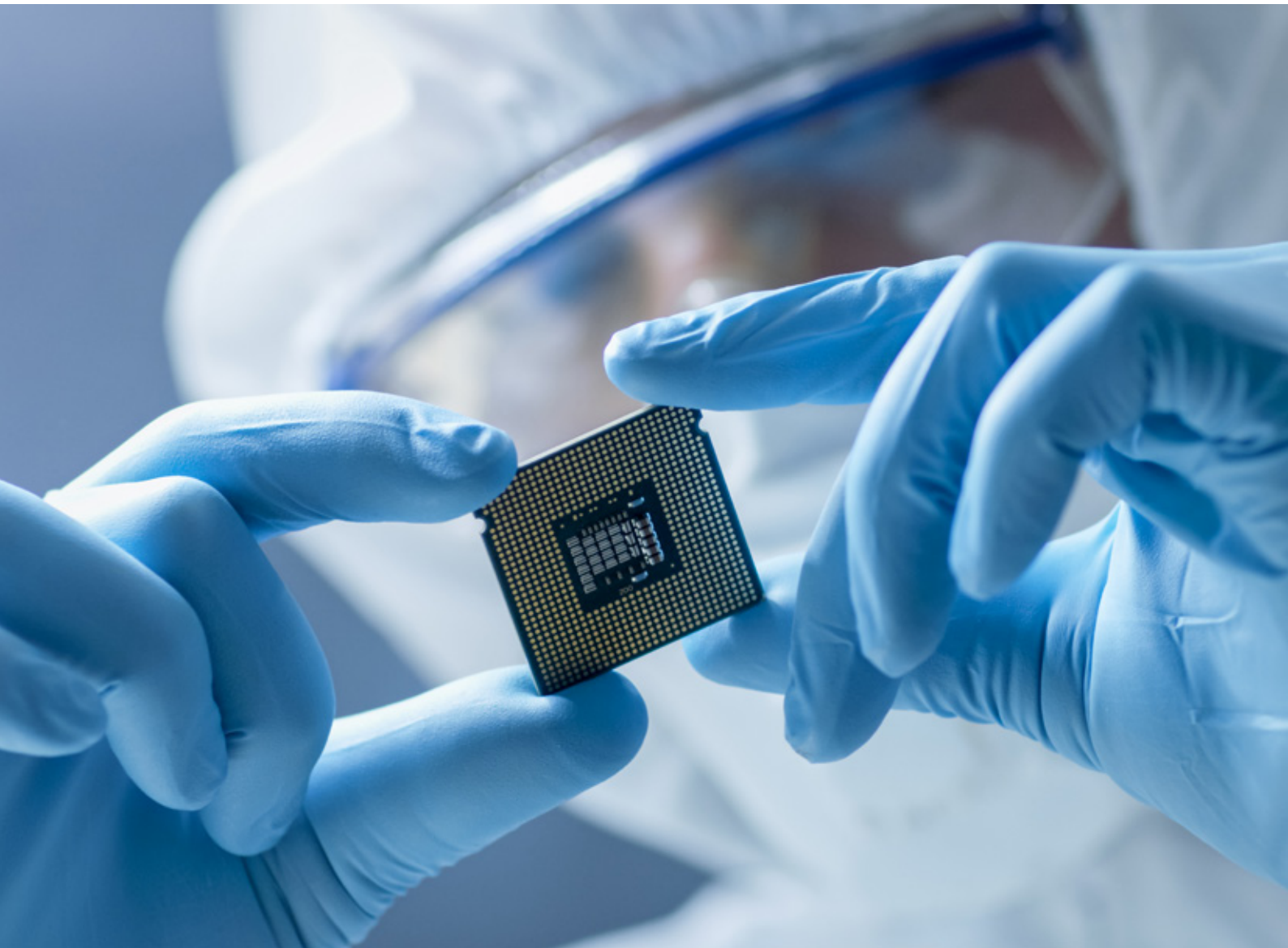
With NAND chips, data can be stored even when a device is powered off. DRAM memory is used to efficiently provide data to the processor. These DRAM and NAND chips are typically made in dedicated Memory-chip factories.

Logic chips, which process information in electronic devices, are produced by two groups of manufacturers. The first group, known as integrated device manufacturers

(IDM), designs and manufactures Logic chips. The second group comprises contract manufacturers known as foundries. Foundry manufacturers produce chips for 'fabless' companies, which focus only on chip design and distribution, but do not manufacture themselves.

Both Logic and Memory chips can vary greatly in complexity and capability. For example, the most advanced chips are powering leading-edge technology in artificial intelligence (AI), big data and automotive technology, while the simpler, low-cost chips are integrating sensing capabilities in everyday technology to create a vast IoT.

The chip market has grown by 5% per year on average over the past 20 years, but the factors driving this growth have radically changed. In the 1990s, personal computers (PCs), both desktops and later laptops, drove chip demand. In the first decade of this century, the market driver evolved from PCs to smartphones. These in turn produced new market drivers, data centers and cloud solutions, where data from PCs and smartphones is routed, processed and stored with the extensive use of specialized Logic chips, in combination with DRAM, NAND and HDD storage.



Semiconductor industry trends and opportunities

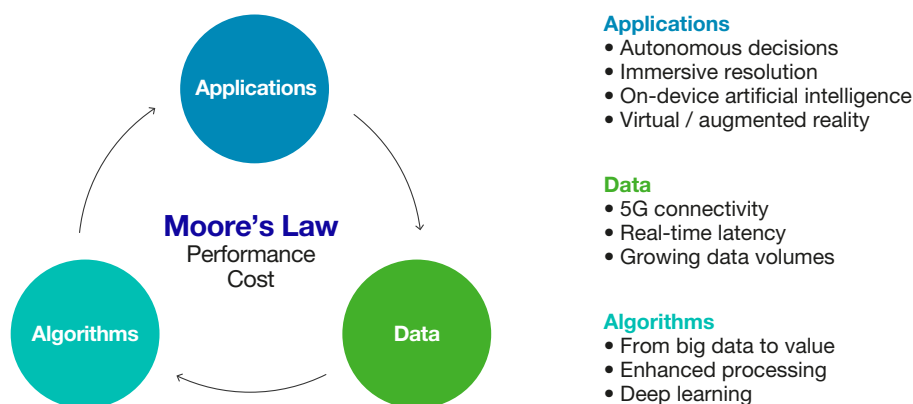
Technology is evolving fast, and the next level of computing is dawning. The era of mobile computing – where you bring the computer with you – is evolving towards immersive ‘ubiquitous computing’, with computing power available wherever you go.

The transition to ubiquitous computing is enabled by what has been termed the ‘artificial intelligence of things’ (AIoT). AIoT is a smart and connected network of devices that seamlessly communicate over powerful 5G networks, allowing us to unleash the power of data better and faster than ever. This combination of artificial intelligence (AI) technologies with 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 AIoT will gradually open up as IoT and AI 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 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 (zettabyte) of data per year by 2025. In other words, one zettabyte (10^{21} byte) equals a trillion gigabytes, and to download 175 ZB data with average current internet connection speed would take one person 1.8 billion years. This big data will need to become fast data to allow for ubiquitous computing as we move towards ‘edge’ computing, where processing is brought as close to the source of data as possible, rather than 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 amplification continues to expand, facilitating three major trends in computing: applications, data and algorithms.



These three trends supports several segments and applications, such as:

Smart home

Smart home devices such as thermostats, lights and smart TVs learn a user’s habits to provide automated home support for everyday tasks. Applications: energy efficiency, safety, entertainment, access control and personal comfort.

Smart industry

Smart industry devices use real-time data analytics and machine-to-machine sensors to optimize processes. Data generated from these devices helps foresee bottlenecks, preventing errors and injuries. Applications: autonomous manufacturing robots, automated supply chain management and predictive sensors.

Smart city

Smart cities that integrated all levels of municipal services. Applications: open data for better urban planning, optimized energy consumption and increased public safety through smart traffic surveillance.

5G connectivity

5G enables a new kind of network that is designed to connect virtually everyone and everything together including machines, objects, and devices. It empowers new user experiences and connects new industries.

Wearables

Wearable devices continuously monitor and track user preferences and habits. Applications include fitness and health trackers, heart-rate monitoring and wireless headphones.

Self-driving cars

These supercomputers on wheels are enabled by electronics and semiconductors. Autonomous vehicles offer ADAS (Advanced Driver Assistance Systems) features that reduce accidents and casualties and allow us to stay connected continuously through infotainment systems.

Autonomous robotics

A new generation of lightweight robots fitted with smart sensors enables humans and machines to collaborate closely and safely. Smart robots that are connected to a greater network can benefit from big data and collective learning making it possible to reduce manufacturing costs and improve quality of products.

Mixed reality

Combining augmented reality and virtual reality technology will bring together the real world and digital elements and create the next-level user experience with potential applications in education and training, healthcare, entertainment. For example, imagine you can interact with your teacher and co-students as if you are in the classroom, but this time from your living room.

Predictive healthcare

Using devices connected to patients (bracelets, watches, and more) allows us to collect data on the health status of patients to diagnose disease in advance, provide treatment (even remotely), and prevent critical situations. When joining forces with AI, machine learning can save lives.

Semiconductor industry opportunities

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

Market	Key driver	2019 market size (\$bn)	2024 market opportunity (\$bn)	CAGR (%)
Smartphone	Continued refresh of all semiconductor content including image sensors	106	155	7.9%
Personal computing	High-end compute and Memory, fast conversion to SSD	86	99	2.8%
Consumer electronics	Legacy products and packaged ICs. Advanced ICs in add-ons	42	61	7.7%
Automotive	Strong IC content growth: GPU, sensors, V2X communication sensing	41	65	9.5%
Industrial electronics	High-end compute for AI on big data and sensors	49	71	7.8%
Wired and wireless infrastructure	Devices for fast data processing, modem, base-station infrastructure refresh	34	45	5.5%
Servers, datacenters and storage	High processor and Memory growth, hardware accelerations including GPU	61	102	10.6%
		419	598	7.3%

Semiconductor industry dynamics

Several factors are shaping the semiconductor industry landscape. These are some of the major trends driving industry development, today and tomorrow.

Rising consumer 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 and urbanization are creating increasing demand for advanced consumer electronic devices. Microchips are at the heart of these devices. Significant growth drivers of the emerging technologies are demanding new and advanced chips that are specifically designed for a wave of new applications. *Read more in: Semiconductor industry trends and opportunities, Customer intimacy*

Global race for talent

Highly skilled people with a technical background are scarce in the labor market and competition is growing. Top-tier talent select their employer of choice, not the other way around. The global race for talent is becoming more crucial as the industry competes for a small pool of scientists, engineers and software developers with the skill set to develop innovative solutions.

Companies are trying to staff up for growth, but the high-tech resource pool is shallow. The number of STEM jobs is projected to grow significantly, but it is challenging to fill these given the shortage of qualified candidates. Retaining talent has become crucial for tech companies. *Read more in: Our people*

Global geopolitics

The current trade environment presents significant challenges for the global semiconductor industry, and trade tensions and increased protectionism are likely to continue. US authorities took steps that further restrict US chipmakers and other companies from doing business with China. These actions are impacting the semiconductor industry's ability to conduct business in the global marketplace.

The industry is being forced to manage trading costs. Ultimately, this could be passed on to the end-market resulting in an increase of prices of devices. Besides the financial implication, trade tensions and protectionism also introduce significant complexity throughout the supply chain and its processes. This is forcing the industry to relook at its global supply chain. *Read more in: Our supply chain, How we manage risk, Risk factors*

Expanding R&D costs

In the rapidly evolving semiconductor industry, access to the latest technologies, chip designs and manufacturing processes is the basis for competition. R&D is an ever bigger priority and expense. Chipmakers are faced with supporting applications and end markets that are becoming increasingly complex. Traditional semiconductor companies are challenged to diversify their portfolio, due to the rise of tech platform companies moving to in-house chip design.

In addition, the incremental costs of executing innovation are rising, requiring higher levels of R&D investments to achieve the same goals. Getting products to the market faster is essential – or the chipmakers risk missing the boat. As a result, there is increased pressure to get solutions to the customers early. *Read more in: Technology & innovation ecosystem, Risk factors, Financial performance*

Changing landscape

To capitalize the convergence of mega trends such as AI, IoT, 5G and autonomous vehicles, the industry is investing significant amounts in assets that can unlock value across the portfolio.

The global semiconductor industry has shown tremendous growth in recent years and this is set to continue. It is refocusing on increasing scale and proficiency in core competences as well as expanding into new capabilities and new markets. Mergers, acquisitions and joint ventures are expected to be key parts of the chip-market strategy, with deals focusing on emerging technologies. *Read more in: Semiconductor industry trends and opportunities, Our supply chain and Risk factors*

Taking action on climate change

Climate change is an urgent matter around the world. It is a global challenge that requires global responsibility to limit a temperature rise to well below 2°C. Our industry has a role to play.

The semiconductor manufacturing process consumes large volumes of energy and water resources. Driving Moore's Law in enabling shrink and, at the same time, improving computing power and storage capacity, fuels the demand for these resources. New architectures and a new way of looking at the entire ecosystem will be required to enhance energy and water-resource efficiency.

To meet these challenges, the semiconductor industry has to reduce power consumption. With data centers consuming about 10% of the world's electric power, it touches the boundaries of scale. Taking action on climate change is a moral imperative. *Read more in: Climate and energy*

SWOT analysis

Acting on the global trends and developments in the semiconductor industry and in society is an important factor in the success of our business, as well as in creating value for our stakeholders. Using these external and internal factors, as well as current and future potential, we have evaluated our company's competitive position in the environment we operate in. The following table provides a brief overview of our strengths, weaknesses, opportunities and threats (SWOT). More information on how we manage the topic can be found in the reference sections.

Strengths +	Weaknesses –
<ul style="list-style-type: none"> • Technology leadership (Read more in: Our products and services, Technology and innovation ecosystem) • Market leadership (Read more in: Our products and services, Our markets, Customer intimacy) • Collaborative & enduring innovation (Read more in: Technology and innovation ecosystem) • World-class workforce with 'can-do' mentality (Read more in: Our core values, Our people) • Strong financial position (Read more in: 2020 Highlights, Financial performance) 	<ul style="list-style-type: none"> • Fast-growing workforce (Read more in: Our people, How we manage risk) • Limited cost leadership advantage (Read more in: Operational excellence, CFO financial review, How we manage risk) • Increasing complexity of our products and technology (Read more in: How we manage risk)
Opportunities ↗	Threats ↘
<ul style="list-style-type: none"> • Ride the tech megatrends (Read more in: Semiconductor industry trends and opportunities, Our strategy) • Holistic lithography portfolio expansion (Read more in: Our products and services, Our strategy) • Emergence of new customers in semiconductor industry (Read more in: Semiconductor industry dynamics) • Raising brand awareness (Read more in: Our people) • Increasing sustainability drive (Read more in: Our strategy, Circular economy, Climate and energy) 	<ul style="list-style-type: none"> • Geopolitical tensions (Read more in: Semiconductor industry dynamics, How we manage risk) • Supply chain disruption (Read more in: Our supply chain, How we manage risk) • IP Technology leadership pressure (Read more in: How we manage risk) • Competition for market share (Read more in: How we manage risk) • Competition for talent (Read more in: Semiconductor industry dynamics, Our people, How we manage risk) • Narrow customer base (Read more in: Customer intimacy, How we manage risk) • Outbreaks and the consequences of climate change (Read more in: Business as (un)usual, How we manage risk, Climate and energy)

How we create value

The success of our business depends on strong, sustainable relationships with all stakeholders in the value chain to achieve the desired innovations in semiconductor technology. We use input from stakeholders and trends in our industry and society to develop our strategy, our products and services. We define our stakeholders as our shareholders, customers, suppliers, employees and the society we operate in.

We use the model of the International Integrated Reporting Council (IIRC) to optimize our long-term stakeholder value and sustainable impact. Below, we have concretized:

1. The capital inputs we use for our products and services;
2. The long-term value we create for our stakeholders;
3. The broader impact we generate towards the United Nations Sustainable Development Goals.

Capital inputs

We use various forms of capital to manufacture our products, which we define as follows:

- Financial capital: these are the funds available to ASML
- Manufacturing capital: our human-created and production-oriented equipment and tools
- Intellectual capital: our investment in R&D to determine our competitive advantage
- Human capital: the capabilities, knowledge, skills and experience of our employees
- Social capital: the high-tech ecosystem and partnerships we create
- Natural capital: the natural resources we use and energy we consume

We aim to use these forms of capital in the most effective way to generate long-term value for all of our stakeholders.

Long-term stakeholder value

Our core values - Challenge, Collaborate, Care - are a key contributor to our culture aimed at long-term value creation and as such an important enabler in the execution of our strategy. Read more in: Our core values, Our people. We define our long-term value for all our stakeholders as follows:

Shareholder value

Our large and sustained investments in research and development to execute our business strategy 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 benefits our solid financial performance and capital return policy.

Customer value

As one of the world's leading manufacturers of chip-making equipment, we invest in innovations that enable the continued shrink of microchips. With EUV and the next generation of EUV, High-NA, we secure 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 to reduce their costs and environmental footprint by embedding circularity principles in our products.

Supplier value

As we grow and our innovations enter ever-higher levels of complexity, we want our suppliers to grow with us. We innovate together with our supplier network, sharing knowledge and tapping into each other's technology expertise. Long-term relations, close cooperation and transparency with our suppliers are key to our success.

Employee value

Our workforce has grown steeply in recent years. In the past five years, we have created around 12,000 jobs in the communities where we operate. For example, with 14,269 employees in Veldhoven (our headquarters) we are a major employer in the community. We are a proud employer of 120 nationalities, allowing for diverse points of view in our quest to develop the best ideas. Developing our people is crucial to the sustained success of our business, so we invest in their career development and well-being.

Societal value

With our continuous innovations, we enable new technology that supports the growth and transformation of the semiconductor industry, using artificial intelligence to offer new applications and services to address society's needs. Through our innovation ecosystem we nurture innovation by giving back to society, such as sharing our expertise with universities and research institutes, supporting young tech companies, and promoting STEM education worldwide. We also develop groundbreaking technology to reinforce our innovation footprint and minimize our environmental footprint. We do this by minimizing waste, maximizing the value of material we use, and taking every step possible to lower our carbon footprint.

Sustainable impact

We believe the chip industry is in a unique position to tackle socioeconomic and environmental challenges. We focus on challenges and sustainability areas most relevant to our stakeholders and on which ASML can have the greatest impact in the long term. (Read more in: Materiality assessment, SWOT analysis). We focus on those United Nations Sustainable Development Goals on which ASML can make a real difference.



Capital resources

(actuals 2019)

Financial

€15.3bn (€13.9bn)
Total shareholders' equity

€4.7bn (€3.1bn)
Long-term debt

Manufacturing

€7.6bn (€6.9bn)
Total cost of sales

8 (7)
Manufacturing sites

12,918 FTE (11,886 FTE)
Employees in operations

Intellectual

€2.2bn (€2.0bn)
R&D expenses

4 (4)
R&D sites

10,543 FTE (10,166 FTE)
Employees in R&D

Human

28,073 FTE (€24,900 FTE)
Total employees

€12m (€19m)
Training and development

120 (118)
Nationalities

Social

€0.9m (€1.5m)
ASML Foundation

€3.1m (€3.4m)
Community outreach

Nurture high-tech ecosystem

Natural

1,412 TJ (1,367 TJ)
Energy consumption

Committed to circular economy

ASML

Our purpose

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

Our strategy



Strengthen customer trust



Holistic lithography and applications



DUV competitiveness



EUV industrialization



High-NA

2020 outcome

(actuals 2019)

Financial

€2.75 (€2.40)
Proposed annualized dividend per share

€3.7bn (€2.6bn)
Net income

€8.84 (€6.13)
EPS

Manufacturing

€14.0bn (€11.8bn)
Total net sales

258 (229)
Lithography systems sold

45.6% (41.5%)
Gross margin

Intellectual

>14,100 (>13,700)
Patent portfolio

€785m (€843m)
IP & developed technology value

Human

80% (77%)
Employee engagement score

5 (3)
Employer brand ranking listing

3.8% (4.3%)
Attrition

Social

22 (17)
Projects supported through ASML Foundation

Promoted STEM education

1,550 hrs (1,300 hrs)
Startups and scaleups in-kind support

Natural

85% (80%)
Material recycling rate

-30.8% (-32.5%)
CO₂ scope 1 and 2 net footprint decreased

360 kg (417 kg)
Waste generated per €m revenue

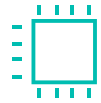
Value created

Shareholder value



Long-term organic growth

Customer value



Continuing Moore's Law and lower energy consumption

Supplier value



Contributing to new technology and circular economy

Employee value



Sustainable employment in the community

Societal value



Enabling new technological advancement

Sustainable impact

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE



13 CLIMATE ACTION



8 DECENT WORK AND ECONOMIC GROWTH



4 QUALITY EDUCATION



8 DECENT WORK AND ECONOMIC GROWTH



12 RESPONSIBLE CONSUMPTION AND PRODUCTION



Our strategy

The long-term growth of the semiconductor industry is based on the principle that the power, cost and time required for every computation on a digital electronic device can be reduced by shrinking the density of transistors on microchips. ASML invests in a technology-based innovation roadmap that enables the continued shrink of microchips by enhancing resolution with EUV and High-NA, together with the holistic scaling of overlay and pattern fidelity control. To achieve this we also invest in continuing innovations in DUV, Metrology and Inspection technology, to supplement the power of EUV-led shrink. This is how we pursue our long-term strategic vision.

To enable 'edge' – which brings computation and data storage closer to the location where it is needed – our customers continue to invest in developing more advanced semiconductor processes to create more powerful Logic and Memory microchips. At the same time, these also need to be more energy-efficient and cost-effective.

For the next decade, the semiconductor industry roadmap fires on three cylinders:

- 3D integrated circuits enabling better performance, power, form factor and functionality
- Geometric scaling to reduce cost
- Domain-specific architecture driven by energy efficiency

Geometric scaling (shrink) is a key industry driver supporting innovation and providing long-term industry growth. Our guiding principle is continuing Moore's Law towards ever-smaller, cheaper, more powerful and energy-efficient semiconductors. To enable shrink, lithography is key, as the process is used to pattern the structures on a microchip.

We innovate across our entire product portfolio at the same pace as our customers through large and sustained investment in research and development. To accelerate our product development, we engineer in parallel, not sequentially, all the while guarding the product's quality, reliability, manufacturability and serviceability. This enables us to get our innovations into the hands of chipmakers faster. We collaborate with chipmakers to understand how our technology best fits their needs, including their challenges and visions of the future. It is through this collaboration and trust that we can build for today and develop for tomorrow.

Five pillars of our core strategy

To realize our long-term strategic vision within the semiconductor industry, we continue to drive our core strategy, which we define around five major pillars: Strengthen customer trust, holistic lithography and applications, DUV competitiveness, EUV industrialization and High-NA.

Strengthen customer trust

Enhance operational excellence capabilities by focusing on our customers' needs to improve cost of ownership and deliver future nodes. Deliver on our commitment to accelerate improvements in our sustainability performance.



Holistic lithography and application

Strengthen our leadership position in in-device metrology, enabling high-order overlay correction. Secure a winning position in pattern fidelity control and combine this with superior computational lithography.



DUV competitiveness

Continue our innovation leadership, driving DUV to the highest level of performance by expanding our installed base and through continuous improvement and operational excellence.



EUV industrialization

Secure high-volume manufacturing and improve cost effectiveness for our customers by enhancing the value of EUV technology for future nodes down to the 2 nm Logic node.



High-NA







Enable next-generation geometric shrink by extending our 0.33 NA product portfolio to enable High-NA EUV at the 2 nm Logic node, followed by Memory nodes at comparable density.



Five sustainability areas

At the same time, we want to ensure a sustainable impact while providing the best value for our stakeholders – today and in the future. Staying focused on what matters for our business and stakeholders is the cornerstone of our strategy. Through a materiality assessment, we identify and assess the topics most relevant to our stakeholders and which sustain ASML's long-term business growth. (Read more in: Materiality - assessing our impact)

We are committed to sustainability. To accelerate our sustainability performance, we focus on five strategic areas of sustainability, to create long-term value for our stakeholders, shape a sustainable future, and contribute to the United Nations Sustainable Development Goals.

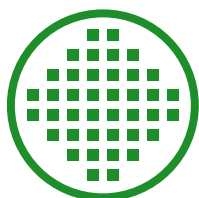
<h3>Innovation ecosystem</h3>	<p>We don't innovate in isolation to ensure the fast pace of innovation in our value chain. We develop technology together with the help of our partners and collaborative knowledge network.</p>	<p>9 INDUSTRY, INNOVATION AND INFRASTRUCTURE</p> 
<h3>People</h3>	<p>Empowering individuals for the collective good to ensure our employees are proud to work for us and engaged with our ambitions as a company.</p>	<p>4 QUALITY EDUCATION</p>  <p>8 DECENT WORK AND ECONOMIC GROWTH</p> 
<h3>Responsible supply chain</h3>	<p>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.</p>	<p>8 DECENT WORK AND ECONOMIC GROWTH</p> 
<h3>Circular economy</h3>	<p>Minimizing waste, maximizing resources to extract the maximum value from the materials we use and repurpose our products across their life cycles.</p>	<p>12 RESPONSIBLE CONSUMPTION AND PRODUCTION</p> 
<h3>Climate & energy</h3>	<p>Taking every step to lower our footprint to achieve zero emissions across our operations. While increasing productivity of our products, we are also working towards enhancing the energy efficiency of our products.</p>	<p>13 CLIMATE ACTION</p> 

What we achieved in 2020

Technology and innovation ecosystem



We don't innovate in isolation to ensure the fast pace of innovation in our value chain. We develop technology together with the help of our partners and collaborative knowledge network.



26,000,000

Wafers produced by EUV installed base



€2.2bn

R&D expenses based on US GAAP



1,550 hours

Support to high-tech startups and scaleups



€28.5m

Contribution to four EU research projects

How we innovate

Our ability to innovate is crucial to our business success. Through our innovations, we help our customers achieve their goals and realize new technology and applications. We have a solid system in place to manage and enhance innovation, achieving significant breakthroughs in recent years.

Innovation through collaboration

We innovate through partnerships. Our innovation philosophy is one where we see ourselves as architects and integrators, working with partners in an innovation ecosystem. We develop our technology in close collaboration with our customers to ensure we build today what they need tomorrow. Our machines are developed based on their input, and we engage closely with them to help achieve technology and cost roadmaps.

In the same way, we 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.

For example, we've been in partnership with Carl Zeiss AG for over three decades. This partnership runs according to the principle of 'two companies, one business' working together to drive operational excellence. To accelerate innovation in High-NA technology, we hold an interest in and support Carl Zeiss SMT in R&D and other capital investments for the design of optical columns in our lithography systems.

We co-develop expertise within a wide network of technology partners, such as universities and research institutions. Some of 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. In 2020, as in previous years, these partnerships delivered good results.

EUV research leads to unexpected discovery

Research by R&D partners we collaborate with has delivered numerous breakthroughs that have helped us innovate. Some of these findings surprise even the greatest experts. This was the case when Oscar Versolato, group leader and head of department at the Advanced Research Center for Nanolithography (ARCNL), and his team took a closer look at the EUV light that plays a key role in our EUV systems.

EUV light is generated when a minuscule drop of tin is heated to a temperature of up to 400,000° Celsius. As the tin is heated, the electrons circle in a larger orbit than under normal circumstances. When these electrons return from their so-called 'excited state' to an orbit closer to the atom's nucleus, energy is released in the form of light of several wavelengths, one of which is EUV radiation. Fundamental research by ARCNL found that many more electrons than thought, including those in even wider orbits, can contribute to EUV light. With this better understanding of how the process works, we might be able to further optimize EUV sources in the future.

Since its start in 2014, ARCNL developed towards a mature research institute. With funding from UVA, VU, NWO and ASML this institute conducts fundamental research, focusing on the physics and chemistry that are important in current and future key technologies within nanolithography and its application within the semiconductor industry. In 2020, we enhanced our collaboration with ARCNL and a close interaction is now established on all topics ARCNL is working on.

One of the innovation highlights from our partners in 2020 was the breakthrough imec achieved in printing narrow pitch lines. Using ASML's NXE:3400B system and combining advanced imaging schemes, innovative resist and optimized settings in its cleanroom, imec demonstrated how our system is capable of printing lines at 24 nm pitch in a single exposure step. This innovation will enable imec and its partners that specialize in resist and patterning to help develop and test resist materials that will support the introduction of ASML's next-generation EUV chip-manufacturing systems, our High-NA platform.

We collaborate with, among others, a colleague semiconductor equipment company Lam Research (US) to further improve our EUV technology. In 2020, Lam introduced a new dry photoresist technology for EUV patterning that offers significant improvement in EUV lithography resolution, productivity and yield. This new technology will enable lower dose and increased resolution. By using five to 10 times less raw materials, Lam's dry resist approach generates significant savings for customers on running costs, while delivering a more sustainable use of our EUV technology.

In our innovation ecosystem, long-term collaboration is based on trust. We share both risk and reward and work hard at developing long-term relationships with our partners, listening to each other and pushing each other to continuously innovate. This collaborative approach allows us to accelerate innovation. It also provides us with access to a large leading-edge knowledge base across a wide range of technologies.

Pioneering smart algorithms in imaging

As lithography systems continue to push the edge of chip-manufacturing technology, YieldStar's metrology performance must keep up – and one way to do that, ASML Fellow Arie den Boef believes, is moving metrology's imaging from advanced optics to smart algorithms.

Arie, who first led the development of YieldStar, heads a small group from the Vrije Universiteit in Amsterdam and ARCNL that conducts fundamental research in computational imaging. The team seeks to create a metrology system that tackles these challenges cost-effectively, with higher productivity and accuracy.

Computational imaging may help achieve the quality of optical imaging that metrology will soon need, the team believes. But instead of using an advanced and costly optical design, this technology would use only simple optical elements such as a compact sensor and single lens. The result: performance that would be impossible with classical optical design methods.

Managing innovation

Every day, more than 10,000 of the brightest minds in R&D take on the exciting challenge to innovate the most advanced lithography systems in the world. We manage this process by balancing our customers' needs, product capabilities and technology solutions. To stay ahead, we invest heavily in R&D. In 2020, we spent €2.2 billion on R&D, compared to €2.0 billion in 2019. These amounts are based on US GAAP as our defined indicator relates to US GAAP and not to EU-IFRS.



Our Research department's focus is to generate and explore ideas and demonstrate their feasibility in the long term. The department also helps to find technological solutions to challenges in our products and applications that have 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 to drive the semiconductor device roadmap. We encourage our experts to build a wide network in the broader technology space.

The constant stream of new ideas is crucial to fill our technology pipeline that flows through the so-called 'innovation funnel'. Here we select new ideas that have the potential to advance our products and customer application. Ideas that successfully pass the 'proof of concept' stage in our Research department are transferred to the Development & Engineering (D&E) department. D&E takes them on into our Product Generation Process (PGP) for product development. We then build and test system prototypes in the necessary environments. Prototypes that pass these tests may eventually lead to new product releases.

Technology Conference rewards imagination

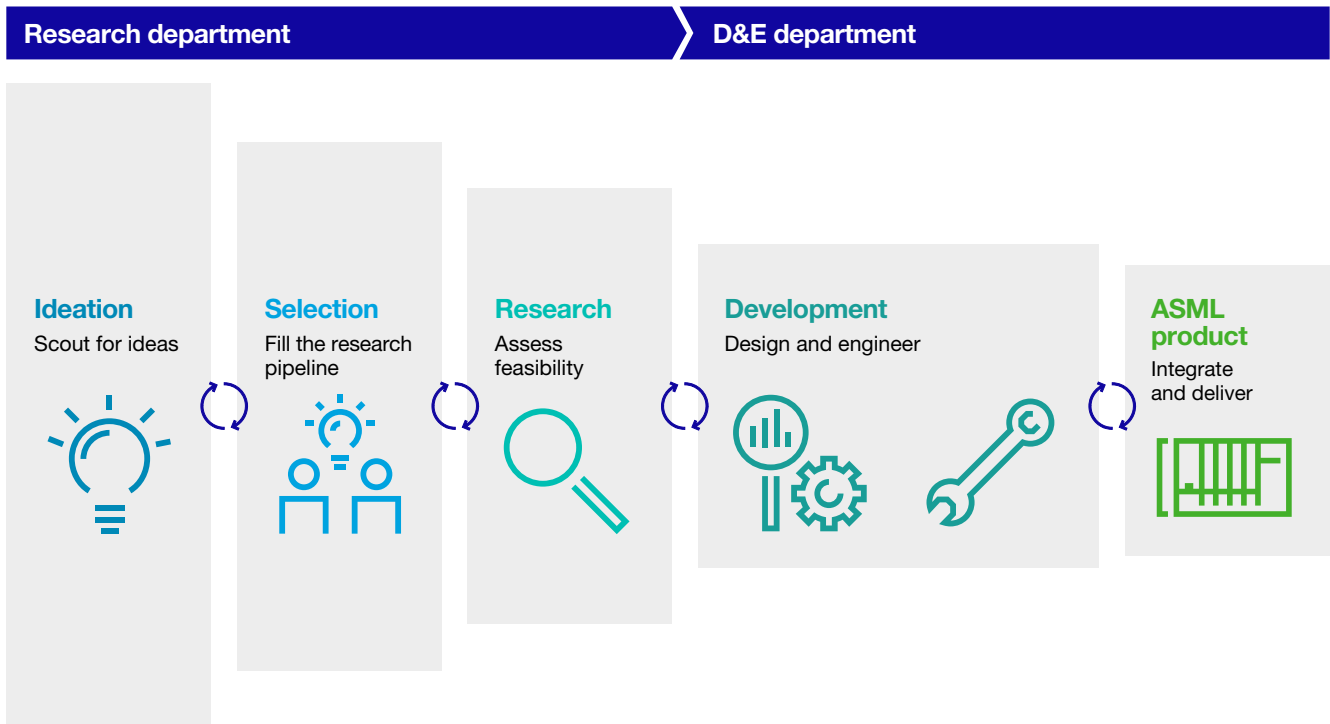
In 2020, the ASML Technology Conference went virtual for the first time in its history and attracted a record number of attendants. This unique 21st edition allowed employees across the globe to listen to keynote speeches and gain insights about key technical projects across all R&D competencies

Our Poster Award ceremony, which honors employees with the most imaginative presentation demonstrating their contribution to technological advancements, continued this year. More than 300 teams submitted posters. The results were as follows:

Best Innovation: 'Frequency encoding technique and its applications'. The team developed a solution for current inconsistencies in particle detection and sizing for DUV and EUV systems by using a projector as an illuminator to facilitate inspection while reducing false alarms.

Best Customer Solution: 'Integrated overlay control solution to reduce rework by 100%'. The team designed a solution to meet the 2.5 nm overlay in EUV machines.

Innovation funnel



Our D&E engineers drive our machines forward by creating new components or subsystems, integrating them into the functional system, or developing new applications to help move the industry forward.

In D&E, we work on a multitude of advanced optical and mechatronic modules, along with application software, data science and operating systems. D&E innovates with a strong focus on time-to-market, often starting new system development before the previous generation has even reached the customer. Teams in D&E have extensive contact with leading research institutes, keeping up to date with the latest developments in their respective fields.

Innovation achievements

We continue to make solid progress in EUV. For example, in 2020 we successfully introduced a new vacuum chamber for the EUV light production, the so-called modular vessel. The success of this breakthrough modular vessel project was due to close collaboration with customers, technology partners and suppliers, and a dedicated effort to integrate competences.

This new modular vessel solves the issue of lengthy system downtimes when parts were virtually inaccessible leading to long down time of the EUV machine during regular maintenance requirements. Next to the new vessel architecture, the tin droplet generation and positioning received a complete design overhaul to enable the supply of tin to be refilled while the EUV source remains operational. This eliminated the need for a costly operation in terms of time, effort and man-hours. While systems without inline refill like the S3-GWE vessel need to shut down weekly for a six-hour tin refill, for systems with a modular vessel, the inline refill is a major time-saver improving availability and increasing value to the customer.

In 2020, we shipped our first HMI eScan 1000, an innovative inspection tool to detect defects on wafers. The eScan 1000 is 600% faster than previous e-beam wafer

inspection tools, thanks to its multibeam technology, high-speed wafer stages, and advanced computational algorithms. The tool can scan those areas on a wafer where critical defects are most likely. It detects electrical and patterning defects down to 10 nm.

An important achievement in our DUV technology was the shipment of our first NXT:2050i system. The scanner is equipped with the new XLR 960ix laser developed by Cymer, an ASML company. This scanner is based on improvement in so-called 'speckle' performance, and moves both overlay and productivity forward significantly. The NXT:2050i enables the next-generation DRAM nodes, and is also crucial in meeting future requirements in Logic chip production.

The first shipment of our NXT:1470 was another milestone in DUV. It is the first lithography system that produces more than 300 wafers per hour. The NXT:1470 is also the first 'dry' DUV system based on our NXT platform, which was previously used for immersion products only.

Innovation pipeline

To nurture innovation by our future talent pool and to fuel the innovation pipeline we collaborate and establish partnerships with various universities and institutes. This collaboration allows us to accelerate innovation and gives us access to a large pool of research scientists, high-tech students, and academics. It also presents opportunities for scouting new talent. In these partnerships, ASML provides financial support and shares knowledge.

In 2020, we continued our close involvement in the High Tech Systems Center (HTSC), set up by Eindhoven University of Technology (TU/e) to facilitate fundamental research with a focus on understanding the needs of the mechatronics and mechanical engineering industry. Since its launch three and a half years ago, the HTSC has supported the start of several new projects broadening the scope of our cooperation with TU/e towards electrostatic

fundamentals and new developments in optical design. At the moment the strong cooperation between ASML and TU/e is evident through, among other things, the more than 30 PhD positions in which we, as an industrial party, are currently involved.

ASML also works with the Eindhoven Artificial Intelligence Systems Institute (EAISI), set up by the TU/e to make the Brainport region of Eindhoven a center for the application of AI in engineering. EAISI focuses on the use of data and algorithms in machines, such as robots and autonomous cars.

We are involved in the multidisciplinary project Eindhoven Engine, which accelerates innovation in the Brainport region. High-tech students, scientists and academics from a wide variety of disciplines cooperate with business-oriented partners to share knowledge. They also draw on the benefits offered by multidisciplinary collaboration in working toward identifying new and timely technology-based solutions.

We have a long lasting cooperation with Delft University of Technology (TU/Delft). For example, ASML is participating in the Imsys-3D program, a public-private partnership to create next-generation high-performance motion systems. The goal of this project is to use innovative computer algorithms to design optimal shape and dynamic properties of modules in our lithography machines, which can then be 3D-printed, offering never before realized efficiency.

We also cooperate with LINX (Lensless Imaging of 3D Nanostructures using Soft X-Rays), a collaboration between Dutch universities and both national and international industrial partners.

With the University of Twente we have, among others, a strong cooperation with the XUV Optics Industrial Focus Group at the MESA+ Institute for Nanotechnology. In 2020 we extended the cooperation contract with this group for another 4 years. We work together on high-tech optical applications of thin films. These industrial applications require fundamental physical insights to further boost performance of coating materials in a harsh EUV environment.

Collaborating with R&D partners

We monitor the level of engagement with our innovation ecosystem by measuring our investments in R&D partners. This includes investments in suppliers that innovate and help us develop system parts or modules. We also measure the degree to which we invite external technology experts to share competencies with us by the number of R&D partner agencies we engage with.

Our collaboration with and investment in our wide network of R&D partners enables us to share our expertise with the ecosystem. Together we build a strong knowledge network to create technological solutions that society can tap into. In our shared projects, partners in the ecosystem take responsibility for their own areas of expertise and invest in these to advance their own businesses.

We also cooperate with partners in research and innovation projects subsidized by the European Union. Horizon 2020, the EU's program for financing European research and innovation projects, aims to secure Europe's global competitiveness through innovation breakthroughs, discoveries and world-firsts. It also seeks to drive economic growth and create jobs. In 2019, we participated in four EU subsidy projects: TAKE5, TAKEMI5, TAPES3 and Pin3s. In 2020, we successfully completed TAKEMI5. Its objective is to discover, develop and demonstrate lithographic, metrology, process and integration technologies enabling module integration for the 5 nm node.

Partnering in EU research projects

Together with a group of European companies and research institutes, we run collaborative subsidy projects aimed at advancing IC technology for the next node via the program called 'More Moore'. For example, we are leading the three-year Pln3S research pilot project into 3 nm semiconductor technology. It is due to be completed in 2022. The European Union is contributing up to €30 million of the total cost of €141.6 million for this project, as part of its objective to strengthen the European high-tech industry. Our partners in the project include Prodrive, Reden, Sioux CCM, Solmates, Thermo Fisher Scientific (FEI), TU Delft, the University of Twente, VDL ETG, imec, NOVA, KLA and Applied Materials. The Pln3S project will form the basis for innovations yet to come, enabling solutions that address societal challenges in communication, mobility, healthcare, security, energy, and safety and security.

Pln3S is by far the largest of 11 research projects launched under the umbrella of the program 'Electronic Components & Systems for European leadership' (Ecsel). Ecsel is a so-called joint undertaking, a public-private partnership established in 2014 by the European Union. It receives €1.17 billion in subsidies from the EU's Horizon 2020 program. National and regional governments and project participants supplement this subsidy by about €5 billion. This money will be spent on research and innovation in nanoelectronics, cyber technology and system-integration technologies.



In 2020, ASML began coordinating a new EU collaboration project, called IT2, aimed at exploring, developing and demonstrating the technology options needed to realize 2 nm CMOS Logic IC technology. This will extend the scaled semiconductor technology roadmap to the next node in accordance with Moore's Law, and further support leading-edge manufacturing. The three-year program is valued at more than €90 million. Project activities cover the creation of lithography equipment, processes and modules, and metrology tools capable of creating and dealing with new 2 nm node 3D structures, defect analysis, overlay improvement and feature size reductions.

Our contribution for 2020 is nearly €28.5 million. In most of these projects, we work with universities, research and technology institutes and other high-tech companies to help enable the industry to move towards next-generation technology. The projects in the series are built around three main pillars: lithography, metrology and process development. It is mutually beneficial to support the companies around us that provide us with what we need. We push these projects and involve our ecosystem because it is important for us to build together.

By collaborating in European projects, ASML and its partners play a role in giving the region a degree of sovereignty by driving and accelerating fundamental research and groundbreaking innovation in Europe. This collaboration also generates significant business value, fuels job creation, and creates knowledge. This is borne out of, for example, the increasing number of patent requests per year, both for ASML and the other members in the various consortia, which reflects the success of the collaborations.

Product safety

We want to innovate, but always with safety top of mind. It's our duty to provide a safe work environment at all times. In our products and processes, we think about how to supply machines where all safety risks are mitigated to guarantee a safe place to work and deliver accordingly. We do this at every stage of a product lifecycle: 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

Safe products start with good design. As part of this philosophy, we try to eliminate the human factor as much as possible. We emphasize safety by design in hardware followed by safety by procedure. Prevention is key. We seek to ensure all the products and tools we develop comply with the world's most stringent product safety regulations, and legislation applicable to the countries where we do business. In some cases, where there are no safety precautions available to address potential hazards, we develop our own precautions for the tools and products we develop at ASML.

We create safe products through our technical capabilities and design to guard against the human factor becoming a risk factor. One example of this is the way we interlock laser-beam activities to limit our employees' exposure to dangerous laser beams. This helps prevent workplace activities from turning into potential accidents.

We have clear systems and processes in place to support our approach to product safety. When we start designing our systems, our safety engineers conduct an initial Safety Risk Assessment (SRA). They take nine key risk areas into account that we have identified, and alert risk experts if they believe designs might pose a safety risk. Our product designers are trained to identify any safety issues in the early stages of the design process.

In each subsequent stage of the product lifecycle, we evaluate product safety. We track any reported product-related incidents – including supply chain incidents – through our incident-reporting system. Every year, we provide management with a product-safety review, where we report any product-safety incidents of the past year. In 2020, as in previous years, we are proud to say there were no recordable incidents caused by our equipment.

EUV modular vessel: high-pressure gas systems safety test

Before an EUV S3-modular vessel system can be shipped to South Korea, an inspector from the South Korean gas and safety authorities must verify the high-pressure gas system by proof-testing in the Veldhoven cleanroom. Travel restrictions during COVID-19 meant this step risked severely delaying clearance for shipment. Instead, a cross-sector team from ASML was able to demonstrate the high-pressure compliance of the EUV S3-MV system, with South Korean authorities and the customer viewing a live feed from the cleanroom. Afterwards, serial numbers of the manufacturing record book were checked and validated by showing the parts in the system to verify that the manufacturing record book matched the hardware in the system. With no deviations found and good results on the pressure proof test, the authorities approved the system, enabling clearance for shipment of the second S3-MV system to South Korea.



As we have grown, so has our product complexity and the number of geographical locations we operate in, and therefore it is 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.

In 2020, we launched a legislation and compliance project in our D&E department. Through this project, we are further improving our ability to assess which legislation and regulations apply in each country we operate in, how to interpret them, and demonstrate how our products and tools comply. As always, we provide safety documents for our machines – including the results of the safety tests of parts, and the machines' functioning – taking regulatory requirements into account. In some cases, government regulations stipulate that safety tests must be conducted in the presence of a licensed inspector. This presented several challenges due to global travel restrictions and quarantine measurements.

The legislation and compliance project has led to updates of the Safety System Performance Specification (Safety SPS) – the list of safety and compliance requirements our D&E department maintains for our products and tools. The Safety SPS is formally updated every three years and on an ongoing basis for changes in relevant legislation.

Ensuring safety compliance

Our D&E safety competence leads are on hand to provide thorough knowledge about the way of working and design rules around specific safety hazards. The products and tools we develop comply with the EU Safety Directives and semiconductor industry guidelines (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 also take into account customer-specific safety guidelines.

We are SEMI S2 compliant for every product type shipped. In 2020, a report confirming SEMI S2 compliance was available for every product type we shipped. We also have a CE declaration of conformity for all ASML products and tools.

In 2020, we continued to run pilot projects aimed at ensuring our suppliers are abreast of all relevant safety specifications. The legislation and compliance project has led to updates of the Safety SPS, the list of safety and compliance requirements our D&E department maintains for our products and tools. We share this information with our suppliers prior to them manufacturing the parts, modules and/or tools for us. We expect our suppliers to also provide safety-related data and supporting documentation for the parts or tools they make for us. We screen suppliers to assess how they are meeting these safety requirements.

We completed a project aimed at adopting best practices related to the shipping of dangerous goods. This resulted in, among other things, the appointment of a specialist

dedicated to the technical competence 'dangerous goods'. We focused on increasing our knowledge of the thousands of potentially hazardous items we produce and ship worldwide every year. By identifying at an early stage which materials are hazardous, we can take measures for their safe handling and transportation in time, and with more efficiency.

RoHS and REACH

We are committed to complying with EU guidelines for handling hazardous materials and chemicals, the so-called RoHS directive and the REACH regulation, even though the products we manufacture are currently excluded from the RoHS directive. We aim to, whenever possible, reduce and eliminate any use of hazardous substances and replace non-compliant parts with RoHS-compliant alternatives.

REACH regulations are ever changing, which presents a potential challenge. Each year, there are new additions to the hazardous substances list. As ASML machines consist of thousands of parts not manufactured at ASML locations, we need to keep in very close communication with our suppliers to identify the Substances of Very High Concern (SVHC) content of our products. However, our huge supplier portfolio and six-monthly updates of the SVHC list means this process is challenging. Currently, there are more than 250 hazardous chemicals that need to be assessed.

In 2020, our D&E department launched a project to update our REACH policy and further embed REACH compliance in D&E's operations at all our locations and in our worldwide supply chain. Our REACH project, which will continue in 2021, includes training stakeholders to familiarize them with REACH requirements. The project also aims to align our policy and procedures with new EU legislation and the EU 'SCIP' database of hazardous materials.

Supporting startups and scaleups

We are now 36 years old, but it's our startup mentality – one that is innovative, adaptable and purpose-driven – that has helped us grow into the multinational company we are today. We believe an inclusive and sustainable innovation ecosystem can unleash dynamic and competitive technologies that provide new solutions to society's challenges. To nurture innovation by new generations of technological talents, we also recognize that our expertise is valuable in supporting entrepreneurs and startups.

We make use of our experts' in-depth competencies and knowledge to 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, like building complex manufacturing systems. This is where we can play a role and make a difference.

Sharing our expertise is a way to strengthen our regional high-tech ecosystem. This region has a competitive edge globally, and we need to make sure we maintain this position. Building a strong regional foundation benefits not just ASML and associated partners, but also other companies and organizations. It also helps attract a broad base of talent to the region.

Our employees benefit from the work with startups too. Placing our people into startup teams during certain phases of programs is a way to further develop entrepreneurial thinking within our company.

In 2020, we provided around 1,550 hours of support to high-tech startups and scaleups. The total value of our in-kind support is around €0.6 million.

ASML as a venture-builder

Through the Eindhoven Startup Alliance, we have supported startups and scaleups in their various stages over the years in collaboration with other tech-minded peers from our region. In 2020, we further developed and mapped out a new focus area started in 2019: becoming a startup venture-builder.

Every startup goes through similar phases as it strives to become the next world-class company: 'Dream' (ambition), 'Stand' (idea), 'Step' (problem statement and solution) and 'Walk' (value proposition). Each individual phase of this life cycle presents unique challenges. Through sharing our expertise, together with HighTechXL, we aim to support startups along their journey. We monitor and assess their maturity through objective assessment and a set of deliverables per KPI, such as business model, finance, technology, sustainability and execution skills.

After successful completion of phase 'Walk', the startup evolves to a scaleup, ready to generate its first revenue and seeking ways to expand to a mature business model. We offer support to scaleups. By providing them access into our ecosystem and sharing our knowledge, together with the Make Next Platform, we help them grow into a sustainable company.

Insights we've gained in recent years showed that our past successes were based on working with scaled-up startups with a 'deep tech' component, and that these were difficult to find. The solution was to build our own in partnership with other technology providers. In 2019, we chose a promising – existing but innovative – technology, and selected a team of experts from the region to build a startup company based on this licensed technology (Read more in: Incooling combating waste heat).

In 2020, we further developed this initiative, reaching agreements with several companies and organizations, including TNO, imec, the European Space Agency and Fraunhofer, to work together to build new deep-tech companies. This shift in focus takes the existing high-tech startup accelerator HighTechXL, in which we have been a partner since its launch in 2016, and moves it into the next development phase.

ASML was involved in two HighTechXL FasTrackathons in 2020, focused on deep-tech venture building. Teams made up of around 16 different nationalities, and different ages, backgrounds, skills and competencies, came together to explore synergies and work towards bringing new companies to fruition.

In March, the FasTrackathon had to move online. The event was recreated as a virtual hackathon while keeping the collaboration philosophy of the original – introductions, team familiarizations, brainstorming, business plans and, finally, the pitches that are the first step toward strangers becoming effective startup teams.

Although we gained momentum with our new approach in 2020, progress was hampered. We had to organize ourselves offline, with associated challenges around communications and logistics. And while the spend rate of startup companies is relatively low, some ran into financial difficulty. ASML helped to arrange funding and subsidies for some of these. Overall, many startups had to rearrange their priorities.

Incooling combating waste heat

Established with ASML's support at the start of 2019, Incooling uses cooling technology developed by CERN, the European Organization for Nuclear Research, to address one of the datacenter industry's major challenges: waste heat. It is predicted that by 2025 no less than 20% of global energy consumption will be consumed by datacenters. A large part of this energy is needed for cooling. This produces 1.9 gigatons of CO₂ (equivalent to the annual emissions of the aviation and shipping industry combined). Incooling has developed highly efficient cooling systems that in the future will offer datacenters higher performance against substantially lower energy consumption.

This young venture has accelerated in a very short period of time and, with ASML's collaboration, has been recognized with the first CoSta* Award for the most successful and impactful innovative collaboration between a corporate and a startup. The award acknowledges the wide-ranging support offered by ASML in helping the young company establish itself and tap into the fast-moving innovation ecosystem.

*The CoSta program of Dutch employers alliance VNO-NCW and MKB Nederland was set up to stimulate cooperation between corporates and startups.

Eindhoven Startup Alliance

Over the years, we've provided in-kind support to new companies at different stages of development. For startups that have moved beyond the stage of an idea, we offer support through two initiatives: the Eindhoven Startup Alliance, together with HighTechXL, and the Make Next Platform.

We set up the Eindhoven Startup Alliance in 2016 with six tech-minded peers from the region to boost innovation and entrepreneurship in the Eindhoven Brainport area. The alliance facilitates collaboration between multinational corporations, SMEs, research institutes and government. It supports promising new companies with the aim of accelerating their development and strengthening the ecosystem for high-tech manufacturing in the region.

Since its inception, the Eindhoven Startup Alliance has built a portfolio of about 70 startups. Of these, more than 60% are still in business, while about 16% have achieved the steep growth envisioned by the alliance and as such have been awarded the alliance's 'Star' status. A supported high-tech start-up is assumed to have reached 'Star Level' once it's business value has multiplied by more than 10 times.

In 2019, the alliance narrowed its focus to those startups that build business cases on the most complex types of high-tech technology, a category the alliance dubbed

'deep-tech'. Supporting startups that work with these sophisticated technologies creates more value for alliance partners and the Eindhoven region. In 2020, we moved forward with this new focus area.

The Eindhoven Startup Alliance had a total of eight companies using a licensed technology in the pipeline at year-end 2020. Our goal over the next five years is to establish about 45 startup companies through the alliance based on this technology licensing model. Our own target is to help at least 20% of startups reach the 'Star' level.

We encourage ASML staff to join alliance projects and help startups by sharing their expertise, which also benefits our innovation and business processes. Not only do our experts gain knowledge about new technologies, they also get the opportunity to experience the different stages of a young company's evolution – from developing a product proposition to going to market and needing to find customers. We believe this makes our top experts better leaders and all-rounders.

Make Next Platform

We set up the Make Next Platform to help young technology companies that have moved beyond the startup phase and are ready to expand. This platform provides the future generation of tech companies with a unique opportunity to gain access to the networks, knowledge and expertise of the leading Dutch companies in the technology industry.

These companies, so-called scaleups, face challenges such as finding the funding needed to grow, knowing how to target new customer groups, and recruiting new employees with the right skills. Through exchange of best practices, business experience and coaching, the Make Next Platform partners aim to support them in their development to become global players by giving them access to the inside networks.

Together with ASML, the Make Next Platform partners include, for example, the engineering company Huisman, airport logistics specialist Vanderlande, and aerospace, defense, public transport and security-systems specialist Thales NL.

The Dutch non-profit Stichting Technology Rating provides due diligence services that help the Make Next Platform select companies it wants to support.

In 2020, support for scaleups took a different form. There was a more focused and urgent need for funding to see companies through the lockdown period. In some cases, ASML and the CEOs of founding companies arranged letters of support for the companies we support.

One of the scaleups we supported in 2020 was Medtech company IME Medical Electrospinning, which was admitted to the Make Next platform in March. The company is a global leader in electrospun medical devices and regenerative medicine. IME has developed the revolutionary MediSpin® XL platform for large-scale industrial production of reproducible and scalable fiber-based scaffolds for medical devices. The platform ensures control of the crucial parameters of the electrospinning process, leading to identical and consistent end-products. It also allows for non-stop production, while safeguarding the structure of the fibers and thus the quality of the medical mesh.

We also supported the Enschede startup Sound Energy, which has developed a sustainable machine that can cool industrial processes with sound waves using residual heat. In this way, the company creates an air conditioner that uses hardly any electricity. And for large factories and ships, its Thermo Acoustic Energy Converter can save up to 88% energy.

ASML Makers Award

We support new companies at different stages of development. For those seeking to transform a high-tech idea into a business case, we offer help in kind. ASML experts make themselves available for an agreed number of hours to share knowledge and experience with these startups. We provide this support to winners of our ASML Makers Award. These are usually university students or young scholars who successfully pitched an as-yet embryonic high-tech innovation or prototypes.

In 2020, we granted the ASML Makers Award to a team of students from TU/e for their business case on a 'Bicycle lighting solution', aimed at encouraging cyclists to use bicycle lights by designing an easy-to-use product. The small, pocketable bicycle light is easily attachable to a keychain, so reducing the chance of loss and theft.



Technology and innovation ecosystem KPIs

The table below shows the key performance indicators (KPIs) and the related 2025 targets. In 2019, we adopted a new sustainability strategy – as a result no comparative results for 2018 are available for new performance indicators. See Non-financial statements - Non-financial indicators for our performance indicators (PIs) and related results.

KPI	2018	2019	2020	Target 2025
R&D expenses (in billion €) ¹	1.6	2.0	2.2	n/a
Investment in R&D partners (€, in billions)	—	0.5	0.6	n/a
Number of R&D partner agencies	—	144	130	n/a
Startups reached Star level from total startups supported (in %)	—	17%	16%	> 20%
Number of scale up companies supported (in #)	—	5	7	14

1. This KPI is based on US GAAP

Contributing to the Sustainable Development Goals

Our ambitions, commitments and programs as described in this chapter contribute to the following SDGs. For more information on the performance, see section Non-financial statements - Non-financial indicators.

SDG target	How we measure our performance
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.	<ul style="list-style-type: none"> • 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.	<ul style="list-style-type: none"> • 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.	<ul style="list-style-type: none"> • Investments in R&D • Collaboration with R&D partner agencies

Customer intimacy

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

We collaborate with our customers to understand how our technology best fits their needs and challenges. For this reason, we engage with our customers at all levels: building partnerships, sharing knowledge and risks, and aligning our investments in innovation. We develop our solutions based on their input, engage in helping them achieve their technology and cost roadmaps, and work together, often literally in the same team, to make sure our solutions match.

In 2020, the global COVID-19 pandemic shaped our approach to how we continue to support our customers. It drove us to devise creative support solutions and collaborate with our customers in a number of different ways, to make sure we could serve them around the globe without significant interruption.

From the start, our account teams stayed in constant communication with the regions affected by the pandemic as it unfolded. In alignment with our corporate crisis team, we ramped up our customer communications, providing more frequent status updates, usually through weekly or bi-weekly calls.

Despite travel restrictions, mandatory quarantine and manpower constraints, and thanks to our collaborative efforts across the company and our business partners, we were able to prevent any major impact on our customer business requirements. Customers around the world have recognized our additional support efforts and interventions during the pandemic. We were presented with several 'customer awards' in recognition of our rapid response to customers' needs and good overall customer service.

Augmented reality enables remote support

As we responded to the unique situations present in 2020, our new ability to provide remote support became a game-changer. A cross-functional team used gaming-inspired augmented reality (AR) to turn a potential problem – delays in providing customer support – into a new opportunity, ushering in a new era of remote support.

We developed an AR solution using Microsoft 3D HoloLens headsets that allows subject-matter experts to enter customer cleanrooms virtually to both troubleshoot and complete service actions. Using AR, we are now able to have our top experts support our machines from anywhere in the world.

Achieving customer intimacy

To us, customer intimacy is about the entire customer relationship across all channels, from the early stages of innovation onwards. We aim to foster loyalty, advocacy and continuous engagement with the goal of achieving complete customer satisfaction.

As ASML matures and grows, our innovations lead to more sophisticated solutions and interactions with our customers. As customer requirements become more complex, it takes longer to align, so we need to start earlier. Transparency is key in this process, and our customer intimacy strategy supports this.

It's crucial to be in a true partnership with our customers, to share in the risks and rewards of what we do. Trust and a shared vision are at the heart of this.

Staying close to our customer

To support and sustain our partnerships with customers, we have a structure of customer interactions across various channels in the organization, including, for example, customer alignment meetings. Here, members of our Board of Management, senior managers and customer representatives come together to make sure our product development plans are in line with their business goals and needs.

We run regular customer alignment meetings with our key customers. These meetings include our 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 and CTO discuss technology plans and requirements with customers, and Operational Review Meetings, where we review topics related to our customers' operational activities.

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

Continuous customer support

Our customer support engineers have gone above and beyond to continue supporting our customers throughout the COVID-19 pandemic, including the use of ASML's remote service capability: Basic Remote Equipment Support (BRES). BRES allows engineers to check error logs, diagnostic reports, and even 'see' a machine screen remotely in certain locations. Our customer support team relied heavily on this capability to solve machine issues quickly – without any face-to-face interaction. It also allowed specialists from other locations to provide support.

Another focus area is training – boosting the capabilities of the local customer service teams as well as enhancing local technical expertise. The travel restrictions, among others, highlighted just how essential the need is for well-trained engineers in the regions where we operate.

We opened two EUV technology training centers in 2020, one in Hwasung in South Korea and one in Tainan in Taiwan. Bringing service engineers up to speed on our technology is critical to the industrialization of EUV. The EUV training center enables both ASML and our customers to train EUV engineers locally in a safe and cost-effective way.

The new training center in Tainan features live EUV machine modules and comprehensive training courses to train EUV engineers for EUV customers, including EUV machine operating practice in the cleanroom.

Measuring our approach

Our Voice of the Customer program helps 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 based near our offices in Veldhoven. In 2020, travel restrictions and other mitigation measures related to COVID-19 limited our in-person interactions.

Our account teams adapted quickly, introducing alternative solutions such as more local Voice of the Customer initiatives and remote customer interviews. Local account and support teams visited our customers at their locations, interviewed them on video, and then shared feedback with teams at ASML. Except for live presentations with a bigger audience, we could adhere to our regular schedule of interactions throughout the year.

Another valuable customer feedback tool is our biennial Customer Feedback Survey, which asks our customers to rate our performance. We also use this opportunity to collect open feedback. The direct ratings and frank comments provide valuable insight into customers' successes and challenges. It presents them with questions on the most important areas of improvement for our account teams and business sectors.

We ran the survey in 2020, and drawing on the results, identified improvement areas. Common themes include driving timely solutions to structural problems, improving quality and cost of ownership. We shared these findings with business sectors and other relevant internal stakeholders.

We also set ourselves a target of achieving a top-three ranking among large suppliers of semiconductor equipment. The VLSI research annual Customer Satisfaction Survey benchmarks the performance of suppliers across the semiconductor industry. The 2020 VLSI research Customer Satisfaction Survey saw us achieve our highest-ever score, with an average rating of 9.31 out of 10, up from 9.2 in 2019. We've maintained our position in the top three overall 'Large Suppliers of Chipmaking Equipment' and also top three individual categories: 'Best Suppliers of Fab Equipment', 'Wafer to Foundation Chipmakers', and 'Wafer Fabrication Equipment to Specialty Chipmakers'.

In line with our business strategy, we continued in 2020 to work towards securing our full product portfolio that will sustain our company into the future. This includes bringing EUV to high-volume manufacturing at customer sites, and securing our products in the mature markets and installed base and service offering.

Our product portfolio is aligned to industry trends and our customers' detailed product roadmaps, which require lithography-enabled solutions. Our strategy is clearly resonating with our customers. They are showing their trust in us by investing in our newest technology, supporting the industry driver of shrink beyond the current decade.

Customer intimacy KPIs

KPI	2018	2019	2020
Overall Loyalty Score (Customer Feedback Survey)	73.3%	n/a	72.6%
VLSI Survey results			
Large suppliers of chipmaking equipment - score (scale 0 to 10)	9.1	9.2	9.3
Suppliers of Fab equipment - score (scale 0 to 10)	9.1	9.2	9.3
Technical leadership for lithography equipment - score (scale 0 to 10)	9.6	9.6	9.7



Operational excellence

ASML has achieved strong growth over the past few years, thanks to groundbreaking innovations and technology leadership. We've introduced several generations of cutting-edge chipmaking systems and built a strong market position in the semiconductor equipment manufacturing industry. As we mature as a company and build on this position, we are putting effort into ways to continuously improve the customer experience and help customers reduce the cost of ownership. Customers look at both the cost of the systems and running costs. As such, improving quality requires an end-to-end approach. We need to look at the whole chain to identify the real issues and find solutions. We seek to combine our innovation power with operational excellence.

Our New Enterprise program

The strong growth in our business operations and the evolution of the company drove us to review our work practices and determine where we can increase efficiency in our operational processes to improve the customer experience and unlock business value. We put ample effort in reshaping our processes and IT landscape. The Our New Enterprise (ONE) program is centered on improving our business processes and IT enterprise management system. It builds on the steps taken in recent years to improve our IT systems, which were built in the 1990s and not optimized for tailored customer solutions. This is a multi-year program, with the rollout being done in phases.

The ONE program addresses the complex processes that have resulted from a fragmented application landscape with numerous customized applications. The aim is to ensure flexibility while introducing standardization. ONE will enable ASML to function in a more unified and efficient way by simplifying processes to ensure a future-proof and more sustainable system. The program adopts a cross-sector, company-wide, and end-to-end approach that will enable us to deliver higher business value for our stakeholders, which we define as:

- Shareholders: Increased competitiveness of our products and services
- Customers: Increased performance and reliable product life-cycle management of our products and services
- Suppliers: Stable and clear requirements on parts, tools, and timing through decoupled planning
- Employees: Empowered through simplified, standardized, and cross-sector operations

Quality culture

ASML is committed to providing a high level of customer satisfaction by delivering top-quality, sustainable products and services that consistently meet, or exceed, our customers' expectations. Quality and operational excellence are essential elements of our technology leadership. This leadership is reinforced by a company-wide quality culture that creates an environment to excel. Together with our suppliers and partners, we ensure high-level performance for our products and services. As a learning organization, we continuously improve our offerings and processes.

The aim of our quality culture is to shorten Time to Mature Yield and ensure end-to-end quality of our products and services in several ways:

- First Time Right: Apply risk management processes on products and execution to minimize the impact for our customers.
- Zero defect: Embed controls to guarantee adherence to our policies, processes and procedures.
- Zero repeat: Learn from failures and prevent reoccurrence, driving structural improvement in our products, services and processes.

We have established a Quality Program Review Board, chaired by our Chief Operating Officer (COO), tasked with steering and monitoring on quality. We are also committed to internationally recognized quality management systems and standards. Our quality-management system complies with the ISO 9001:2015 standard, and in November 2020 we again received third-party re-certification for the next three years. This demonstrates our robust quality governance, effective quality management system, and quality compliance across the company.

Training from ZEISS

The ZEISS projection lenses in our DUV systems are usually serviced on-site by ZEISS engineers traveling from South Korea, Taiwan, the US and Germany. To make sure we could continue to service our customers efficiently, especially in the face of travel restrictions, our customer service engineers looked for ways to reduce the need for on-site support from ZEISS.

And they found a way: by freeing up machine time and having a resident ZEISS engineer train local CS engineers from China, Japan and Singapore in the TWINSCAN factory in Veldhoven, local ASML engineers are now able to cover those locations. With local ZEISS engineers continuing to cover South Korea, Taiwan, the US and Europe, support has increased on critical-service actions from less than 70% to more than 90% coverage.

Our people

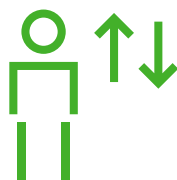


Empowering individuals for the collective good to ensure our employees are proud to work for us and engaged with our ambitions as a company.



80%

Employee engagement score



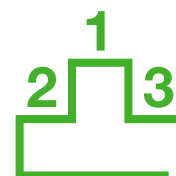
3.8%

Attrition rate



€4m

Community engagement



5 (listings)

Employer brand ranking

- 4 Netherlands
- 22 Taiwan
- 24 South Korea
- 99 US
- 168 China

Every day, our employees come together to unlock the potential of each nanometer to break new ground. Without our diverse and highly educated workforce, we wouldn't be able to push the limits of technology. Therefore, 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. Providing the best possible employee experience enables us to attract and retain the best talent.

In 2020, we were faced with an unprecedented global crisis, the effects of which reached into every corner of our lives and across every aspect of our business. From one day to the next, we had to change how we were used to doing things. From a people perspective, we had to transform how we organized ourselves, our way of working, our day-to-day lives at ASML, and how we attracted new talent to the company.

Operationally, we were able to continue with our business activities and priorities, but the way we worked, learned and interacted with each other and our stakeholders changed significantly. This was challenging, but there have been positive outcomes, such as new ways of working, the ability to collaborate remotely and, in some cases, faster progress with some of our plans.

Our primary goal is to make sure, as best as we can, that our colleagues and their families around the world stay safe. Our second goal is to make sure we continue to serve our customers. As an employer, we provide a safe work environment, but we rely on our employees to take personal responsibility to protect themselves and those around them, both at work and in their personal lives. And at all times, we follow government guidelines.

Gradually, we will work on defining how to resume regular business activities. We were and still are in different phases of these priorities in the countries and regions where we operate.

Strengthening our company culture

ASML's workforce has grown steeply in recent years. This strong growth in total workforce, the large number of new employees, and the evolution of the company has driven us to review what we stand for as a company and determine how we can help our people embrace our values and familiarize themselves with our strategy and purpose. We need to provide a unified direction and anchor ASML's identity deep in the organization.

Given the significant number of new employees who have joined the company in recent years, we need to be even more explicit about what we stand for, articulating the values that should guide the way we work together. Based on employee feedback, we've developed a representative set of values: Challenge, Collaborate and Care. These values ensure we are all working from a commonly understood base that can be applied across our organization, and guide us in our dealings with colleagues, customers, suppliers, shareholders and the communities we serve. (Read more in: Who we are and what we do - Our core values).

In 2020, with our refreshed company purpose and values statement in place, we focused on further deploying our culture and values framework, and implementing our values in our day-to-day work.

One of the ways we did this was to set up a Culture Ambassadors workgroup. This network of 120 cultural ambassadors from all levels of the organization has been tasked with helping leaders and employees anchor our corporate values and behaviors in daily routines. Their role is to understand the values, live them by example, and connect with others in the organization to promote them. We see them as multipliers within ASML, to help embed our culture and way of thinking. This process of embedding our values is an ongoing journey, but we will make good progress if we can begin to apply them every day.

Employee engagement

Employee engagement is critical to the performance of our organization and our long-term success as a company. Boosting engagement depends on a wide variety of factors and activities, such as talent attraction and retention, onboarding experience, leadership, learning and development and labor practices.

Our we@ASML employee engagement survey is a crucial tool for collecting and measuring employee feedback. The insights our survey provides enable us to improve the employee experience and work on our policies and processes. Our ambition is to have a highly engaged workforce. We set ourselves the target of achieving an employee engagement score that is at least on a par with our peers.

We are proud of the progress we made on this in the challenging context of 2020. Our overall employee engagement level is high, up from 77% in 2019 to 80% in 2020 – 7% above our external global benchmark of 73%. We have shown improvement on topics such as quality, well-being, inclusiveness, and customer focus. Also impacting this upward trend is our positive response to COVID-19, which external research shows influences company engagement scores.

We still see clear differences in engagement levels, across regions and departments. And while the three priority areas from we@ASML 2019 – ‘Enabling Processes’, ‘Cross-team Collaboration’ and ‘Clarity of Expectations’ – have all improved significantly this year, they are still top of the agenda, as we still score well below the external benchmark. For example, following on from issues raised in the 2019 we@ASML feedback, the Brion executive team

launched a new virtual event – known as Product Day in the US and Product Week in China – to better enable cross-team collaboration. Through these events, employees were able to quickly learn about products, share in customer successes, and foster collaboration to inspire new ideas.

How we grew in 2020

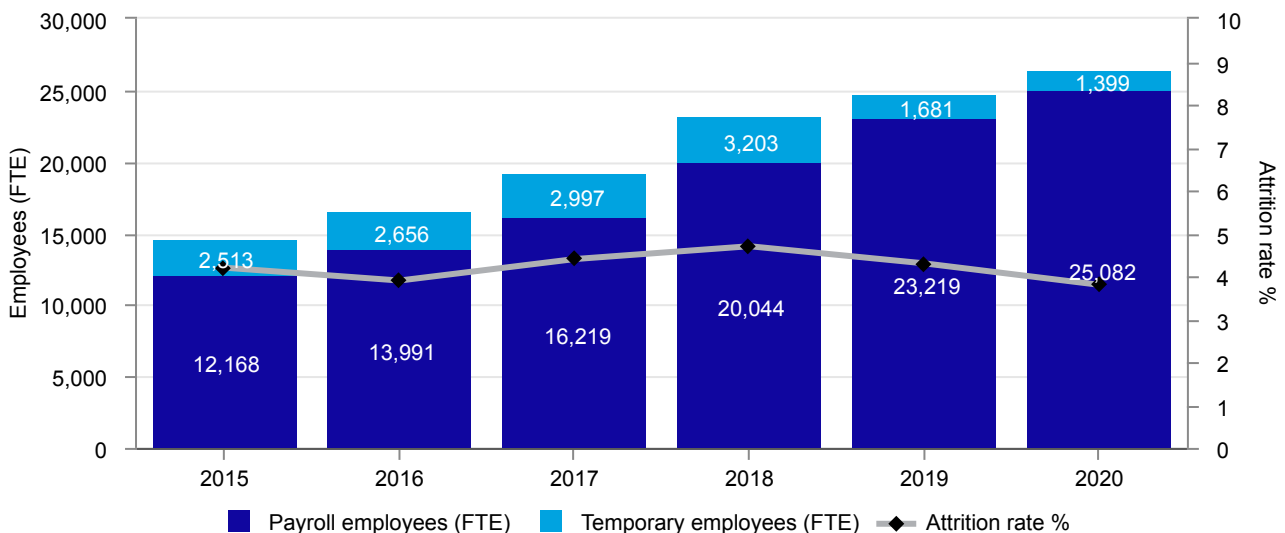
We hired 1,932 new payroll employees in 2020, growing our workforce to 26,481 FTE at year-end, excluding the almost 1,600 FTE joining from the Berliner Glas acquisition. This is a sharp increase compared to the 14,681 FTEs we employed in 2015.

Our attrition rate – the percentage of employees leaving our company – was significantly below that of our industry, meaning we again met our target. After a few years of modest increase – though always remaining well below that of our industry – our attrition rate significantly decreased in 2020, standing at 3.8% versus 4.3% in 2019.

This shows that our efforts to create a unique employee experience, our employee engagement programs, and our onboarding of new employees are paying off. Of course, in 2020 this was also shaped by the COVID-19 pandemic, which may have resulted in people being less inclined to look for other jobs.

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, currently aiming for between 3.0% and 8.0%. For high performers, our target is to have a rate 50% lower than the overall attrition rate target. The attrition rate of our high performers was 1.7% in 2020, outperforming our target.

Our workforce trend



The 2020 FTEs in the chart above do not include the FTEs acquired through the acquisition of Berliner Glas Group.

Building a strong talent pool

In an innovative, high-tech, fast-changing industry, it's vital to strengthen and continuously invest in our talent pool to anticipate evolving business requirements and developments in the labor market. We empower our employees to develop their talent, pursue their career ambitions and to thrive. We strongly believe that personal development works best when our employees can invest in themselves. At ASML, we give employees the time, opportunity and support, while they put in the effort, passion and drive needed to enhance their development. We offer tailor-made training and development programs to help grow the highly skilled professionals we employ at ASML.

Training

To maintain our technological leadership and pace of innovation, we need to ensure the right knowledge is available to our people at the right time. To do this, we have our own technical development centers in-house for our D&E, customer support, and manufacturing employees to tailor training to the specific technical needs of these departments.

Most of our trainings take place on the job, given the nature of our innovative business and co-value creation. Overall, we are promoting the 70-20-10 approach for learning interventions, meaning that 70% is on the job learning, 20% is through coaching, and 10% is learning through training courses. The average number of training hours in this last category, including development programs, was 28 hours per employee in 2020.

EUV training centers open in Asia

With the world's largest installed base of EUV systems, Asia leads the way in EUV adoption. Getting service engineers up to speed on this technology is critical not only to ensure they can service this fast-moving location, but also to the overall industrialization of EUV – which is why ASML has opened new EUV training centers in Tainan (Taiwan) and Hwasung (South Korea) in 2020.

It can take more than a year for an EUV engineer to develop the skills needed to work independently. With these long development times and ongoing travel uncertainties caused by the COVID-19 pandemic, these EUV training centers enable ASML and our customers to train engineers locally in a safe and cost-effective way, bringing EUV knowledge to where it is needed most.

In 2020, we increased virtual training. We had been looking into adopting this over time but accelerated our efforts due to COVID-19. We dedicated a lot of time and effort to adapting this training during the year. There were some challenges as it was not possible to make all our training virtual.

For example, we postponed some of the development activities that have a strong networking component to them, ones where we needed to bring different sectors and countries together. Due to travel restrictions and different time zones, these activities were not viable.

In addition, we started working on redesigning specific development programs to establish an effective mix between remote and in-person training, addressing how we can bring people from different locations together, and how to make training more digestible for online purposes.

Career development opportunities

Developing our people is crucial to the sustained success of our business. Employee development is never a straight line as employees are at different stages in their employee journey and have different needs. We offer various career paths and have various tools in place to support our employees' career navigation.

We are continuously looking into ways to improve how we can help employees identify opportunities for professional development within ASML.

In 2020, we started the discussion and thinking process around how our performance management approach and philosophy can better align with our refreshed culture and values. This forms part of a broader look at the future of performance management in the company. We know that if we want to deploy our culture and values in a certain way, we need to weave it into certain processes, including performance management, which we will start doing in 2021. Together with our executive committee, we started defining how to do this more fundamentally in coming years, looking ahead to a proposed go-live date for a new performance management approach in 2022.



Strengthening our leadership

To remain a market leader, we must provide unified direction. This means we need authentic leadership to give our people a clear picture of where ASML is heading. 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 need to formulate and capture this more clearly so our people can better understand what is expected of them. In response, we started to develop a Leadership Framework in 2020, which will set out clear guidelines of what we expect from our leaders.

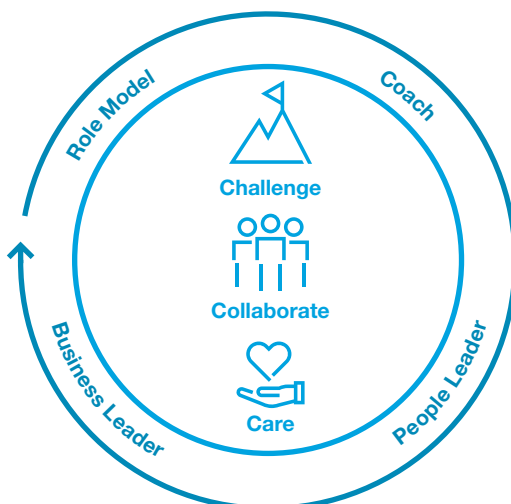
Leadership framework

Role Model

- Live the values
- Self-develop & renew
- Show courage
- Personal well-being

Business Leader

- Own your content
- Act end-to-end
- Build stakeholder relations
- Display business acumen



Coach

- Connect
- Enable
- Develop
- Trust

People Leader

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

The 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. This Leadership Framework was officially launched in October 2020 at ASML's Annual Global Leadership Conference, attended by around 3,000 leaders and people managers within ASML.

At the same time, we are deploying behavioral competencies to inspire and enable personal development. We have leadership programs where we fast-track the careers of our most promising managers through our Potential Acceleration Program. These programs ensure our managers are aware of what's expected of them, and help them develop the skills and competencies they need to become better leaders.

Onboarding as a joint effort

As our global workforce grows exponentially, onboarding has become one of our key priorities.

A positive onboarding experience builds a sense of connection, helps employees fit in quickly, and boosts retention. We believe onboarding is a joint effort, driven by everyone. It is now two and a half years since our new onboarding program started, and the benefits of an aligned and improved onboarding experience are clear. We have decreased new hire attrition by 20% and pulse surveys show a 6% increase in how new hires positively rate their onboarding experience. More importantly, new colleagues have indicated a positive increase of 11% in how supported they felt by managers during their onboarding period.

Onboarding at ASML looked very different in 2020: the hiring managers and the new employees needed to adjust

to a completely new way of doing things, yet pulled together to replace first-person interactions. To give new colleagues the best possible start, hiring managers and HR teams across the globe created a virtual onboarding experience. Previously, in-person elements like our Onboarding Day connected new colleagues with each other to learn more about all aspects of ASML. For now, they take place completely online, with teams finding creative virtual ways to make new colleagues feel welcome and part of their teams. Campus walkabouts for new hires at Veldhoven were adapted to a virtual setting, including gamification elements.

We began developing virtual games and business simulation tools to make onboarding more fun and efficient. Sectors, business lines and functions also continue to build on our global onboarding initiatives, making sure we're providing one consistent experience across the company, further tailored to the various departments.

In 2020, we finalized all the building blocks of the program, bringing it to the framework stage.

Strong 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 see that top-tier talent selects their employer of choice, not the other way around. This is a general development of employees choosing their future employer, and it's important for employees that a potential employer has a proper value proposition.

Developed in 2019, our employee value proposition defines who we are, what we stand for, and how we create a unique employee experience. It forms the basis of our recruitment strategy and Labor Market Communication program. In 2020, our Labor Market Communication team took feedback from this new employee value proposition and translated it into tailored strategies in the countries where we operate.

We view recruitment as an ongoing process, and continuously seek to improve and professionalize how we go about it. We use this information to fine-tune our target audiences and recruitment efforts.

More than ever, the internet is the optimal platform to communicate. Our labor market communications team is continuously working to optimize how we reach, inform and engage our target audiences online. To leverage recruitment efforts, we facilitate job postings and manage ASML's presence on online social network channels. We also promote the ASML employer brand through online advertising.

We continue to improve our employer brand and values on our corporate website, creating a better understanding of what we do and what we stand for as an employer. 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 the different local labor markets on our positioning by 2025. See Our people KPIs

Our efforts have been positively received. For example, in June 2020, ASML was named the winner of 2020 Top Graduate Employers of China by recruiters 51job.com and yingjiesheng.com. The award recognized ASML's long-term campus recruitment plan as being a vital part of our HR strategy. ASML has recruited college graduates for many years, supported dynamic campus talk and science knowledge sharing events, and earned broad recognition and a positive reputation among students.

In 2020, restrictions on travel and large group gatherings limited our ability to meet future talent in person. Various planned activities were either postponed or adapted to a virtual space.

Recruitment campaign goes virtual in Taiwan

An example of our online recruitment efforts is in Taiwan where, to support customer production, our team showed some real agility and adaptability. ASML Taiwan took part in a virtual press conference hosted by one of the most influential career websites in Taiwan. ASML Taiwan's Senior HR Manager was invited to the press conference and interacted with the press through a smartphone.

ASML also hosted online career talks. With all physical events being cancelled, our Taiwan Labor Communications team found new ways to proactively approach prospective talents by shifting all career-oriented communications events online. Following successful collaboration across different sectors, ASML Career Talk LIVE was born.

Promoting diversity and inclusion

We believe a diverse and inclusive workforce provides the necessary mix of voices and points of view required to develop the best solutions and ideas for how we innovate to drive our business forward. We know a great idea can come from anyone, so we foster a culture where different identities, backgrounds, talents and passions are valued and celebrated. With employees from 120 different nationalities, we're proud of our diversity, and believe it makes us stronger.

Our Code of Conduct is our guiding principle to ensure all employees are treated fairly and equally without discrimination. We are committed to equal opportunities, regardless of gender, age, religion, nationality, sexual orientation, and so on. By putting the right person into the right position, we enable our employees to contribute to the company where they are most needed, and which allows them to develop with the company. Our Ethics Office and Liaisons, as well as a third-party Speak Up Service, ensures we uphold and correct any potential issues to maintain and protect an inclusive environment. Additionally, our corporate values further embed respect for our people and their differences within daily work experiences and interpersonal interactions.

In 2020, we made progress in gender diversity among all employees and senior management. Female employees now make up 17% of our workforce worldwide, having gradually moved up from 10% in 2010. We deploy many initiatives to promote STEM (science, technology, engineering and math) education among the future female talent pool. However, the effect of these initiatives takes many years to become visible in our performance. In addition, looking at the dynamics of our workforce, nearly 90% of job positions are STEM related, while peers in the high-tech industry have more diverse, non-STEM related job positions. Overall, the global STEM talent pool is scarce and it is even more challenging to recruit female talent. Our female senior management teams moved up from 9.6% in 2019 to 10.5% in 2020 to include greater gender diversity. Yet we still have work to do in this area.

Gender diversity is a general concern in the technology industry. Historically, there is a lower ratio of women compared to men in technology and science-related studies. Although ASML continuously seeks to recruit and retain women in our workforce, male candidates still make



up most of the labor market in STEM (science, technology, engineering, and mathematics) fields. Aiming to close the gender gap in STEM across the world, we continue to implement organizational strategies to recruit, retain and empower women at ASML. To increase the number of females in our future talent pool, we run an intensive technology promotion program to foster interest among young girls. We also raise awareness of career prospects in a sector offering many development opportunities. Still, we need to improve our gender diversity, and we see an effective gender policy as a challenge. See Non-financial statements - Non-financial indicators for details on Diversity & inclusion.

In 2020, we worked on developing and formalizing our approach to diversity and inclusion.

To foster greater understanding and inclusion across our diverse populations, we have employee network groups – like Pink ASML to promote LGBTI people. We are a member of the Workplace Pride organization, which is an international platform for LGBTI inclusion at work. We also promote the inclusion of people with disabilities and other characteristics protected by law. Although we have worked a lot on this, we have not reached the level of integration we'd like to see. This remains one of our challenges.

Regional achievements

Supported by managers and leaders, 39 female engineers from ASML's Taiwan Applications team gathered in Taichung in June to celebrate International Women in Engineering Day. This dedicated annual event encourages female engineers to learn, share and support each other in the workplace. It also serves as an international awareness campaign to raise the profile of women in engineering and focus attention on career opportunities.

In the US, we established an ASML US Diversity Council in 2020. This will serve as an advisory board and govern diversity and inclusion (D&I) programs, such as employee resource/affinity groups, diversity events, recognition and education across the US. It will consist of a group of leaders who act on behalf of ASML to develop and drive our D&I programs. The council will help ensure strategic accountability for results, provide governance and oversight on diversity efforts, and support company-wide communication on progress.

Building on the experiences in US we will install a Global D&I council. Like in the US, this council will consist of a group of leaders who act on behalf of ASML to develop and drive our D&I programs. The council will help ensure strategic accountability for results, provide governance and oversight on diversity efforts, and support company-wide communication on progress.

Although data shows we are improving, we are aware of certain areas where we need to improve, such as the percentage of female managers. Therefore, we will focus on improving ASML's attractiveness for female talents, and will set realistic objectives for improvement per sector. Also next year we will use more data to see where we still need to improve. and also use focus groups to learn more about what is behind the numbers.

We will also prepare a more detailed action plan to set minorities up for success, through actions such as sponsorship, mentoring and training on unconscious bias or managing diverse teams.

Fair remuneration

We want our remuneration 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 to the market benchmark for technology professionals in each region where we operate and, where necessary, make changes to our remuneration policies and levels. Each year, we analyze paid salaries for gender disparity. In 2020, as in previous years, we found no major differences in these salaries. See Non-financial statements - Non-financial indicators for details on gender payment.

Living wage

At ASML, we are committed to meeting adequate living-wage requirements, meaning that employees earn salaries that meet their and their families' basic needs, but also provides some discretionary income. Our company has a predominantly highly educated workforce with relatively high levels of remuneration. In 2020, we conducted an analysis of how our lowest base salary compared to the local minimum wage and local 'living wage' in the countries and regions where we operate. We did not detect any gaps. On average, our salaries are significantly above local living wage.

Labor relations

We want to provide fair labor conditions and social protection for all our employees, regardless of their location and whether they are on a fixed or temporary contract.

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 strive to comply with the relevant legislations in every country we operate in. 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.

We do not have operations in countries where the freedom of association and collective bargaining for ASML employees is restricted.

In the Netherlands, we have requested 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, the large range of competencies and activities we bring together to deliver our products have created a need for our own direction in 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.

The new CLA will be developed in close collaboration with the unions represented in the Metalektro. Once we have our new CLA in place, we will continue to work with the unions regarding labor conditions within the framework of our own CLA and maintain our active membership in various labor organizations, such as FME and PME.

Ensuring employee safety

At ASML, safety is not just a priority – it's a core value. We owe our employees and others working for us a safe working environment. We do everything in our power therefore to provide injury-free and healthy working conditions for everyone on our premises and ensure all our operations are safe and secure. This 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.

Our employee and product safety commitment is captured in our Sustainability Policy, which applies to ASML worldwide. In addition, our ASML Environment, Health and Safety Guide aims to provide practical, useful and essential Environment, Health and Safety (EHS) information for our employees, contractors, and any other parties working for us. The guide explains our aims and objectives, and clearly describes the rules and policies we follow. It's designed to create awareness and ownership.

We provide employees with EHS training to raise their awareness, encourage responsible behavior and familiarize them with EHS standards. For more information on product safety see What we achieved in 2020 - Technology and innovation ecosystem - Product safety.

Our highest level of preparedness is represented by ASML's crisis management plan, which was crucial and effective in responding to the COVID-19 pandemic. A hotline with global coverage was established to provide instant support for our employees. At site level, ASML has documented emergency response procedures in place for each ASML location.

Ensuring health and safety is our first priority. Experiencing COVID-19 like symptoms can be a cause for anxiety and worry. Testing is an important measure in controlling the spread of the virus. The waiting times for regular tests via the public health services (GGD) were long, and we therefore sought a solution to help our employees. In the Netherlands we offered voluntary COVID-19 tests to our employees and their direct family members. These tests were performed by an authorized external provider, using test-sets that are high quality and compliant with all applicable laws, regulations and guidelines. Privacy is guaranteed during the performance of the tests organized by ASML.

The pandemic had no impact on EHS performance and initiatives. Operations continued and internal EHS audits were performed remotely.

Our approach to employee safety

We take responsibility for protecting our employees by making ASML a safe place to work. EHS is crucial to creating a safe and trusted working environment. We believe that all work-related injuries and occupational illnesses are preventable. As such, we are working towards a long-term ambition of zero injuries and work-related illnesses.

Our target is to prevent occupational health and safety incidents. To benchmark our performance against industry standards, we use a targeted recordable injury rate of 0.25, which represents world-class performance. But our ongoing ambition is zero, and this drives our continuous improvement in processes, working conditions and

employee behavior. We use the highest possible professional standards, and continuous improvement is a key principle of our management system.

We are committed to a well-established EHS management system. Our EHS management system is based on the ISO 45001 and complies with these requirements. We ensure continuous improvement through internal EHS audits.

Incident management and risk management are key elements of our EHS management system. This process ensures we not only record incidents and injuries but also cases where we have unsafe situations or near-misses. These allow us to address high-risk situations before they can turn into actual incidents, and cause injuries to our employees. We investigate all incidents and near-misses to determine the root cause and take corrective action to prevent them from recurring or occurring in the future.

It's impossible to completely eradicate risk, but we can work proactively at all levels to identify potential issues or concerns in the workplace and develop measures towards reducing these. We believe we need to do everything within our reach to minimize risk, and that it is our responsibility to provide our people with the right protection, procedures and processes to keep them safe.

Five life-saving rules

The dynamic nature of ASML's business today – continuous technology and product innovation, rapid growth, many new colleagues and geographic expansion – brings opportunity, but also potential safety risk. Our lithography platforms, in particular, are becoming bigger and more complex, with a growing number of components presenting potential safety hazards that can lead to severe or even fatal injuries.

We introduced five safety rules to not only ensure our employees are prepared for these hazards, but also to create a safer workplace and enhance our safety performance. Underpinning each safety rule is a high-potential safety risk, meaning these rules have the greatest potential to prevent serious injuries and fatalities. Everyone should adhere to these rules knowing that in the event of a threat or breach, the work must stop with the full support of management.

1. Verify isolation and lockout before beginning work
2. Get authorization before entering a confined space
3. Take precautions while moving heavy loads
4. Protect yourself while working at height
5. Drive safely

Respecting and adhering to these rules could not only save lives, but also make us collectively more aware of safety risks across our organization. The rules apply to everyone, and we require everyone to know them, even when they don't directly apply in daily activities.

Managing a safe workplace

To ensure that we implement our EHS guidelines effectively, we have a safety program in place. ASML's Board has appointed the Chief Operating Officer (COO) as the lead for the EHS management system. We've also

established a Corporate EHS Committee to oversee and approve ASML EHS strategy. Our line managers are responsible for day-to-day EHS management. Our EHS Competence Center gathers the best practices and defines the EHS standards for ASML, helping our managers to implement these standards at the workplace.

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 be defined, so the work can resume.

We conduct regular hazard and risk evaluations, with a focus on preventing employees' potential exposure to hazards such as chemicals, fire, radiation, mechanical handling, and ergonomic risks. These provide us with further insights into the main hazard and risk areas at ASML. We can then take appropriate action to mitigate these risks.

Stepping up to the next level

Implementing standardized EHS processes and systems alone is not enough to prevent accidents when working to deliver our customer commitments under stressful conditions. We also need to increase our maturity in the way we approach safety as a whole.

We are well underway in our journey towards a stronger, more proactive safety culture across ASML. We have conducted a company-wide safety-culture survey to measure our current position on the safety culture maturity ladder across all sectors, and to benchmark ourselves within our industry.

The overall outcome of the survey provides us with insights on how to reach the next level of maturity towards an independent safety culture. We are deploying initiatives and focus on creating awareness to accelerate and embed the independent safety culture at ASML.

How we did in 2020

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 culture requirements and to raise awareness around these. Training is one of the ways we prepare and inform our people about this safety culture. In 2019, we updated our EHS Fundamentals training, tailoring it to the needs of our people. The EHS training features real-world situations. It is compulsory for everyone working at ASML.

We updated our EHS Fundamentals with training focused on our five new life-saving rules. Introduced and rolled out in 2020, we view these as a step forward towards an independent safety culture. By December, 94.4% percent of eligible candidates had completed this mandatory training.

Our recordable incident rate decreased to 0.18 in 2020 (0.28 in 2019), outperforming industry benchmark of 0.25. The main reason for this decrease is the absence of office related injuries due to the work at home policy in 2020. In 2020, we continued our efforts to reinforce our safety culture program. As in previous years, we did not record any work-related fatalities or permanent disabilities. We register EHS-related incidents in line with the US Occupational Health and Safety Act.

ASML Taiwan wins 2020 CHR award

ASML Taiwan won the 2020 Corporate Health Responsibility (CHR) award, becoming the only company from the semiconductor industry in Taiwan to ever win this prestigious award. Presented by Commonwealth Media Group, the award received more than 200 entries, compared to 168 in 2019. Participation was open to a broad range of industries in Taiwan – from insurance to banking, car components and even aerospace companies – and corporations were scored on criteria including awareness, activities, alignment, assistance, and epidemic-prevention measurement.



Community engagement

As a global technology leader and employer, we are also part of the communities where we operate. Being part of a community means not only caring for our own employees but also looking out for those beyond our organization. We foster close community ties and encourage our employees to get involved and do their part as well. ASML needs the support of the community to be successful and will earn that support if ASML lets the community benefit from its presence and is considerate of the community's needs.

Our community engagement program, which falls under our CEO's area of responsibility, is built on three pillars where ASML has competence and can create impact:

1. Culture
2. Local outreach
3. Education

The total amount of cash commitments and in-kind support that ASML spent on charities, community engagement, organizations, and our own ASML Foundation in 2020 was around €4 million. In addition, our social community support during the pandemic amounted to €2.7 million.

Culture

Culture is the invisible bond that ties the people of a community together. To strengthen that bond, ASML supports 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 with significant importance to society, and with an impact and reach that goes beyond the local community.



Key programs	Region	Results 2020
Supporting cultural landmarks	Netherlands	<p>In Nuenen, one of the towns in the Brainport Eindhoven region where the famous painter Vincent Van Gogh created some of his breakthrough work in the late 1800s, we are initiating the realization of 'Vincent's Lightlab' within the planned expansion of the Vincentre Museum. Visitors will be able to learn more about light and how Van Gogh experimented with it in his paintings.</p> <p>Muziekgebouw Eindhoven: supporting the main concert hall in the Brainport Eindhoven region and co-organizing events and programs that target diverse audiences. Every year, ASML organizes a music festival, 'ASML on stage', for employees and their family and friends. The festival covers all kind of music styles, from hard rock to classical music, from folk to dance. Despite the fact that we had to postpone the tradition to 2021, we organized an ASML on Stage 2020 virtual quiz event. Around 39 teams took part, from Asia, the US and the Netherlands – roughly 600 streams!</p> <p>Van Gogh Museum Amsterdam: partnership to support the work of Van Gogh who was a child of the southern Dutch province of Brabant where ASML is located. ASML contributes research to safeguard Vincent's work for the future. We are running education programs together with the museum aimed at students and the underprivileged.</p> <p>Through the Brainport National Action Agenda, we support initiatives related to sports, culture and education.</p> <p>We support an alternative edition of GLOW – Next Generation project – where school children can follow workshops on how to 'make light' and how to communicate via Morse code, using this light.</p>
Sustainable transport and ensure the region is accessible for all	Netherlands	We aim to significantly reduce the number of cars on our campus at Veldhoven. We encourage our employees to use public transportation, and we also actively promote the use of (e-)bikes for a healthy commute.

Local outreach

We support local initiatives and organizations that are vital for our communities and that connect the people in our communities. Together with ASML employees we contribute and make these initiatives attractive and accessible and pay special attention to stimulate integration, promote diversity and empower the underprivileged.



Key programs	Region	Results 2020
Employee Volunteering program	Worldwide	We encourage our employees to work one day per year as volunteers to lend a helping hand. Due to the COVID-19 crisis, the number of volunteering hours decreased significantly this year to 1,333 hours versus 7,500 last year. A good example of an alternative activity that was done despite COVID-19, was an online hackathon to help develop a new website for an NGO. Other activities included the collection of winter coats for people in need, and of Christmas presents for children from financially disadvantaged families.
Promote vitality	Netherlands	<p>Partnership with Dutch first-division football club PSV Eindhoven (European champions of 1988). Long-term commitment, together with other large companies in the Brainport Eindhoven region, to support PSV - the community's favorite and most successful sports institution. This includes putting the spotlight on the region by marketing Brainport on the team jersey (a world first in professional football). We also run an integrated program with the other partners to promote vitality for all citizens in the community. ASML donates tickets from our sponsorship allocation to families who are not able to afford to attend PSV matches.</p> <p>Brainport Eindhoven & PSV jointly launched an online platform aimed at inspiring and motivating everyone in the Brainport region in the area of health and well-being. We shared our knowledge and expertise around seven well-being themes: setting goals, exercise, nutrition, sleep, energy and time management, social environment and relaxation. The aim is to create a vital and healthy region for all.</p>
Charity	Netherlands	<p>ASML is a longstanding donor of the Voedselbank Eindhoven. In addition this year, we donated 400 tickets for five matches of PSV's home games to the Voedselbanken and Leger des Heils (the shelter organization). We also supported the Ronald McDonald House in Veldhoven.</p> <p>Brainport partners and PSV established the Brainport Eindhoven Partner Fund, with the aim of working together to find solutions to urgent societal problems in the region. This new charity foundation will help to improve the lives of disadvantaged residents in the Brainport area. The fund will unite parties in a joint approach to several urgent societal challenges, such as poverty, vitality, unemployment, opportunities for children, and social cohesion.</p>
	US	<p>We donated \$10,000 to Big Brothers Big Sisters of San Diego which creates a donor and volunteer-supported mentoring network that makes meaningful, monitored matches between adult volunteers and children, ages 7-18, in communities across the country. It develops positive relationships that have a direct and lasting effect on the lives of young people.</p> <p>We donated \$10,000 to Alpha Project, which serves over 4,000 men, women and children in San Diego through activities such as affordable housing, residential substance abuse treatment, supporting housing for people with special needs, basic and emergency services for the homeless, transportation assistance, mental health counseling, employment training, outreach and community services.</p>

Education

ASML recognizes the need to prepare people of all ages for an increasingly digital future, and specifically the importance of STEM (Science, Technology, Engineering and Mathematics) competences to help all children reach their potential. We organize and sponsor numerous initiatives that aim to share our enthusiasm for and expertise in technology to inspire all generations. We partner with multiple organizations and educational events that promote opportunities and potential of careers in technology. Our employees act as role models and guides for these initiatives.



We execute our education programs through the following:

1. The Education team works closely with schools and education programs in the communities where ASML has operations. The Education team provides hands-on support and coordinates a network of ASML volunteers (our so-called 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. Our intensive STEM education program aims 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.
2. The ASML Foundation is an independent foundation, but has 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 disadvantaged children around the world through educational initiatives that develop their talent and help unlock their potential. For more, see section ASML Foundation.

Key programs	Region	Results 2020
Promote STEM initiatives worldwide	Netherlands	To address the shortage of STEM teachers, we created the hybrid teaching program. We're not only growing our number of technology ambassadors but also enabling 100 engineers in the Netherlands to become part-time or 'hybrid' teachers, paid by ASML. We plan to expand it to the US and Asia. We also partner with multiple educational events that promote opportunities and potential of careers in technology, such as Dutch Technology Week (DTW) and FIRST. As an example, we distributed 5,000 Blink Bug build your own bug kits to elementary schools in the Brainport Eindhoven region to get kids connected to technology.
	US	ASML San Diego supported the EXPO Day where employees helped promote STEM education at Petco Park during the San Diego Festival of Science & Engineering by showing kids how to program robots.
	Asia	In Shanghai, ASML supported the 2nd ASML Youth Maker and Hacker Science & Technology Innovation. Some 80 school children from 15 elementary and secondary schools took part in the contest. The contest was designed to promote science education and inspire more students to choose STEM in their future education and careers. We joined hands with Yuan T. Lee Science Education to launch a three-year 'ASML Taiwan Science Rooting Project'. The project consists of a three-year seed teacher-training program planned for three schools, funded by the ASML Foundation. It is estimated that more than 1,500 Taiwanese students will learn basic scientific knowledge through hands-on experience over the next three years.
STEM education program	Netherlands	In the Eindhoven area, ASML participated in a mini edition of the Night of the Nerds online event during Dutch Technology Week (DTW). An online offering for secondary school students was set up to create awareness around technology and technology studies.
	Asia	ASML is proud to sponsor the Taiwan Railways Fair of Popular Science. This national project, held by the Ministry of Science and Technology, aims to inspire and engage more than 9,000 primary school students from 23 cities in Taiwan. We cooperated with 80 SPIE/OSA Student Chapters from six universities in Taiwan to host a unique Optical Sciences train cabin.

ASML Foundation

The ASML Foundation, which funds projects to improve the lives of young people with inclusive, quality education, is our charity of choice. In 2020, the Foundation donated around €1 million, supporting 22 projects in 11 countries. Although closely linked to our company, the ASML Foundation operates independently. Over the last three years, we have reached over 17,000 children.



Through funding and partnerships, the ASML Foundation aims to help disadvantaged children become more self-sufficient by supporting educational initiatives that develop their talent and unlock their potential. We promote the sustainable development of less-privileged children around the world by supporting inclusive and quality education for all and promoting lifelong learning. By doing this, we aim to make a sustainable impact on SGD 4 Quality Education, and contribute to SDG 5 (Gender Equality) and SDG 10 (Reduce Inequalities).

We want to make a difference in the community in the locations where we operate. As such, we mainly support projects and initiatives in ASML countries in Asia, Europe and the US. These projects address the specific needs in that region. In the US, for example, projects focus mainly on preventing school dropouts in less-privileged areas, and on promoting STEM, especially for girls. 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. In Europe and in the Netherlands, the foundation focuses on education for disadvantaged children, and children lacking in education, providing help that suits their specific needs. Tackling illiteracy in the Brainport region also became a key focus area for the ASML Foundation in 2020.

ASML employees support the ASML Foundation financially when they purchase goods from the ASML employee store and through donations. ASML Foundation is also responsible for ASML's volunteering program: it coordinates the volunteering activities and keeps track of the volunteering hours that ASML employees contribute to education initiatives and other causes. ASML employees are allowed to take eight hours per year to do volunteer work; many volunteers also donate their own time.

In 2020, we maintained our focus on education, as well as helping and financially supported our current partners needing to, for example, convert education efforts from physical classes to virtual learning.

Examples of projects supported in 2020

STEM - Girls Can Do It (China) The STEM - Girls Can Do It project focuses on young people – especially girls – in rural China, near ASML's offices in Chengdu and Xi'an. It aims to promote more gender-balanced STEM education. The project will expose about 1,200 young people, of which 70% are girls, to STEM, and teach them coding and programming. Employees from the local ASML offices have been actively involved in the partnership as volunteers, hosting, for example, in-person events at ASML's offices, and involving female engineers as role models. We are planning to continue this volunteer partnership through an online program to enable interaction with the girls.

Trudo Weekend School (Netherlands) In the Netherlands, the ASML Foundation has adopted a class of students for three years through Trudo Weekend school, located in the Brainport region. Trudo Weekend school is a 'school' for children, aged 10-14, from lower socioeconomic neighborhoods in Eindhoven who are motivated to invest in themselves. The school offers these children the opportunity to reach their potential by attending classes every Sunday for three years. The program covers science, society, culture and art education, as well as interpersonal and social skills. We also provided the children in their final year with laptops, needed when starting secondary schooling.

Girls Inc. of the PNW-Portland, OR (US) In Portland, Oregon, near our offices in Hillsboro, we are supporting the girls-empowerment NGO Portland Girls Inc. We fund a five-year program that supports girls from disadvantaged backgrounds and focuses on instilling an interest in STEM. In addition, we are making progress in launching a volunteering program involving ASML employees, including female engineers, who will give of their time as role models and mentors. The ASML Foundation is currently supporting 125 girls for a five-year period.

Friendship Bangladesh (Bangladesh) Friendship Bangladesh provides access to healthcare, education and other necessities to people – especially children – in the country's remote northern island region. As there are few to no qualified teachers available, the Friendship Secondary Education Program, supported by the ASML Foundation, provides education to children in these remote communities through ICT. Thousands of hours of educational videos were made by highly qualified teachers living in Dhaka. The program also serves a secondary purpose: it gives girls from underserved communities an alternative to early marriage by enabling them to continue their education. The Foundation has supported Friendship Bangladesh since 2015 and funded their digital education pilot. It has been so successful that during the lockdown period, the Bangladeshi government reached out to Friendship Bangladesh for help and insight into best practices for online learning. In this way, Friendship Bangladesh was able to expand its scope to state schools, YouTube, and television.

TechMeUp (Netherlands)	Together with many technology education providers, we decided to support TechMeUp. Its purpose is to make education accessible to everyone. The organization aims to invest in people's opportunities by providing interest-free loans to support those who would like or need to retrain for a job in technology, but don't have the means to do so. These loans need to be repaid in monthly installments once the student has found a job.
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For more information, visit www.asmlfoundation.org

Supporting communities during COVID-19 pandemic

The COVID-19 pandemic affected every age group, and every aspect of the lives and the world we live in - health, education, work, and so on. It is our duty to reach out and help our communities, and we're committed to supporting them during the pandemic. ASML also supports the coordinated actions of the national and regional authorities, as well as the efforts of other local organizations.



Our support area	Region	Examples
Medical supplies	Netherlands	April 2020 - We used our network to ensure the shipment of more than 300,000 face masks to hospitals and other care institutions. Together with our logistic partners, we helped with the shipment of two face-mask production machines to a Dutch supplier to boost face-mask production.
	Asia	April 2020 - We donated 200 care packages to medical frontline workers.
	US	April 2020 - We donated \$250,000 worth of critical personal protective equipment to several Connecticut hospitals. To help with humanitarian activities in California, we donated 300 face masks to first responders of the California Army National Guard.
Education support	Netherlands	March 2020 - We provided 500 laptops to help ensure that students in the Brainport Eindhoven region could continue their schooling online.
	Asia	May 2020 - Since 2017, ASML Korea employees have hosted several science events for children from disadvantages backgrounds. This year, the Science Camp Korea program went online so the science camps could continue.
Engineering support	Netherlands	May 2020 - We made a €100,000 donation into a small start-up relief fund, in partnership with Brainport partners and the province. The Bright Move fund provides financial support.
Social support	Netherlands	April 2020 - We donated 400 tablets to nursing homes in the Brainport Eindhoven region. We also donated 'hero hospital gowns' to the children's wards of four hospitals, in collaboration with PSV and Brainport Eindhoven.
	Asia	November - December 2020 - ASML Singapore donated over €900,000 to the following five Singaporean charities: Children's Aid Society; SPD (door-to-door transport services for the disabled); AMKFSC Community Services; Food from the heart; Metta Welfare Association.
	US	March - June 2020 - In San Diego, employees and family/friends took part in a bike tour and raised \$5,000 for Multiple Sclerosis research and funding. In the spring of 2020, the Silicon Valley and Wilton teams organized virtual food drives for local food banks during the pandemic. Between the two drives, they donated a total of \$39,000 to help families in need. We have donated €5,000 to Food bank San Diego.

Our people KPIs

The table below shows the key performance indicators (KPIs) and the related 2025 targets. In 2019, we adopted a new sustainability strategy - as a result no comparative results for 2018 are available for new performance indicators. See Non-financial statements - Non-financial indicators for our performance indicators (PIs) and related results.

KPI	2018	2019	2020	Target 2025
Engagement score We@ASML survey ¹	—	77%	80%	Be on par with peers
Employer brand ranking ²				
Netherlands	—	10	4	Top 10
US	—	—	99	Top 75
China	—	—	168	Top 100
Taiwan	—	—	22	Top 20
South Korea	—	19	24	Top 20

1. In 2019, we redesigned our employee engagement survey (previously me@ASML) and changed the frequency from every 18 months to annual.

2. Employer brand ranking from Universum: engineering students.

Contributing to the Sustainable Development Goals

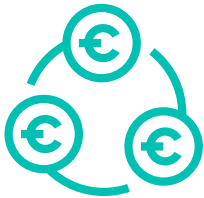
Our ambitions, commitments and programs as described in this chapter contribute to the following SDGs. For more information on the performance, see section Non-financial statements - Non-financial indicators.

SDG target	How we measure our performance
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	<ul style="list-style-type: none"> Employee training and development indicators Diversity indicators
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	<ul style="list-style-type: none"> Community involvement and technology promotions Scholarships granted
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	<ul style="list-style-type: none"> ASML Foundation projects
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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> Human capital return on investment 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> Employee safety indicators

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.



€7.6bn

Total sourcing spend
40% Netherlands
39% EMEA (excl NL)
15% North America
6% Asia



4,750

Total suppliers
1,475 Netherlands
700 EMEA (excl NL)
1,275 North America
1,300 Asia



88%

Completion of RBA self-assessment questionnaire by key suppliers



0

Supplier overall score 'high risk' on sustainability (RBA) and ASML assessment

At ASML, 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. This supports our operations from the earliest moment of development to the end-of-life stages of our systems.

ASML invests considerable resources to develop and introduce new systems and system enhancements, such as EUV lithography, e-beam metrology and holistic lithography. As these are complex technologies, ASML focuses on a high value-added integration role to maximize the total system competence and shorten cycle times. To enable this focus on system-integration, ASML relies on an extensive supply base of around 780 Product Related (PR) suppliers and around 3,970 Non-Product Related (NPR) suppliers. Long-term relations, close cooperation and transparency with suppliers and partners are key to success.

Our supply landscape

With around 4,750 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 780 suppliers and represents the highest percentage of our procurement volume, accounting for 68% of our total spend. From this total number of product-related suppliers, 188 suppliers are critical suppliers, accountable for 95% of the product-related spend.

Non product-related suppliers are goods and services suppliers, providing products and services supporting our operations, varying from temporary labor to logistics and from cafeteria services to IT services. With around 3,970 suppliers, this group represents nearly 85% of our total supplier base in terms of the number of suppliers.

We invest in developing our supply landscape to help suppliers meet our requirements with regard to quality,

logistics, technology, cost and sustainability. Our supply chain strategy includes six priorities regarding the capabilities of our suppliers and how we work with them: we enable the product roadmap through the development and maintenance of best-in-class competencies and capabilities; efficient and dedicated operations that enable cost-per-wafer economics for our customers, having resilient suppliers able to adjust to volatile market cycles; close cooperation to secure early supplier involvement in the new product introduction process; a commitment to quality and expectation that our suppliers will proactively invest in and maintain a state-of-the-art quality management system, and active contribution to our sustainability strategy.

ASML acquisition of Berliner Glas Group

On October 30, 2020, ASML acquired all shares of Berliner Glas Group, a key supplier to ASML for many years. Berliner Glas Group is one of the world's leading providers of optical key components, assemblies and systems, high-quality refined technical glass as well as glass touch assemblies. Berliner Glas Group is headquartered in Berlin and has facilities at five locations throughout Germany, Switzerland and China. With the acquisition of Berliner Glas Group, we acquired technical capabilities that are critical to secure the future roadmap for our EUV and DUV products and will provide increased value to ASML's customers through strengthened collaboration and bundling our competences to accelerate our innovation.

Sourcing and supply chain strategy

ASML's continued growth, in combination with our ambitions, requires us to significantly improve our key business processes. To help achieve our strategic objectives, we decided to combine the activities of Strategic Sourcing & Procurement and Supply Chain Management into a single new sector, called Sourcing and Supply Chain (S&SC). This took effect on May 1, 2020. Jan Keller, a member of the ASML's Executive Committee and of the Operations Management Team, was appointed Executive Vice-President to lead this new sector. The aim

of this new organization is to deliver the best possible supply chain for ASML, to have one ASML voice for our suppliers, and united representation within ASML to secure preconditions for suppliers' quality, logistics, technology, cost and sustainability (QLTCS) performance.

Continuously improving our suppliers' performance and capabilities is at the heart of our sourcing strategy. We have a framework to communicate process requirements and compliance expectations to suppliers. One example is our supplier-profiling methodology, consisting of a supplier performance dashboard, a supplier capability self-assessment and a risk profile. The framework outlines our approach to supplier management and development towards the desired ASML supplier landscape. This provides an enhanced knowledge base to improve our dialogue with suppliers around their performance and development potential.

ASML always strives to select the best supplier that meets our requirements on all five capability dimensions. We monitor supplier performance in terms of quality, logistics, technology, cost and sustainability. When performance drops below annually set thresholds and does not recover upon request and within a reasonable time frame, ASML will take action to secure reliable future supplies.

Critical EUV supplier back up and running after lockdown

When one of our critical EUV suppliers had to lock down their entire facility following California's Shelter at Home order (in March 2020), it threatened to severely impact our supply chain. To reopen, our supplier, which produces many of the essential assemblies for the NXE top module, needed to establish that they are an essential business supporting a critical infrastructure industry and put in place all adequate measures to secure a safe environment to their employees. They managed to do this in only a few days, thanks to the ASML Sourcing and Legal teams, which quickly gathered the appropriate information.

With the facility now working again, our Supply Chain Management team continues to closely monitor the supply versus demand picture, expediting materials where necessary so they do not constrain output. This approach requires close daily cross-sector management to avoid disruptions.

At the start of the COVID-19 crisis, we rapidly established crisis management protocols. We created a global cross-sector team tasked with securing continuity of supply. We set up daily communication to inform our suppliers on ASML's COVID-19 restrictions and requirements. The team aimed to mitigate the impact of COVID-19 on suppliers by identifying and implementing solutions to secure supply to global ASML factories and field warehouses. The team reviewed, on a daily basis, supply shortages or pending restrictions that would affect our supply. We implemented solutions in close collaboration with our suppliers where required. Through the dedication of our suppliers and our people, we experienced only temporary shortages, and these were resolved before they could impact our 2020 output.

In 2019, we indicated that we would expand our Re-use program. In 2020, we introduced a dedicated cross-sector

Re-use department, representing Factory, Customer Support, S&SC, D&E, Program and Finance. This department is hosted by Sourcing & Supply Chain. The Re-use team will establish an end-to-end process that supports the increase of parts, tools and packaging re-use, set-up of local and global repair centers, and improve the learning loop. Re-use strongly contributes to a circular economy and the reduction of operating costs. For more information, see Circular economy - Accelerating re-use of parts, tools and packaging and materials

Our risk-management approach

We rely on our suppliers to develop, manufacture and deliver the innovative and unique parts used in our lithography systems. Due to the highly specialized nature of many of our parts and modules, as well as limited set size, it is not always economical to source from more than one supplier. Our sourcing strategy therefore (in many cases) prescribes 'single sourcing, dual competence'. Our reliance on single sourcing requires us to proactively manage supplier performance and risk.

To that end, Sourcing conducts continuous performance and risk management of the supply base with the purpose to: i) Assure and improve performance, ii) Secure continuity of supply, iii) Protect our intellectual property and maintain a leading technology position, and iv) Prevent reputational damage. Five risk domains are assessed (Calamity, Ownership, Financial, IP & Information Security, and Compliance). In cases where risk exceeds the agreed threshold, mitigation measures are taken.

As suppliers operating in the same industry or market are typically exposed to similar risk, 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 2020, we continued to focus on improving business-recovery capabilities through the review of business-continuity plans focusing on increasing the quality of preventive measures and improving financial transparency through more frequent assessment of financial health for the most critical suppliers. In addition, we continued to expand our information security and cyber-resilience program with suppliers.

To improve business-recovery capabilities, 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. In 2020, we included 188 business critical product-related suppliers in our business-continuity program, and extended the scope with 34 non-product related suppliers.

Suppliers with access to top secret information or with privileged access to our IT systems are asked to improve information security through the ISO 27001 standard. In 2020, we included 143 suppliers in our information security program. ASML uses the ISO 27001 framework to support suppliers in a standardized way in their efforts to raise cyber resilience. Going forward, the maturity of our ecosystem will be further reinforced by establishing a 'circle of trust', a network of suppliers that jointly embrace the information security standards and raise their performance against these standards.

Other examples of successful risk mitigations are: getting long-term supplier agreements (LTSAs) and/or continuous supply agreements in place, ensuring the availability of IP in escrow, requiring suppliers to put their inventory in separate locations, requiring suppliers to implement fire prevention controls, and increasing buffer stock. For a further description of our risk management, see How we manage risk.

Building relationships through our Annual Suppliers' Day

Our annual Suppliers' Day helps us foster strong relationships with suppliers. To ensure we could continue to do so even with COVID-19 restrictions, we organized a hybrid event, which featured a virtual event attended by over 250 supplier representatives and a live event with 16 strategic suppliers.

The event was an opportunity for our suppliers to familiarize themselves with our strategy and targets through senior leadership presentations. The live and virtual Q&A session allowed suppliers to pose questions to senior management, including our Chief Strategy Officer and Chief Technology Officer.

During the cyber resilience satellite session, a total of 30 CIOs and IT directors of our suppliers discussed the increased focus on cyber resilience, which has become a top priority for companies. The event closed with an awards presentation to recognize several suppliers for their work with ASML, including two awards for valuable contributions to ASML's circular-economy ambitions.

Responsible supply chain

At ASML, we are committed to conducting our business in a caring and accountable manner, and being recognized as a responsible business partner.

RBA Code of Conduct commitment

Since 2011, we have been a member of the Responsible Business Alliance (RBA), the world's largest industry coalition dedicated to corporate social responsibility in global electronics supply chains. We have adopted the RBA Code of Conduct (Code), which is a standard 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.

We promote the principles contained in the RBA Code to our suppliers and subcontractors, and expect key suppliers to participate in this common effort, by acknowledging and adopting the RBA Code. We screen our supplier base on sustainability performance using this standard from the RBA.

Standard	RBA Commitment	Number of high risks identified from RBA SAQ		
		2019	2020	Main gaps identified
Labor	To uphold the human rights of all workers (direct and indirect), and to treat them with dignity and respect as understood by the international community, including the International Labor Organization's (ILO) eight fundamental conventions.	3	1	<ul style="list-style-type: none"> • Own management system, but not third-party verified • No public reporting of labor metrics
Health and Safety	To minimizing 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	
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.	1	0	
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.	3	1	<ul style="list-style-type: none"> • Own management system, but not third-party verified • No public reporting of ethics-related metrics

Members and participants are committed to establishing a management system to ensure:

- compliance with applicable laws, regulations and customer requirement;
- conformance with the Code standards;
- identification and mitigation of operational risks; and
- facilitate continual improvement.

It is our policy to discuss all high-risk findings with the supplier in scope. In 2020, the RBA SAQ indicated a high risk on the elements labor and ethics for one supplier. We evaluate all RBA SAQs, and based on this evaluation and engagement with the supplier, we determined that the risk did not relate to actual breach or incident and no improvement plan was needed.

To underpin our commitment to a sustainable and resilient supplier network, we expect our key suppliers and their suppliers to comply with the RBA Code of Conduct as well. This requirement is included in our long-term product-related suppliers' contracts. We encourage our suppliers to develop their own sustainability strategies, policies and processes, and actively pursue our suppliers' adherence to this code.

Sustainability risk approach

We assess compliance with the RBA Code of Conduct through a risk-based approach. We scan all new suppliers for potential high risks and work with them during the onboarding process to remedy any issues we identify. We expect our strategic and high-risk suppliers to complete the RBA Self-Assessment Questionnaire (SAQ) each year to validate their compliance with the RBA Code of Conduct and to determine a supplier's potential gaps in relation to the standards set forth in the RBA Code of Conduct.

In general, the RBA SAQ results show a relatively low risk level in our supply base, as most of our suppliers operate in countries with a strong rule of law and are law abiding.

Managing high-risk suppliers

A key performance indicator of our approach to ensuring a sustainable supply chain is the percentage of suppliers in scope who complete the RBA SAQ. In 2020, we expanded the scope of our RBA assessment to include non-product related suppliers and high-risk regions covering 80% of our total supply base spend. In 2020, 88% of the major suppliers in scope completed this questionnaire. Our target is to achieve a 90% completion rate by 2025, which puts us well ahead of our ambitions. If a supplier does not conform to our required standards, our policy is to discuss mitigating measures. Our second key performance

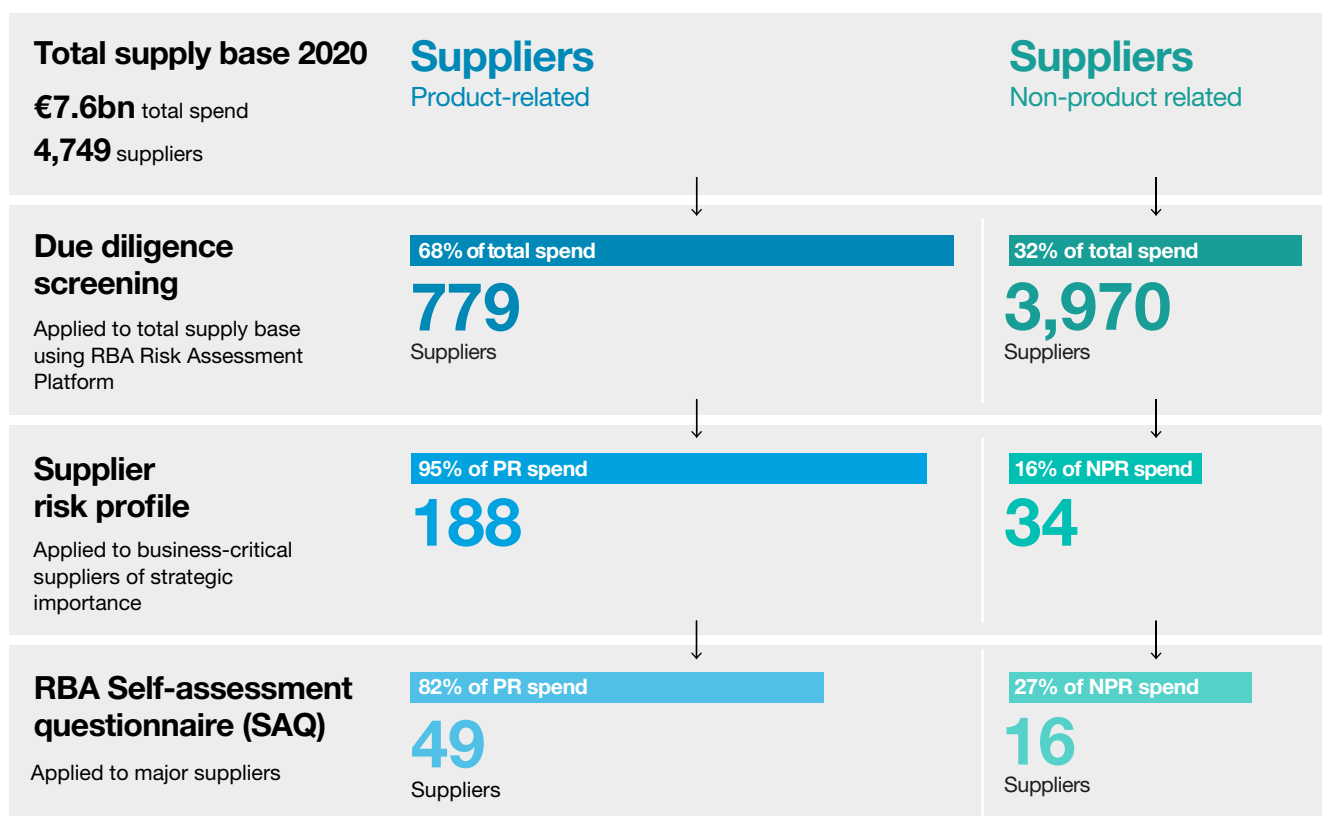
indicator is to have 100% improvement plans in place for high-risk suppliers, as identified by the RBA self-assessment.

We also conduct supplier audits to address risks we identify in our regular risk assessments. These audits intend to verify supplier self-assessment and completion of improvement plans. However, in 2020 we did not conduct on-site supplier audits on sustainability criteria due to travel limitations and the focus on securing continuity of our supply chain as a result of the global impact of the pandemic.

Assessing human-rights risks

Our robust risk-based assessment and audit process for suppliers covers human rights issues. In our due diligence process, we use the RBA Risk Assessment Platform to identify inherent risks in labor (including human rights), ethics, health & safety and environmental standards across our full supply base. In the event of a medium or high risk relating to labor being identified, we engage with the supplier and conduct a more detailed analysis. For major product-related and non-product related suppliers covering 80% of our 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).

In the 2020 RBA SAQ program, we identified one supplier with high risk on labor. This related to management systems rather than actual breaches of human rights.



Circular procurement

As part of ASML's commitment to enhancing sustainability, we want to play our part in realizing a circular economy model. We do this by reusing parts, increasing energy efficiency in our processes, and reducing scrap where possible. We see this as a responsibility to be shared between ourselves and our customers and suppliers.

Our procurement team plays an important role in implementing circular economy principles by promoting circular procurement at all times. We aim to raise awareness of circularity among our procurement managers, so they incorporate re-use and recycling in their way of thinking and procurement practices.

Our ambition for 2025 is to increase our circular-procurement practice. In 2020, we started a process of defining key performance indicators to measure progress in our circular procurement. The cross-sector Re-use program in ASML aims to re-use parts and materials valued around €75 million. A key development is the setup of new circular processes and contracting with the majority of our first-tier supply base and align incentives for maximizing re-use value. Our focus for 2021 and beyond is to further expand our circular-procurement efforts. For more information about our approach to the circular economy policy and programs, see [What we achieved in 2020 - Circular economy](#).

Conflict minerals

Like many companies in the electronics industry, our products contain minerals and metals essential to the manufacturing process. Examples of these are tantalum, tungsten, tin and gold (3TG), so-called conflict minerals. Although we do not use a significant amount of these minerals, we need certain 3TG minerals to make 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.

At ASML, we are committed to a conflict-free minerals policy regarding the responsible sourcing of materials in our supply chain. We support international efforts to ensure the mining and trading of 3TG minerals from high-risk locations does not contribute to conditions of armed conflict and/or serious human-rights abuses in the Democratic Republic of the Congo (DRC) or its neighboring countries. We have adopted a series of compliance measures based on industry best practices. These include:

- ASML has established a due diligence process and closely monitors the use of conflict minerals in our supply chain.
- Our processes are based on the due diligence framework set by the Organization for Economic Cooperation and Development (OECD).
- We are a member of the Responsible Business Alliance (RBA). As such, we support initiatives which foster better working conditions and raw material production.
- We support the Responsible Minerals Initiative (RMI), including the Responsible Minerals Assurance Process (RMAP) and Global e-Sustainability Initiative (GeSI).
- Annually, we ask our suppliers in scope to complete a Conflict Minerals Reporting Template (CMRT). This allows us to validate compliance with our conflict-free minerals sourcing policy.

- The requirement for suppliers to comply with our policy is included in our supplier Code of Conduct and supplier handbook.
- We require our suppliers and sub-suppliers to have relevant policies in place, and take due diligence measures enabling us to investigate if products and components supplied to us contain conflict minerals.

We comply with Section 1502 of the US Dodd-Frank Act and its application rules from the US Securities and Exchange Commission (SEC). We are committed to publicly disclosing information related to the use of these minerals in our products. For more information, see www.asml.com for our Conflict Minerals Statement and Conflict Minerals Report.

As we rely on our suppliers to develop, manufacture and deliver the unique parts and modules used in our lithography systems, the sourcing of these minerals goes beyond our Tier 1 suppliers. There are several tiers of suppliers between ASML and any smelter or refiner of conflict minerals, and even more when tracing a mineral all the way back to the mines. This means that we do not have a direct purchasing relationship with mines, smelters or refiners.

Despite continuous efforts, we are unable to determine the precise origin of the 3TG minerals included in our products. This is due to several reasons: 3TG supply-chain complexity, the number of tiers of suppliers to trace the source, and the limited number of certified conflict-free smelters for all conflict minerals. To obtain correct data from our supply chain is a challenge, but we continue our efforts in this regard. In 2020, we started a project to refresh our responsible minerals sourcing policy and due diligence processes. Although we are not subject to these particular directives, we aim to incorporate EU regulations concerning supply chain due-diligence obligations regarding 3TG minerals.

Our supply chain KPIs

The table below shows the key performance indicators (KPIs) and the related 2025 targets. In 2019, we adopted a new sustainability strategy – as a result no comparative results for 2018 are available for new performance indicators. See Non-financial statements - Non-financial indicators for our performance indicators (PIs) and related results.

KPI	2018	2019	2020	Target 2025
RBA self-assessment completed (in %) ¹	—	78%	88%	90%
Suppliers with high risk on sustainability elements evaluated and follow-up agreed (in %) ²	—	25%	0%	100%

1. This indicator shows the percentage of major suppliers in scope that completed the annual RBA self-assessment questionnaire (SAQ).

2. One supplier was identified with a high risk on sustainability elements. Based on the evaluation of the risk no improvement plan is necessary.

Contributing to the Sustainable Development Goals

Our ambitions, commitments and programs as described in this chapter contribute to the following SDGs. For more information on the performance, see section Non-financial statements - Non-financial indicators.

SDG target	How we measure our performance
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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Promote circular procurement



Circular economy



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



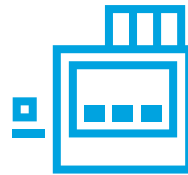
360 kg

Waste generated per €m revenue



85%

Material recycling rate



90%

ASML PAS 5500 systems still in use (from total ever sold)



€1,151m

Value of parts re-used

As we move away from the linear ‘take, make, dispose’ model, we believe the circular economy is key to ensuring the future success and competitiveness of the semiconductor equipment industry.

We are committed to minimizing waste and maximizing the use of resources, and believe that by doing so we not only limit our environmental impact but also generate business value. The modular design of our products lets us extract the most value we can from the materials we use, and repurpose our products across their life cycles.

While continuously innovating, we also want to ensure the increasingly sustainable use of materials across our processes and value chain to reduce our environmental footprint.

Our commitment

We are committed to circularity in our operations and our products. We do this by responsibly managing waste throughout our operations and maximizing the lifetime of materials in our systems, so extending their lifespans. To

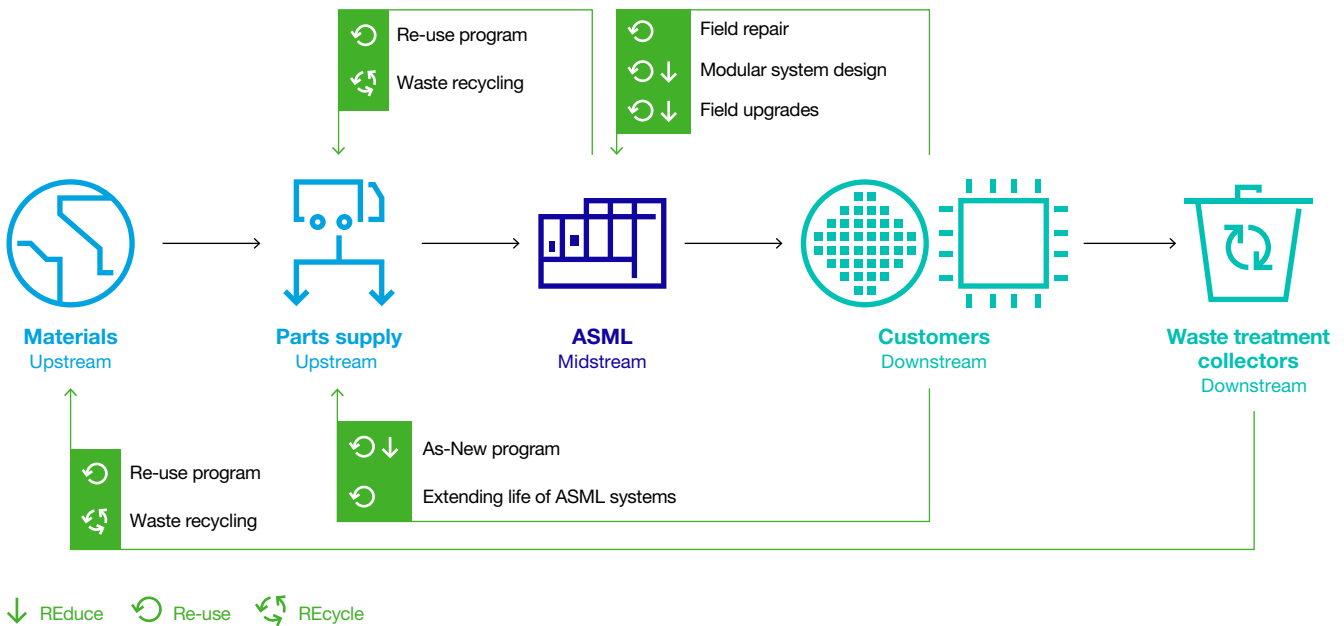
this end, we also work closely with our value chain. Transforming our economy to a circular model and promoting a conducive mindset is the joint responsibility of ASML, our customers and suppliers.

Given the modular designs of our products, we ensure that those in use at our customers’ sites can be upgraded to a higher performance level without having to replace the entire product. After use in the most advanced chip-making factories, we further extend the lifetime of our products by refurbishing systems and repurposing them for other customers and semiconductor environments.

Our initiatives in the service and upgrading of parts ensure that modules can be restored to and qualified as ‘as-new’ for re-use within our systems. This re-use practice is becoming increasingly important in our efforts to transition to a circular business model. In 2020, we set up a specific cross-sectoral Re-use department with full ownership of this objective to broaden and accelerate initiatives to re-use parts, tools, modules and packaging while reducing our total operational cost.



Our circular economy approach



Reduce waste

Reducing our environmental footprint and managing our waste – both from our operations and products – is key to ASML’s circular economy approach and our sustainability practices. There are several waste sources within our operations: these include office, packaging, and hazardous waste from the chemicals we use in our processes. Another source is product waste from parts resulting from upgrades or defective spare parts.

We highlight the environmental impact of waste in our sustainability strategy for the period 2019-2025. Our target is to reduce our ‘waste intensity’ – the amount of measured waste in kg per € million revenue – by 50% compared to baseline year 2019, and increase material recycling to 85% by 2025. These targets include hazardous and non-hazardous waste.

To achieve these targets, we are focusing on reusing parts and components in our systems, packaging and tools, non-product related waste such as IT hardware, office materials, canteen waste and construction waste from our real estate portfolio. We will also continue to carefully monitor the hazardous waste we generate in our manufacturing processes.

We are committed to reducing, reusing and recycling our waste as much as possible, rather than sending it on to an incineration plant or landfill. Based on Lansink’s Ladder Waste hierarchy, we manage our waste through proper classification, separation and safe disposal. For more information on our re-use of parts and materials, read in *What we achieved in 2020 - Circular economy - Accelerating re-use of parts, tools and packaging and materials*.

Reducing our environmental footprint is a shared responsibility between our operations and supply chain. To this end, we are raising awareness of our circular economy principles with our procurement managers and engaging with suppliers.

Waste-management challenges

Managing waste from our operations is a complex issue and relies on having detailed and accurate insight into waste streams to and from ASML. While we’ve developed procedures to monitor and measure waste that leaves our premises, including packaging materials and organic waste from our cafeterias, it’s much harder to gain insight on the waste streams of our customers.

Our focus in 2020 was to gain better insight into all relevant waste streams, including assessing what happens with our waste at customer sites. We also conducted a feasibility study into whether it makes sense to send used packaging back to our manufacturing sites for re-use, comparing the carbon footprint of transporting this used packaging against the environmental gain of re-using it. The study showed that the weight of the packaging is the most relevant environmental aspect during transportation. These assessments led to a lifecycle assessment model for calculating the impact of waste and waste-reduction activities that we will start applying in 2021.

We use the European Union’s waste-classification system to determine what constitutes waste. The COVID-19 pandemic led to waste reduction in our cafeteria as more people were working from home. This waste category represents just a small percentage of our overall waste production, however, so the decrease did not significantly change our overall waste generation.

Hazardous waste

We use hazardous substances to produce and operate our products and systems. This makes us subject to a variety of governmental regulations relating to environmental protection (as well as employee and product health and safety), including the transport, use, storage, discharge, handling, emission, generation, and disposal 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, are among the most important of our waste streams. Most of these materials are recovered through recycling. In 2020, we completed the first phase of an investigation into solutions for sulfuric acid re-use. Based on this investigation, we've designed and built an installation for pilot testing. We will conduct the second phase of the investigation and testing in 2021.

We are committed to reducing our hazardous waste, aiming to draw as much as possible from materials, and using no more than we need. The scope of our 2025 target to cut our waste intensity by 50% includes both hazardous and non-hazardous waste.

Waste-management initiatives

To achieve our target of cutting our waste per revenue by 50% by 2025, we plan to launch new initiatives in 2021. In 2020, we achieved waste reduction through several ongoing programs as listed in the table below. One of these programs consisted of a series of local waste-reduction initiatives, initiated by our employees, including plastic recycling, working with re-usable gloves in cleanrooms, and reducing the number of single-use coffee cups.

Programs	Examples
Local waste-reduction programs	<ul style="list-style-type: none"> Reduce single-use coffee cups Plastic recycling Reusable cleanroom gloves
Circular IT Lifecycle	<ul style="list-style-type: none"> After four years of use, all functioning computers and laptops are given a second life. Around 6,500 laptops, representing 64,000 kg materials, were re-used in 2020. Defective computers are recycled in clean, separated streams of recycled plastic, iron, steel, copper, aluminum, glass, and precious metals. We recycled nearly 24,000 kg materials in 2020.
Real-estate portfolio management	<ul style="list-style-type: none"> BREEAM score 'Excellent' for Campus 2.0 Recycling construction waste
Return4Re-use	<ul style="list-style-type: none"> Re-use parts and transportation packaging. This program led to nearly 4,000,000 kg of materials re-used in 2020. The Reclaim program at our facility in the US focuses on re-using a constant flow of returned parts. This program includes design for reclaim, improving the ability to re-use and recondition the assemblies to enable further increase of circularity of parts and materials, so it can either be re-used for spare parts or incorporated into new system builds. This program has been successfully running for more than a decade.
Flexible cleanrooms	<ul style="list-style-type: none"> Our new 'flex' cleanrooms can move between locations and be assembled quickly, while providing the same standards and performance as our current fixed cleanrooms. More than 95% of materials in the flex cleanroom system are re-usable, and has a lifespan of >30 years. In 2020 we used the flex cleanroom two times.

Accelerating re-use of parts, tools and packaging and materials

We are committed to re-using parts, tools and packaging whenever possible in our value chain to reduce and prevent waste, reduce costs, and accelerate learning. Working together with our customers and suppliers, we aim to remanufacture used system parts, re-using as if they were new parts and preventing unnecessary waste.

We strongly accelerated our efforts in 2020, working towards formalizing and structuring this process, with the long-term ambition of having the circular use of parts fully embedded in our business by 2025. We extended the re-use policy to all parts and tools, and created a dedicated cross-sector Re-use department to drive material re-use on a global scale. We apply re-use to all product-related parts and materials that come back from the field, from well-functioning used parts, to defective parts and unused parts. We include parts that we can repair, harvest, upgrade, downgrade, and parts that are reusable as 'As-New' parts after qualification.

With an eye towards a more sustainable future, the department will increase our re-use efforts through their dedicated groups for re-use in D&E, Sourcing & Supply Chain, Customer Support and the Factories, and dedicated repair centers in Manufacturing and Customer Support. These will focus on extending local repair centers for service parts, tools and materials, and set up global repair centers to repair field and factory materials and to function as repair competence centers. Designing for re-use in the product design phase is also a key component of preventing waste and helps us meet our long-term goals.

It is not only about making sure that the sectors learn how to re-use and prevent scrap, but also about teaching them how to adopt re-use into their normal ways of working. The department's end-goal is to ensure re-use is a default activity across everything that we do. Our dedicated cross-sector leadership will report into sector heads, who in turn will report to a newly set up Re-use Board, chaired by our Chief Operations Officer and our Chief Technology Officer.

Creating a learning organization

Learning is also an important aspect of our Re-use department: by designing for re-use, and improving processes, we aim to close the learning loop and ultimately prevent waste in the future.

To achieve this, we need to leverage our organization to start working on re-use everywhere, in both big and small ways. For example, by replacing scrap beds 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.

Our re-use ambitions require a change of mindset. Communication is key to this, through a top-down and bottom-up approach. Setting the right example, talking to teams, attending all-hands meetings, leveraging our Re-use representatives across the sectors, and providing support where necessary. Senior management also play a crucial role in getting the message across, both to their internal colleagues and to our suppliers.

Customer Support triage process

In 2020, we added an important step – a Customer Support triage process – to the steps we follow when handling used parts. We piloted this in the field in South Korea and in our factories in Veldhoven, and plan to roll this out in 2021.

This triage involves a new process to deal with a part that is not working, either because it's worn out or defective. In the past, our teams would evaluate what was wrong with the part, note the results down through material notifications, and, where appropriate, send it back to the relevant suppliers.

The new focus is on processing the defective parts and thinking more critically about their potential. For parts that are not scrap, this means thinking about what we can do with them, either repairing them locally or sending them to the next level of triage.

Repair centers

We are increasing ASML's re-use efforts by extending local repair centers for service parts and materials, and setting up global repair centers for factory materials.

We currently have local repair centers in South Korea and Taiwan and will be rolling out to China in 2021. Our ambition is to increase the re-use rate of our parts to 85% by 2025.

One of the ways to achieve this is by establishing more local repair centers, with each region getting its own. There are several benefits to enabling 'simple' repair and re-use activities in the field, including reduced logistics time, prevention of stocking of parts, and reduction of our environmental impact. We will also be setting up global repair centers in each factory hub in Wilton, San Diego, Linkou, and Veldhoven.

Our activities are closely linked to our supply chain. We are efficient at shipping new parts to the field for service and for new systems, but we need to place more attention on improving the return flow. To tackle this, we have set up a supply chain re-use team, which looks at re-use planning and reverse logistics to improve the flow of the part. We also operate a re-use supplier network, connecting with suppliers on re-use.

Overall, ASML is taking ownership of repairs, not only looking to the original owner, the supplier, but taking ownership if a supplier is not able to carry out repairs.

Maintaining As-New quality

We set high quality standards on As-New parts and expect suppliers to be involved to meet these standards. This qualification standard and requirement is identical to new parts, meaning that the same specifications, performance requirements, warranty, and so on, apply. We allow our customers to audit the quality of As-New modules.

Our ambition is to increase the usage of As-New modules in our systems, to prevent unnecessary scrapping of well-functioning parts and modules. In 2020, we took an important step forward in our procedures by extending the program to service parts, taking us into the next phase of the As-New program.

We are in the process of adopting this next phase, but this will take time given that the qualification standards and requirements are identical to new parts. We are looking at our processes critically with the aim of simplifying them while still ensuring high-quality standards.

As-New has been well received by our business sectors. There's been an active pull on the program by the manufacturing lines wanting to see more parts qualifying for As-New.

As-New SMASH system

The first As-New SMASH pilot was successfully built and shipped in mid-2020, a major milestone for both the SMASH project and the overall As-New program. SMASH is one of the advanced alignment sensors in our scanners. Depending on the configuration, the recovery value ranges from €35,000 to €60,000 per sensor. Following a second pilot, this project moved to high-volume manufacturing in Q3 2020.

The SMASH As-New project is an early pilot for our As-New program, helping to define what is needed to requalify a module. The Wilton cross-sector team, including Optical Fabrication, Planning, Logistics, Warehousing, Technicians, Production Engineering, Product Lifecycle Management and D&E have worked together to implement the As-New processes and procedures over a two-year period.

Re-use challenges and roadmap

We made good strides on re-use and are committed to continuing to reduce waste streams. To fully embed our Re-use vision however, 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 its 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. Our Re-use department has been tasked with addressing this, with a spotlight on aligning the overall end-to-end process flow.
- **Repair engineering and processes:** Part of our new focus is to create awareness on design for re-usability, and define processes around how to include re-use in redesigns and engineering changes.

In 2020, we have also added re-use to the different milestones in the product generation process (PGP). This means that re-use requirements are now part of the design specs. In the ramp-up phase, we want to plan with re-usability in mind when we order new parts. And in the volume release phase, we want to make sure the repair procedures are also reduced for volume, and not just the build procedures.

Lifetime extension of mature products

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

MPS focuses on the refurbishment of three product families: the 'classic' PAS 5500 (around 2,000 systems and customers worldwide), the first generation TWINSCAN AT systems, and the first generation TWINSCAN XT systems. Given the growing market and wider application space of our PAS platform, ASML will invest significantly to extend the lifetime of our PAS platform to at least 2030. For TWINSCANs, we focus on measures to proactively manage the announced end of life by guaranteeing the availability of spare parts through 2021, with a program to extend that as long as possible on a best-effort basis.

We believe our approach supports our customers' ambition to extend their installed base lifespan, draw the best value from their capital, and underpins our broader circular economy approach.

PAS platform and implantable devices

Lithography is applied in a wide range of life-changing medical device research to manufacture implantable devices. And more companies are getting active in this market – one that is expected to reach more than one million implants per year by 2030. These companies are using our technology because of the superior stage control for stitching accuracy, 3DAlign, and High Bow Wafer handling in our design.

Among these are neuroprobes, that can interface with a human brain. Neuroprobes are being manufactured using a PAS 350 by a startup company that will mass produce brain machine interfaces (BMI). BMIs use brain activity to control external devices, that will help people with paralysis and inventing new technologies that will expand our abilities, our community and our world.

Life cycle management

Managing the continued availability of spare parts is key to the extended lifetime service we offer. A well-maintained ASML lithography system can last for decades and 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 radiofrequency chips. Almost every lithography system that we've ever shipped is still in use at a customer fab today.

We are making significant investments to ensure continued supply for our PAS platform, either through redesigns, a parts harvesting strategy or finding an alternative with same form, fit and function. If 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 that is no longer workable, we redesign parts.

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

Customers are continuing to use the current PAS 5500 installed base to produce devices on 200 mm wafers and below, and we foresee this demand growing. We set ourselves the ambition and target to provide our customers with a guaranteed service roadmap until at least 2030. To this end, we guarantee our customers that all support, and the necessary services and spare parts they need to maintain their systems, will be available for at least the next 10 years.

Dedicated resources

MPS has a dedicated worldwide customer support network, which includes our own resources for field refurbishment and D&E. Our competence center in Linkou, Taiwan, concentrates mature product knowledge in one place. We have more than 250 specialized engineers in the field, working together with our customers.

Our service engineers are an integral part of our customer-engineering teams, which jointly execute service tasks, as well as being specialized in the more complex service activities that take place less often.

These service engineers report back on what they see happening in the field. We use this intelligence to keep our customers informed and establish if we need to devise a service product. Based on this, we continuously update our redesign plans.

As ASML's technology and innovations evolve, the servicing of 20-year-old systems, and older, calls for expertise that is not always readily available. In some cases, customer and ASML engineers with PAS 5500 expertise are retiring, while, internally, engineers are attracted to our newer technology. It can be a challenge to maintain the competence of PAS 5500 service engineers, with expertise on the PAS systems, in the field. We seek to achieve this by developing a knowledge base, training and job rotation.

Ultimately, all ASML's systems will become legacy products. So MPS is a key part of ASML's offering, enabling our customers to get the best value from their capital investment and at the same time support the circularity principles we aspire to around the globe.

Circular economy KPIs

The table below shows the key performance indicators (KPIs) and the related 2025 targets. In 2019, we adopted a new sustainability strategy - as a result no comparative results for 2018 are available for new performance indicators. See Non-financial statements - Non-financial indicators for our performance indicators (PIs) and related results.

KPI	2018	2019	2020	Target 2025
Total waste generated normalized to revenue (kg/Million €) ¹	—	417	360	-50% of 2019 baseline
Material recycling (% of total waste) ¹	—	80%	85%	85%
ASML PAS5500 systems sold still in use (in %) ²	—	90%	90%	n/a

1. Construction waste is excluded from the calculation of this indicator, because this waste is not resulting from the daily operations of ASML. The amount of construction waste tends to fluctuate over the years and can therefore make the trend of the indicator unclear.
2. Due to a definition change in 2020, the KPI is based on PAS5500 systems sold. For other PAS systems it is not possible to determine the status of use mainly because service contracts have been terminated.

Contributing to the Sustainable Development Goals

Our ambitions, commitments and programs as described in this chapter contribute to the following SDGs. For more information on the performance, see section Non-financial statements - Non-financial indicators.

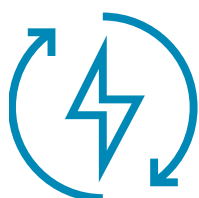
SDG target	How we measure our performance
SDG target 12.2 - By 2030, achieve the sustainable management and efficient use of natural resources	<ul style="list-style-type: none"> • Material recovery • Promote circular procurement
SDG target 12.4 - By 2020, achieve the environmentally sound management 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 and the environment	<ul style="list-style-type: none"> • RoHS / REACH compliance of parts used
SDG target 12.5 - By 2030, substantially reduce waste generation through prevention, reduction, recycling and re-use	<ul style="list-style-type: none"> • Waste reduction • Increase re-use of parts and modules in our products • Lifetime extension of used systems • Re-use of packaging

Climate and energy

13 CLIMATE ACTION

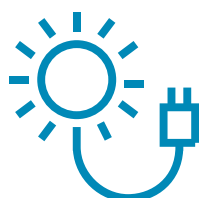


We are taking every step to lower our footprint to achieve zero emissions across our operations. While increasing productivity of our products, we are also working towards enhancing the energy efficiency of our products.



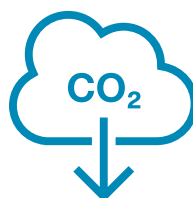
1,412 TJ

Energy consumption



100%

Renewable electricity



-30.8%

Net emissions footprint (scope 1 & 2)



0.6 kt per €m revenue

Value chain emission intensity (scope 3)

Climate change has become an urgent matter around the world. It affects every country on every continent. It's a challenge that requires global responsibility to limit a temperature rise worldwide to well below 2°C. It poses risks, but also opportunities for all companies.

At ASML, we're committed to decreasing our greenhouse gas (GHG) emissions into the atmosphere and reducing our carbon footprint across our operations, as well as in our value chain by enhancing the energy efficiency of our products and utility installations that operates our manufacturing building and offices.

We aim to invent, develop and manufacture our products in a more environmentally friendly way, striving to ensure that our products are manufactured and can be operated responsibly across their entire life cycle.

Our renewable energy strategy sets out our ambition to achieve zero emissions across our operations. We aim at optimizing the efficiency of our utility installations in our buildings as well as our manufacturing process. While we're increasing the productivity of our products, we're also working towards reducing their energy consumption to enhance our energy efficiency.

Climate change risk and opportunities

Climate change is a global challenge that requires urgent action by everyone. This also impacts ASML. We identify and assess the impact of climate-related risks and opportunities through an Enterprise Risk Management model. We assess risks both top-down (company-level) and bottom-up (organization and process-level). Read more in: How we manage risk - How we manage risk, How we manage risk - Risk factors.

We assess the risk related to climate change and its impact, using the assessment guidelines of the Task Force on Climate-related Financial Disclosures (TCFD). We defined climate-related risks relevant to us, as well as risks related to the transition to a lower-carbon economy. As national governments respond to the threat of climate

change, political and regulatory risk increases. Our TCFD Recommendations: climate-related disclosure is available on www.asml.com.

We have seven manufacturing sites around the world. Veldhoven is the largest of these, representing 76% of our total gross greenhouse gas emissions (scope 1 and 2 emissions). A signatory to the Paris Agreement, the Netherlands has set its goal to reduce emissions by 49% in 2030, and expects a considerable contribution from industry to achieve this. Should carbon pricing be implemented, the financial cost of our energy consumption will increase.

The physical risks of climate change – e.g. extreme weather conditions, chronic heat waves (drought) and the rise of sea level (floods) – that could disrupt our operations and/or damage our assets are evaluated regularly in our Enterprise Risk Management process. The impact of these risks is deemed limited, as our main facilities and suppliers are not located in high-risk areas.

In addition, climate change may trigger issues concerning the availability of natural resources, and energy or health and safety matters. It may also indirectly impact the political situation in a country, which may cause supply-chain disruption in first tier and beyond. We see that these risks already exist in our industry. We monitor these, as changes can occur at any time.

With increased global awareness of climate change, managing the environmental impact of products is a concern for our customers and other stakeholders, and their preference may shift towards lower carbon-footprint products. While helping the semiconductor industry to continue to realize Moore's Law, we are committed to taking every step to lower our carbon footprint.

To realize this, we have deployed a renewable energy strategy to reduce exposure to dependency on fossil fuel and enhanced energy efficiency in our operations by optimizing our global real-estate portfolio and efficiency of

asset installations. Climate change and the increase in outside temperature will also force us to monitor the cooling capacity in our factory locations. If necessary, we may need to install more efficient and effective cooling systems, which will reduce overall energy consumption of the installed cooling capacity.

We are committed to taking every step required to lower our carbon footprint. Our sustainability strategy sets out our ambition to achieve zero net emissions across our operations by 2025. Read more in: Carbon footprint of our operations.

Climate and energy is a major focus area in our sustainability strategy to combat climate change. Being at the front end of the semiconductor value chain, our direct contribution and influence on low carbon end-use products is indirectly visible. Nevertheless, we recognize our responsibility in this entire value chain ecosystem. Read more in: What guides us, The role of lithography.

By providing more innovative leading-edge lithography systems to the IDMs and foundries, we contribute to a more sustainable semiconductor production process (clean tech). Besides the production process, our technology enables our customers to design and manufacture more powerful chips that consume less energy (low carbon) for the end-markets. Not only are we focused on the end products of our customers, we also a focus on energy efficiency in their semiconductor manufacturing facilities.

Paris Agreement

The Netherlands is part of the UNFCCC and a signatory to the Paris Agreement. The Paris Agreement's central aim is to strengthen the global response to the threat of climate change by keeping a global temperature rise this century well below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5°C. The Dutch government has set a goal to reduce its GHG emissions by 49% in 2030. Dutch industry's ultimate aim is to be circular and to emit virtually no greenhouse gas by 2050. Factories will then run on sustainable electricity from the sun and wind, or energy from geothermal energy, hydrogen and biogas. By 2030, the industry must already emit considerably less CO₂. That is an intermediate step on the way to full sustainability. Politicians can implement measures to achieve these goals, such as implementing carbon-pricing mechanisms to reduce GHG emissions.

Energy efficiency of our products

Growing consumer demand for faster, ever-more sophisticated devices in our increasingly interconnected world fuels the need for constant innovation and development in the semiconductor industry. Lithography is one of the driving forces in creating more powerful, faster, and cheaper chips. But just as the demand for enhanced chip functionality increases, so does the complexity of our lithography systems. Gross energy consumption of both lithography-equipment manufacturers and chip manufacturers is expected to rise, due to increasing IC demand and energy consumption of the systems needed to enable the production of higher-capability chips while consuming less energy per chip while in use.

To enable this, chip manufacturers look to us to continue to achieve lithography-enabled shrink with the aim of producing higher-density chips. This translates into stricter requirements for our systems, which means they use more power to run. By increasing the productivity of ASML's lithography tools and with the higher resolution, more products can be printed on a wafer. In addition, by enhancing the resolution with EUV and High-NA, together with scaling of overlay and pattern fidelity control, we enhance energy efficiency of the produced chips while in use.

Our ongoing challenge is to meet our customers' expectations of increasing the performance of our products while also reducing their energy consumption.

Our product-efficiency strategy

Our product-efficiency strategy is based on making our systems more efficient and improving the conversion efficiency of wall-plug power into EUV light, while ensuring we use energy in the most efficient way. Our focus areas include:

- Reduction of energy use per wafer output
- Responsible use of energy by committing to only using the energy we need and eliminating waste
- Contributing to energy-efficient facilities by providing more energy-efficient installation solutions

We want to increase throughput, both by increasing a system's source power and its efficiency by optimizing sequences, control schemes and other components, such as higher reflectivity mirrors and faster stages. The benefit to our customers is the ability to produce more wafers per day, as well as increasing capacity with the same number of systems. This enables customers to increase productivity without building a new fab, which translates into less overall energy use. Most of these enhancements are also offered as upgrades for the installed base tools.

A way to enhance energy efficiency in EUV relates to the conversion efficiency of laser radiation into EUV. Most energy is used in the conversion process, and it's the key focus area for our design efforts to make our systems more efficient. If we can increase our conversion efficiency, we can decrease a system's energy consumption at constant wafer output. Making this happen, while at the same time limiting the energy loss by reducing the collector degradation, pellicle transmission and mask defectivity are the key challenges for our R&D teams.

Managing our energy efficiency

With our EUV systems now being used in high-volume manufacturing at customer sites, reducing their energy use has become a priority for us, our customers and suppliers.

In 2020, we measured the energy efficiency of our EUV 3400C, which showed significant improvement compared to its predecessor, the EUV 3400B. The energy consumption decreased from 1.4 MW to 1.3 MW thanks to more energy-efficient prevac systems, while productivity at 30 mJ resist dose increased from 107 wafers per hour (wph) in 2018 to 136 wph in 2020. We achieved a faster run rate (higher throughput) for the system by significant improvements in the transmission of the optical column and improved wafer management, reducing the so-called scanner overhead.

In 2020, we also completed a pilot project at our factory in Veldhoven aimed at reducing the energy used for the hydrogen abatement system. Our systems need hydrogen for protecting the optics in the scanner and the EUV source. We tested more efficient vacuum pumps that remove hydrogen from our systems, so our customers can install them as well.

We also found ways, together with suppliers, to use cooling water of a higher temperature to remove the heat in the lithography scanner and its source. This will reduce the amount of energy needed to cool the system. In 2020, we began investigating how this more energy-efficient cooling method can be applied with the drive laser and started to engage with our customers on it. As this involves significant changes to the hardware of our suppliers and installation in our customer fabs, this project is part of our long-term plan to reduce the wall-plug power needed per wafer pass by 60% by 2025 (baseline year 2018). If EUV systems can operate in slightly higher temperatures, our customers can save energy in cooling their factories. Implementing energy-reduction and energy-efficiency measures needs to be done carefully to limit the impact on the uptime and productivity of our customers' systems.

Energy-efficiency challenges

By 2025, we aim to reduce the energy use per wafer pass of our future-generation NXE systems by 60% compared to the previous model, the NXE:3400B (baseline 2018).

To achieve this, we need to overcome several strategic technical challenges. These include: ways to create EUV plasma in the most efficient way; developing materials and coatings dealing with higher EUV intensities; and improving the heat management of optical components, including the heat management of the wafer itself, which heats up through the exposure light during the production process.

These technical challenges are particularly tough to solve, given that there is no precedent anywhere in the world. At ASML, we need to find these solutions ourselves and this type of experimentation presents all sorts of challenges. Solving these challenges requires ongoing innovation and relies heavily on the increased collaboration within our ecosystem of customers, suppliers and knowledge institutions.

EUV and energy use

EUV is characterized by single exposure. This means several exposures can be replaced by one single exposure (patterning of a chip). With EUV, the number of non-litho processing steps can be reduced by up to three to five times; this reduces the production cycle time significantly. The fab also benefits from reduced energy use for the deposition, etching and cleaning steps. Therefore, when our customers use EUV systems to create faster and more energy-efficient chips, the total energy consumption of the fab might remain about the same as before, but with a larger portion of the energy being used by (EUV) lithography creating faster and more energy-efficient chips.

Our next-generation EUV systems, High-NA (0.55NA), will enable further shrink and partly eliminate complicated exposure schemes involving several 0.33NA exposures by a single 0.55NA exposure. With High-NA, the number of non-litho processing steps can therefore also be reduced. This will effectively limit the energy consumption per wafer further.

Inside a fab: take a closer look

A semiconductor fabrication plant, commonly known as a fab, is a factory where devices such as integrated circuit (IC) chips are manufactured. These are the chips we find in everyday electrical and electronic devices. The making of a semiconductor device involves a multiple-step lithography sequence to create a pattern in the photoresist, as well as chemical processing, during which electronic circuits are gradually created on a silicon wafer. These steps include etching, ion implantation, deposition and photoresist coating.

ICs are made of layers, from about 0.005 to 0.1 mm thick, that are built on the semiconductor substrate one layer at a time, with perhaps 50 or more layers in a final chip. After adding a layer, so-called deposition, the layer is etched, using lines and geometric shapes in the exact locations where the material is deposited.

The entire manufacturing process, from start to packaged chips ready for shipment, takes six to eight weeks. All fabrication takes place inside the cleanrooms of these fabs. In more advanced semiconductor devices, such as modern 7 nm nodes, fabrication can take between 11-13 weeks on average.

The heart of a fab is the cleanroom, an area where the environment is controlled to eliminate dust on a nanoscale. All fabrication steps take place here. It also houses the lithography system and other machinery required for IC production. Under the desk floor is the so-called sub fab, which contains auxiliary equipment such as the drive laser. The utility fab – where the pumping and abatement systems for vacuum and cooling are located – is usually found one floor below this.



Preliminary results show that the total energy consumption of a patterning strategy with EUV is not necessarily higher than that of the most complex multi-patterning DUV strategies.

The tables below provide an overview of our system performance achievements in terms of output and energy usage to achieve this output.

Platform	DUV Immersion			DUV Dry		
	NXT:1980Di	NXT:2000i	NXT:2050i	XT:860M	XT:1460	NXT:1470
Year of energy measurement	2015	2020	2020	2017	2020	2020
Energy consumption (in MW)	0.13 MW	0.13 MW	0.13 MW	0.07 MW	0.06 MW	0.11 MW
Throughput (wph)	275	275	295	240	209	277
Energy efficiency per wafer pass (in kWh)	0.51 kWh	0.51 kWh	0.45 kWh	0.28 kWh	0.27 kWh	0.38 kWh
Wafers per year	2,409,000	2,409,000	2,584,200	2,102,400	1,830,840	2,435,280

Platform	EUV 20 mJ/cm ² dose	EUV 30 mJ/cm ² dose		YieldStar	
	NXE:3350B	NXE:3400B	NXE:3400C	YS350E	YS375F
Year of energy measurement	2015	2018	2020	2017	2019
Energy consumption (in MW)	1.15 MW	1.40 MW	1.31 MW	0.01 MW	0.01 MW
Throughput (wph)	59	107	136	n/a	n/a
Energy efficiency per wafer pass (in kWh)	19.49 kWh	13.08 kWh	9.64 kWh	n/a	n/a
Wafers per year	516,840	937,320	1,191,360	n/a	n/a

Note: 'dose energy in mJ' refers to the power density per second of expose per cm². The number of 'wafers per day' calculated assumes 100% uptime and 100% utilization.



Carbon footprint of our operations

We are committed to minimizing our energy consumption, the environmental impact of our operations and our related carbon footprint. We are doing this by enhancing the energy efficiency of our buildings and, where possible, shifting to renewable energy. We also aim to reduce emissions in our value chain.

We manage the environmental impact of our activities through a strong governance structure, chaired by our Chief Operating Officer, and our ISO14001 certified management system. This is further supported by ASML's sustainability strategy, and our Environmental Health and Safety (EHS) policy.

We review our environmental risks each year through our Enterprise Risk Management and business continuity processes. Read more in: How we manage risk. We also assess the risks related to climate change, using the guidelines of the Task Force on Climate-related Financial Disclosure (TCFD). Read more in: Climate change risk and opportunities. Our TCFD disclosure document is available on www.asml.com.

Our Greenhouse Gas (GHG) emissions

Scope 1

Direct CO₂ emissions from our operations



Status 2020:
15 kilotonne

Target 2025:

Zero

Scope 2

Indirect emissions from energy use across our operations



Status 2020:
0 kilotonne

Target 2025:

Zero

Scope 3

All other indirect emissions in the value chain from make and use of our products



Status 2020:
8,400 kilotonne

Target 2025:

Reduce intensity

Scope 1 emissions

Compared to our peers in the semiconductor industry, our energy consumption and related carbon footprint is relatively low. As a manufacturer of lithography equipment, our main direct CO₂ emissions come from the fossil fuels we use in the testing phase after the assembly of our immersion lithography systems. This means our lithography systems do not run full field in our operations.

Scope 2 emissions

Electricity accounts for nearly 80% of the energy we use at ASML. Most of our electricity consumption relates to the manufacturing of chip-making equipment – from assembly to testing lithography and other systems – and maintaining consistent climate conditions, such as constant temperature, humidity and air quality.

Achieving energy efficiency

We view 2020 as a landmark year, achieving our goals set out in our multi-year energy master plan for the period 2016-2020, and raised the bar for the next energy master plan for 2021-2025. Despite the increase in number of facility cleanrooms in recent years, we realized a 10% energy saving compared to the 2015 energy-consumption baseline. This translates to an achievement of 114 TJ savings by year-end 2020, which is above our target of 111 TJ savings. We also reached our goal to use 100% renewable electricity (scope 2). In doing so, we confirmed

our commitment to minimizing the impact of our activities on the environment by reducing our environmental footprint and extending our commitment to renewable energy.

Over the past 10 years, we have executed nearly 100 energy saving projects worth cumulatively over 260 TJ savings, representing 28% of our energy footprint since 2010. Over the same period, our natural gas consumption has dropped in absolute term from 382 TJ to 293 TJ as a result of energy savings measures – and this despite the growth and constructions of new facilities (cleanrooms and offices).

Projects we have run over the past few years to achieve further energy savings are, for example, more energy-efficient technical installations and improvements in the production process. These included measures such as the recovery of exhaust heat, and efforts to reduce the energy consumption of our cleanrooms, where maintaining the right conditions is energy intensive. The projects were completed and implemented in our operations in 2020, with energy savings taking effect.

Following on from the closure of the energy master plan 2016-2020, we developed a Climate & Renewable Energy Sustainability program 2021-2025. Our target is to achieve carbon neutrality in our operations for both scope 1 and scope 2. While developing this plan, we reassessed in

2019 the scope of our energy and emissions reporting by assessing materiality per real estate location, and the environmental impact of activities at these locations.

From this assessment, we concluded we needed to expand the scope of reporting in terms of active locations: from four main manufacturing sites in the 2016-2020 reporting years, to all industrial sites and offices with more than 250 FTEs. This will result in an increase in our reporting from 20 locations in 2020 to 57 locations in 2021. This will increase our scope of reporting to over 95% of our worldwide CO₂ emissions. One of the ambitions in the field of emissions and energy is to achieve direct energy savings of 100 TJ by 2025.

Renewable energy strategy

In 2020, we achieved our goal of using 100% renewable electricity through a combination of buying green electricity and financing renewable electricity-generating projects. 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, and reduce the share of certificates. For the US and Asia, our ambition is to purchase renewable energy attribute certificates (respectively RECs and I-RECs) and monitor the evolution of the renewable in those countries.

All three hydro-energy plants in Norway that we co-financed through our GO2 project over the past few years were finalized and in operation in 2020. They generate 26,000 MWh of energy per year, which is fed into the Dutch grid.

In 2021, we plan to install 4,700m² solar panels on our campus in Veldhoven, which are expected to provide the equivalent of 3 TJ/yr capacity production.

Generating green electricity in Norway

Through the GO2 project, ASML has co-financed the construction of three small hydropower plants in the rugged countryside north and south of Bergen, Norway. The Sandvik, Valdra and Nottveit installations are run-of-river power plants, which capture energy from fast-moving rivers and have a low local ecological impact.

The last of the three power plants, the Nottveit plant, became operational in 2020. Together, the plants have a production capacity of 26,000 MWh of green electricity annually, which is fed into the NorNed cable between Norway and the Netherlands.

Optimizing our real-estate portfolio

As we grow as a company, we strive to optimize our real-estate portfolio. The marked increase in working from home following Dutch containment measures also prompted us to take a closer look at the need for office space and determine whether we may need less space than anticipated. Optimizing the use of every square meter in our portfolio contributes to reducing our environmental footprint: each square meter saved is a square meter we don't need to heat, cool, ventilate or light up.

When building new offices and manufacturing sites, we take the opportunity to make our buildings as environmentally sound as possible. With an eye on future growth, for example, our new campus in Veldhoven is designed with a strong sustainability focus. Its design and use of materials will be assessed on sustainability performance using BREEAM guidelines: we aim to achieve a BREEAM score of 'excellent'. From 2020 onwards, we plan to adhere to BREEAM guidelines for all our new buildings.

Reviewing our value-chain carbon footprint

We recognize that environmental impact goes beyond our operations. In general, most of the environmental impact of energy consumption in our industry comes from the use of products, and the greenhouse gas emissions in the downstream and upstream value chain.

We use the guidance from the Greenhouse Gas Protocol – the organization that provides widely used international standards for emissions reporting – for the calculation of these scope 3 emissions. In 2019, we conducted our first inventory of scope 3 emissions. In 2020, we focused on maturing the data used and parameter assumptions applied.

Results shows that the indirect emissions (scope 3) from upstream and downstream value chains account for around 98% of the total emissions footprint (scope 1, 2 and 3). Of this, indirect emissions in the value chain, the category 'downstream' – use of sold products at our customers' sites – accounts for 60%, and the category 'upstream' – emissions related to the goods and services we buy – accounts for 30%. The remaining 10% of our scope 3 emissions relates to, among other things, activities linked to transportation, business travel, and commuting.

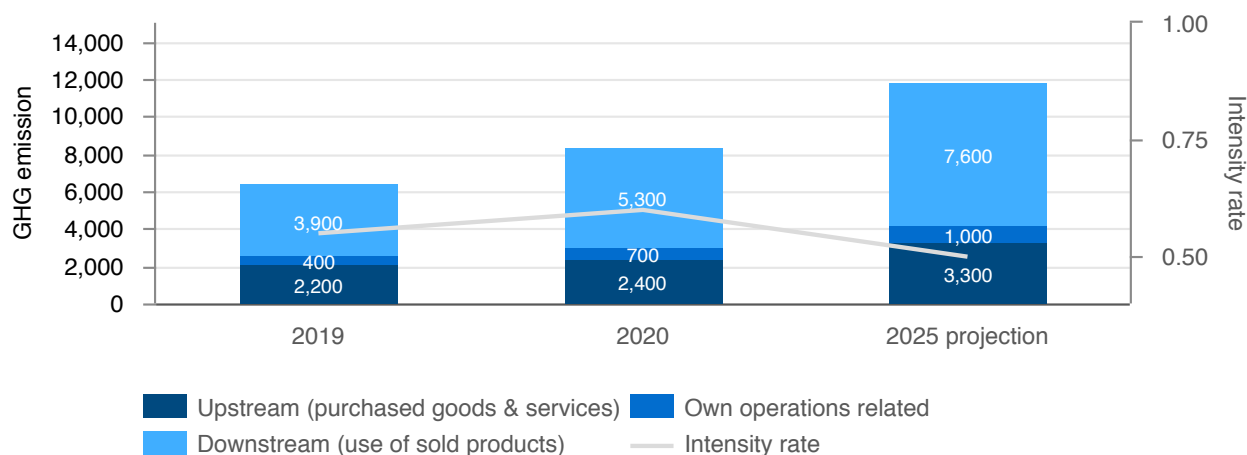
In 2020, we defined our scope 3 target for 2025. In this process, we gave our best estimate for projecting upstream and downstream emissions, guided by our financial growth expectations. For more information, see section Financial performance.

Taking into account the change in product mix (an increase in units of EUV systems), and the fact that our output in terms of unit product manufactured is expected to increase, the overall emissions in the entire value chain is expected to rise. By executing our sustainability strategy successfully, we can reduce the intensity of our scope 3 carbon footprint. The intensity is measured by the total scope 3 emissions (in kton) normalized to the total revenues (in € million).

Recognizing that we depend on our suppliers, and that most suppliers have not yet established greenhouse gas inventory mechanisms, we also encourage our value chain partners to work with us to jointly reduce greenhouse gas emissions.

In 2020, we introduced rail freight for shipments to Asia to reduce CO₂ emissions and costs. As a result of global travel restrictions, the number of business travel decreased significantly in 2020.

Scope 3 emissions trend



Rail transport, lower emissions

Our plan to introduce product transportation by rail freight accelerated, resulting in the delivery of a 'move set' (the packaging and tools needed to relocate a machine) from Veldhoven to China by rail for the first time.

Rail freight also debuted in Japan. Our supply chain team ruled out ocean freight due to the lengthy six- to seven-week travel time, but realized that a hybrid option – including rail – was a significantly better alternative. The goods traveled from the Netherlands to China by train, from China to Japan by ship, and finally to the supplier's location by truck. The total transport time was three and a half weeks.

Our environmental management system

We are committed to having an environmental management system (EMS) in place that helps us monitor our energy and emissions, improve performance, and enhance efficiency. Our EMS is integrated into our combined environmental, health and safety (EHS) management system. All our facilities operate on the basis of this EHS management system. Our EHS management system is ISO:14001 certified, and structured in accordance with ISO:45001 requirements. On November 2020 we received ISO:14001 re-certification for the next three years. This certification gives our stakeholders confidence in our commitment to achieving our environmental goals.

We measure progress in our emissions reductions by monitoring our scope 1, 2 and 3 emissions, representing three key performance indicators. 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 2020 assessment is C, which is the same level as the sector average.

In 2020, we received a fine for a missing environmental permit for our facility in Beijing. We are in the process of resolving the issue and obtaining the correct permit. Nevertheless, no environmental incident occurred.

Water management

Semiconductor manufacturing processes use a lot of water. It's a scarce resource and availability is a global challenge. Although water is an essential resource in the semiconductor manufacturing process of our customers, water use in our own operations is limited. ASML's products are designed to use water according to a 'closed-loop' (recycling) system. The aim of using water in our manufacturing process is to keep the system cool against the heat released during the exposure process.

Water consumption at ASML is more than 20 times less than most companies in the semiconductor industry. Nevertheless, we promote the responsible use of water throughout our company. Our water consumption in 2020 increased slightly to 860,000 cubic meters from 838,000 cubic meters in 2019, attributed to the expansion of the manufacturing facility in Veldhoven and an increase in product output. We use water from the municipal water supply.

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, of which the four main facilities are Veldhoven (NL), San Diego (US), Wilton (US), Linkou (TW). Our main facilities are not located in water high or extreme stress areas as classified by the World Resources Institute (WRI). Our San Diego site, however, is in a region where access to water can pose a risk. The other facilities are located in Beijing (CN), Pyeongtaek (KO) and San Jose (US). Activities in these locations relate to the assembly of modules for our lithography systems.

Climate and energy KPIs

The table below shows the key performance indicators (KPIs) and the related 2025 targets. In 2019, we adopted a new sustainability strategy - as a result no comparative results for 2018 are available for new performance indicators. See Non-financial statements - Non-financial indicators for our performance indicators (PIs) and related results.

KPI	2018	2019	2020	Target 2025
System energy efficiency NXE:3x00¹				
System	NXE:3400B	n/a	NXE: 3400C	
Throughput	107	—	136.0	
Measured energy efficiency (kWh / wafer pass) ²	13.1	—	9.6	-60% from 2018 baseline
Renewable electricity (of total electricity purchased)				
	86.3%	96.6%	100.0%	100.0%
Renewable energy attributes (in kton)				
	0	137	140	
Fossil fuels consumed (in TJ) by location				
Veldhoven	—	159	141	
Wilton	—	111	112	
Linkou	—	0	—	
San Diego	—	46	40	
Total	—	316	293	
CO₂ footprint (in kt) - Gross^{3,4}				
	2018	2019	2020	Target 2025
Scope 1 - Direct emissions from fossil fuels in our operations	17.5	16.9	15.4	
Scope 2 - Indirect emissions from energy consumption	133.0	141.4	139.8	
Scope 3 - Indirect emissions from total value chain		6,500.0	8,400.0	
Total footprint (in kt) - Gross	150.5	6,658.3	8,555.2	
CO₂ footprint (in kt) - Net^{3,4}				
	2018	2019	2020	Target 2025
Scope 1 - Direct emissions from fossil fuels in our operations	17.5	16.9	15.4	Zero
Scope 2 - Indirect emissions from energy consumption	15.4	5.3	0.0	Zero
Scope 3 - Indirect emissions from total value chain		6,500.0	8400.0	Reduce
Total footprint (in kt) - Net	32.9	6,522.2	8,415.4	

1. The 2018 measurement of the NXE:3400B is the baseline for the KPI target. No new systems have been introduced in 2019.

2. System-energy efficiency is measured according to the SEMI S23 standard, and scaled to 100% availability of our systems.

3. Market-based conversion factors are used to calculate the scope 1 and scope 2 CO₂ emissions in kton. The consolidation approach of emissions: financial control (as outlined in the 'GHG Protocol Corporate Standard').

4. 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 scope 3 emissions.

Contributing to the Sustainable Development Goals

Our ambitions, commitments and programs as described in this chapter contribute to the following SDGs. For more information on the performance, read Non-financial statements - Non-financial indicators.

SDG target	How we measure our performance
SDG target 13.1 - Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries	<ul style="list-style-type: none"> • Energy efficiency of our products measured per wafer pass • Renewable electricity strategy • Scope 1 and 2 emissions • Optimize real estate to enhance energy efficiency

CFO financial review

Financial performance

8 DECENT WORK AND ECONOMIC GROWTH



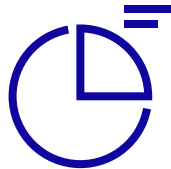
Leading the semiconductor industry by innovation, we have the right tools in place to execute our long-term financial strategy and expect to achieve continued sustainable growth for the years ahead.



€14.0bn

Net sales

€11.8bn Asia
€1.7bn US
€0.5bn EMEA



45.6%

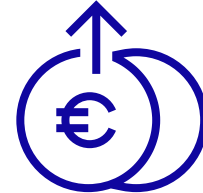
Gross margin



€2.3bn

Capital return

€1.2bn Share buyback
€1.1bn Dividend paid



€8.84

Earnings per share

This was a year where the world was consumed with uncertainty caused by the COVID-19 pandemic. We have experienced limited impact on our manufacturing capability, although there have been additional challenges with absenteeism, transportation and support logistics that we have had to manage. Some of the quarantine requirements have had an impact on our efficiency, while travel restrictions posed challenges at times for our service organization. Additionally, some of our suppliers experienced temporary closures resulting from governmental lockdowns in the first half of the year. Despite all of these challenges, we successfully worked with our customers and suppliers to find creative solutions to support our operations.

Customer demand remained strong throughout the year, seen through a strong order intake and record sales. Many investments of our customers are strategic and support their technology roadmaps. However, we did experience some impact in parts of the year. In the first half of the year, some customers asked us to expedite the delivery of EUV systems by shipping the systems before the normal Factory Acceptance Tests (FAT). This resulted in revenue recognition being delayed from shipment until after a successful Site Acceptance Test (SAT) at the customer site, each of which was completed before the end of Q3. Additionally, there have been some delays in fab readiness at customers, which delays timing of our shipments.

We successfully navigated these challenges, resulting in net sales growing by €2.2 billion in 2020 to €14.0 billion, higher than we expected at the beginning of the year, as a result of increased sales in the Logic market, Memory market, as well as our installed base management business. Logic grew by €0.8 billion, or 13%, compared to flat initial expectations. This was due to customers continuing to see strong demand for both advanced and mature nodes in support of the build-up of the digital infrastructure, which includes secular growth drivers, such as 5G, AI and high-performance compute. We expect Logic demand to remain healthy for both leading edge and

mature nodes, due to further broadening of the application space fueled by the global digital transition. Memory grew by €0.5 billion, or 20%, relative to our 30% growth expectations. While the growth related to the recovery of the Memory market was substantial as customers saw improving demand in data centers and consumer electronics, it was lower than expected as customers' allocation shifted more towards Logic throughout the year. We expect this recovery in Memory to continue into 2021 as lithography tool utilization is already high, while customers indicate inventory levels continue to come down with expected further tightening of supply throughout the year.

Net service and field option sales grew by €0.8 billion, or 30%, relative to our 20% growth expectations, driven by an increase in the sales of productivity and focus upgrade packages, in combination with a growing installed base. Our services and upgrades business will continue to scale as our installed base grows, with increasing contribution from EUV service revenue as these systems run more wafers in volume manufacturing. We expect significant demand for upgrades, as customers utilize upgrades to increase capacity and improve imaging and overlay performance required on future nodes.

Roger Dassen, Chief Financial Officer



In EUV, although our systems are still climbing the maturity curve, we continue to see increased customer confidence in the technology, which is translating into expanding layer counts in Logic and initial deployment of EUV in Memory. This led to EUV system revenue of €4.5 billion in 2020, an increase of €1.7 billion compared to 2019. We successfully increased our manufacturing output in 2020 to 35 systems, however due to fab readiness of our customers, we shipped 32 of these systems, recognizing revenue for 31 systems. The remaining 3 manufactured systems will ship in early 2021.

In our DUV business, we shipped the first NXT:2050i and NXT:1470 in 2020. The NXT:2050i is based on a new version of the NXT platform, where the reticle stage, the wafer stage, the projection lens and exposure laser all contain performance enhancements. With these innovations, the systems deliver increased customer value via improved performance in overlay and productivity, and are therefore critical in supporting their next node introductions. The NXT:1470 is the first dry NXT system building on the NXT immersion platform, enabling significant improvements in matched machine overlay and productivity. This will help our customers deal with the increasing cost of complexity when introducing new nodes. The higher output per fab area from an NXT system also maximizes fab capacity and therefore improves customer profitability.

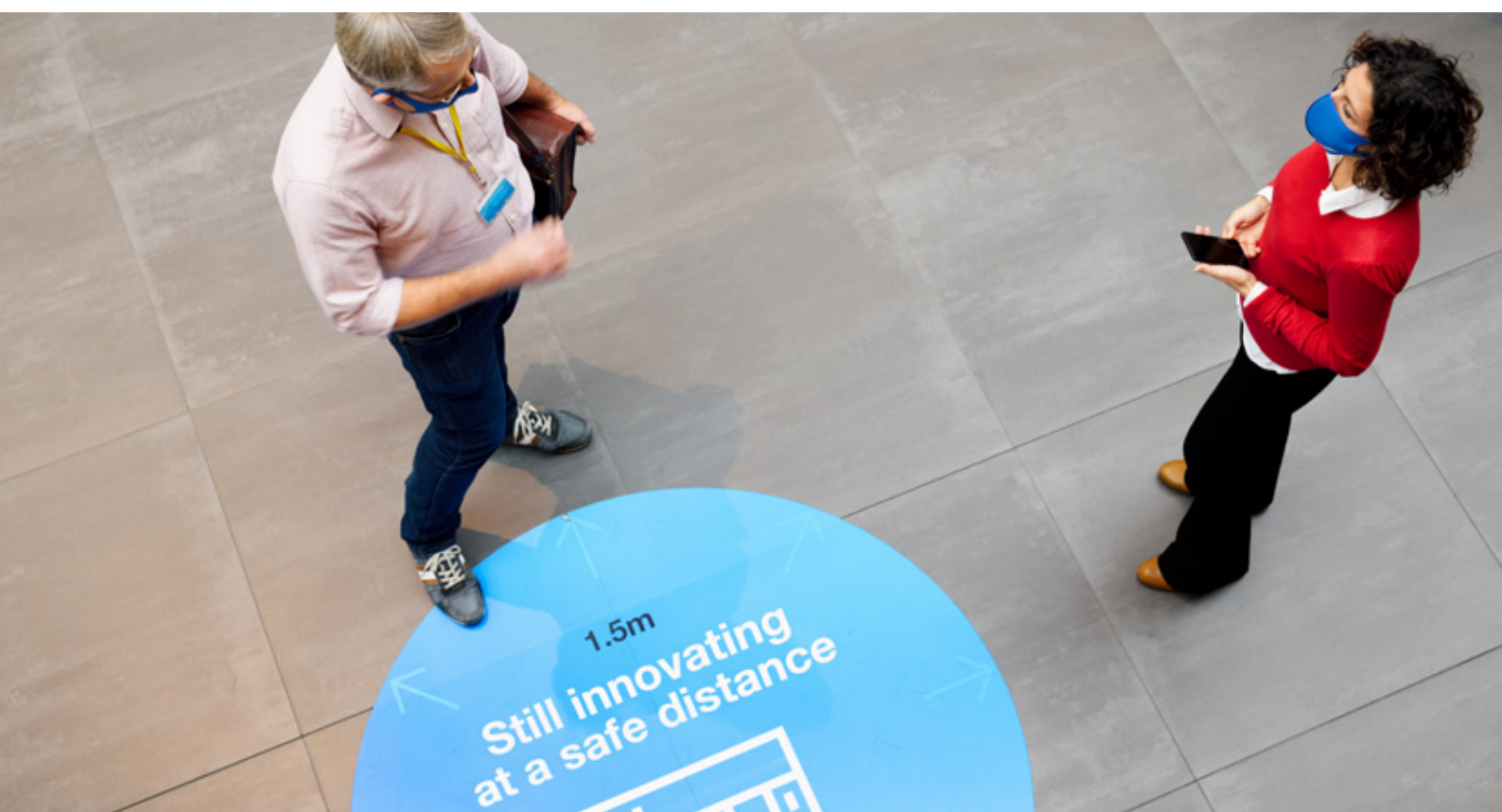
Gross profit as a percentage of net sales increased from 41.5% in 2019 to 45.6% in 2020, mainly attributable to expansion in our EUV profitability and growth in our service and upgrade sales. We continue to drive profitability of our EUV systems and service business, and as a result have started to achieve over 40% system gross margin and positive gross margin on our service business in 2020. We will continue to drive margin improvement in both systems and service via cost reduction and delivering more value leading to higher selling prices. We expect EUV systems to reach corporate gross margins in the course of 2021, while we expect EUV service margins to improve towards corporate margins over the coming years.

We continue to invest in the future of ASML, with a significant increase in 2020 capital expenditures to €1.0 billion. The increase is in line with our roadmap to increase the value of EUV in high-volume manufacturing, the development of High-NA, investments in capital expenditures at our partner Carl Zeiss SMT, as well as programs supporting our holistic lithography solutions in DUV and Applications.

We incurred an increase in our effective tax rate to 14.3% of income before income taxes in 2020, which is more in line with our expected long-term effective tax rate. Our effective tax rate was lower in 2019 due to one-time restructuring benefits and US Tax Reform regulations.

Liquidity and free cash flow were focus areas in 2020, similar to 2019, however in 2020 we faced additional risk and uncertainty due to the COVID-19 pandemic, which forced us to implement various cash preservation measures early in 2020 to mitigate this risk and uncertainty. Apart from COVID-19 risk mitigation, we started to see the benefits of our working capital improvement initiatives in Q4 2020, allowing us to grow our free cash flow by €1.2 billion in 2020 in connection with our €1.0 billion increase in net income. We achieved this growth while continuing to invest significantly in capital expenditures and R&D in support of our roadmap and planned capacity ramp, as well as being able to return excess cash to our shareholders through growing dividends and share buybacks, totaling €2.3 billion this year. We expect strong free cash flow, increasing investments in the future and significant cash returned to shareholders for next year.

Overall, it was another strong year for ASML, driven by continued strength in Logic, the start of a recovery in Memory, growth in our installed base management, the positive momentum in EUV, and sustained strength in our DUV business. The expanding end-market applications that fuel demand for both advanced and mature nodes provide a sound basis for continued growth, and we continue to be excited about the future.



ASML operations update on key performance indicators

The following table presents the KPIs used by our Board of Management and senior management to measure performance. The figures in the table below are based on US GAAP, as ASML measures its performance and externally reports quarterly to stakeholders in accordance with US GAAP.

Year ended December 31 (€, in millions, unless otherwise indicated)	2019	% ¹	2020	% ¹
Sales				
Total net sales	11,820.0		13,978.5	
Increase in total net sales (%)	8.0		18.3	
Net system sales	8,996.2		10,316.6	
Net service and field option sales	2,823.8		3,661.9	
Sales of lithography systems (in units) ²	229		258	
Immersion systems recognized (in units)	82		68	
EUV systems recognized (in units)	26		31	
Profitability				
Gross profit	5,279.8	44.7	6,797.2	48.6
Income from operations	2,790.8	23.6	4,051.5	29.0
Net income	2,592.3	21.9	3,553.7	25.4
Liquidity				
Cash and cash equivalents	3,532.3		6,049.4	
Short-term investments	1,185.8		1,302.2	
Net cash provided by operating activities	3,276.4		4,627.6	
Free cash flow ³	2,390.5		3,626.8	

1. As a percentage of total net sales.

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

3. Free cash flow is a non-GAAP measure and is defined as net cash provided by operating activities (2020: €4,627.6 million and 2019: €3,276.4 million) minus purchase of property, plant and equipment (2020: €962.0 million and 2019: €766.6 million) and purchase of intangible assets (2020: €38.8 million and 2019: €119.3 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 because these payments are necessary to support the maintenance and investments in our assets to maintain the current asset base. The components of Free cash flow are determined in accordance with US GAAP.

A reconciliation of net income in accordance with US GAAP and EU-IFRS is set forth below:

Year ended December 31 (€, in millions)	2019	2020
Net income in accordance with US GAAP	2,592.3	3,553.7
Capitalization of development expenditures and related amortization, net of tax	(69.7)	140.6
Income taxes	58.5	2.5
Net income in accordance with IFRS	2,581.1	3,696.8

The Consolidated Financial Statements included in this Annual Report are based on EU-IFRS, therefore, the results of operations analysis set out in the remainder of this chapter are based on EU-IFRS.

Operating results of 2020 compared to 2019

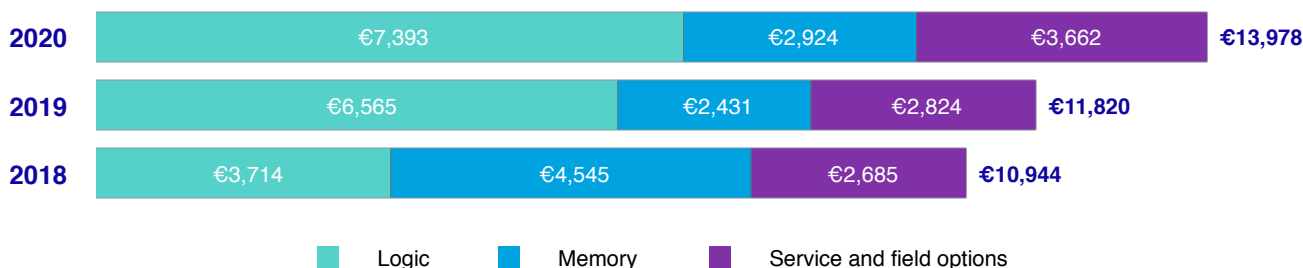
Year ended December 31 (€, in millions)	2019	% ¹	2020	% ¹	% Change
Net system sales	8,996.2	76.1	10,316.6	73.8	14.7
Net service and field option sales	2,823.8	23.9	3,661.9	26.2	29.7
Total net sales	11,820.0	100.0	13,978.5	100.0	18.3
Cost of system sales	(5,055.9)	(42.8)	(5,597.9)	(40.0)	10.7
Cost of service and field option sales	(1,864.0)	(15.8)	(2,012.0)	(14.4)	7.9
Total cost of sales	(6,919.9)	(58.5)	(7,609.9)	(54.4)	10.0
Gross profit	4,900.1	41.5	6,368.6	45.6	30.0
Research and development costs	(1,662.9)	(14.1)	(1,579.9)	(11.3)	(5.0)
Selling, general and administrative costs	(520.5)	(4.4)	(544.9)	(3.9)	4.7
Operating income	2,716.7	23.0	4,243.8	30.4	56.2
Finance income	11.6	0.1	8.4	0.1	(27.6)
Finance costs	(36.6)	(0.3)	(43.3)	(0.3)	18.3
Income before income taxes	2,691.7	22.8	4,208.9	30.1	56.4
Income tax expense	(128.8)	(1.1)	(600.7)	(4.3)	366.4
Income after income taxes	2,562.9	21.7	3,608.2	25.8	40.8
Profit (loss) related to investments in associates	18.2	0.2	88.6	0.6	386.8
Net income	2,581.1	21.8	3,696.8	26.4	43.2

1. As a percentage of total net sales.

Total net sales and gross profit

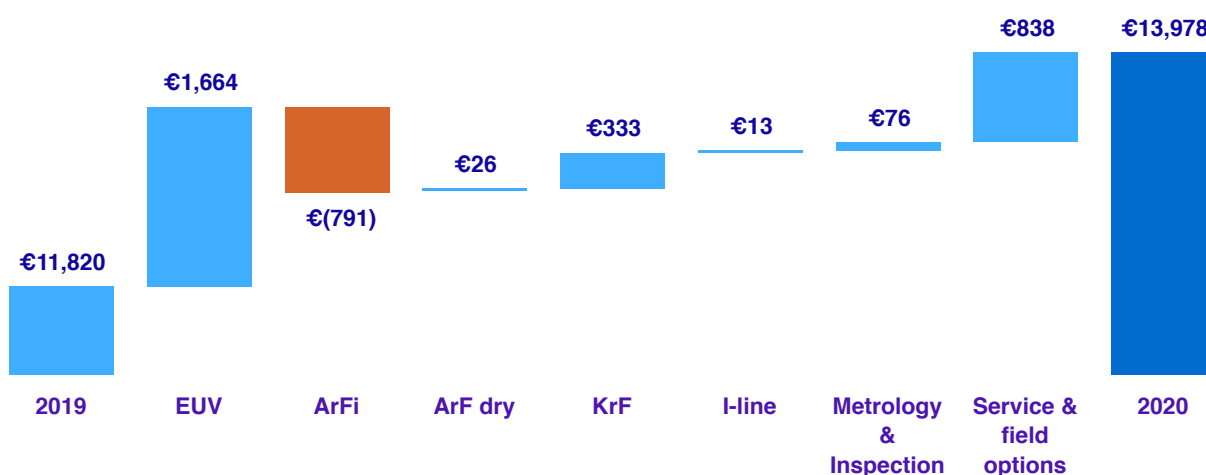
We achieved another record year in 2020, with Total net sales increasing by €2,158.5 million, 18.3%, broken down as an increase in Net system sales of 14.7%, and an increase in Net service and field options sales of 29.7% compared to 2019.

Revenue growth from each of the Logic and Memory markets, and our installed base



We saw growth in both Logic and Memory markets, which is a reflection of our customers' drive to innovate and continue to invest in future technology nodes. Logic demand for the most advanced lithography systems remains healthy, and Memory demand picked up in 2020 after a decline in 2019. Customers have indicated they are seeing signs of recovery driven by healthy demand in data centers and consumer electronics. Growing insertion of EUV into DRAM manufacturing translated into recovery of the Memory market towards the second half of 2020.

Increase in net sales driven by growth in EUV and installed base management



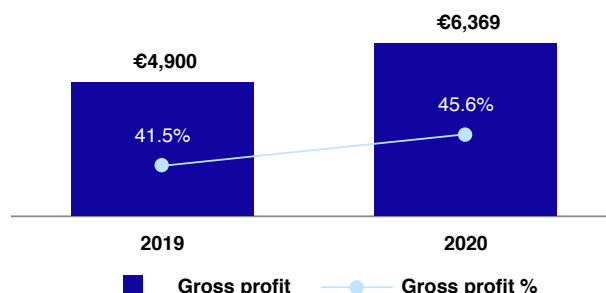
The increase in Net sales is driven by EUV and Service and field options. We recognized revenue for 31 EUV systems in 2020 compared to 26 EUV systems in 2019. In addition to the higher number of units, the average selling prices in EUV increased as a result of the transition to the high productivity NXE:3400C model.

In addition to the growth in EUV, Service and field options sales were also a key driver for our overall growth in net sales. The increase is driven by an increase in the sales of productivity and focus upgrade packages, supported by a growing installed base. EUV contributed in a more meaningful way 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.

Our system sales across our DUV technologies increased from 203 units in 2019 to 227 units in 2020, however given the mix of technologies, DUV Net sales decreased by €0.4 billion in 2020. We successfully introduced our NXT:2050i and NXT:1470 in 2020, and DUV will continue to drive value for our customers and be used in production in most layers of their chips.

Gross profit

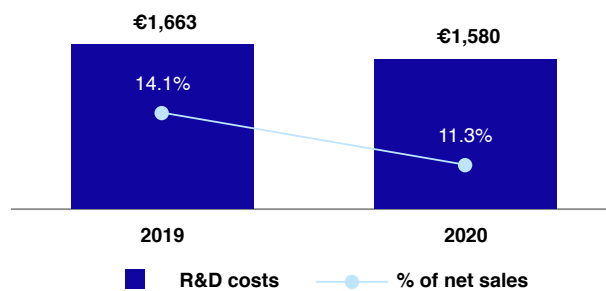
Gross profit increased as a result of both an increase in sales and profitability. Gross profit as a percentage of net sales increased from 41.5% in 2019 to 45.6% in 2020, mainly attributable to improvement in our EUV profitability and growth in our service and upgrade sales. We continue to drive profitability of our EUV systems and service business through cost reduction and by delivering more value for our customers.



Research and development costs

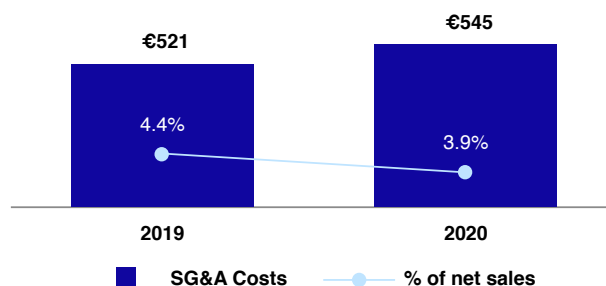
R&D investments of €2,200.8 million (2019: €1,968.5 million), are comprised of R&D costs net of credits (including net development costs not eligible for capitalization) of €1,579.9 million (2019: €1,662.9 million) and capitalization of development expenditures of €620.9 million (2019: €305.6 million). The increase in investments is in line with our roadmap to bring EUV to high-volume manufacturing, as well as our continued investments into the future through the development of High-NA. R&D costs for both 2020 and 2019 were primarily focused on programs supporting our holistic lithography solutions in EUV, DUV and Applications. In 2020, R&D activities mainly related to:

- EUV - Continued investments to increase the value of EUV in high-volume manufacturing, the development of the NXE:3600D, and further improving availability and productivity of our installed base systems. In addition, our roadmap includes High-NA, our next generation 0.55NA systems to support our customers with 2 nm logic and beyond.
- DUV - The development of our latest-generation immersion system NXT:2050i, as well as our latest generation ArF dry system NXT:1470. In addition, we are completing industrialization of new modules and further improving our roadmaps on alignment/overlay and productivity.
- Applications - HMI expansion, including multi-beam introduction, and further development of YieldStar and process window control solutions.



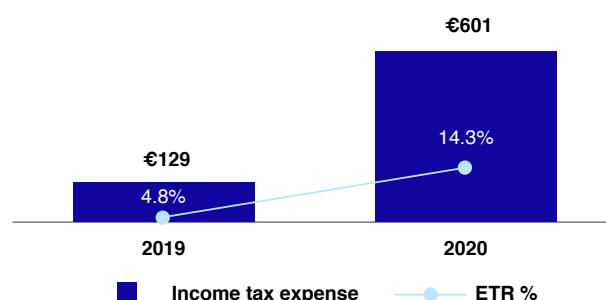
Selling, general and administrative costs

SG&A costs increased by 4.7% from 2019 to 2020 due to an increase in the number of employees and investments in digitalization to support our growth. However, our focus on efficiency has led to a reduction of SG&A as a percentage of net sales from 4.4% to 3.9%.



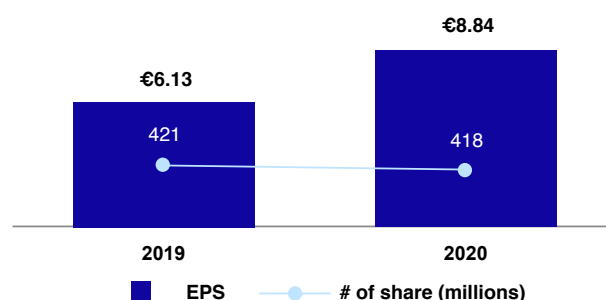
Income taxes

The effective tax rate increased to 14.3% of income before income taxes in 2020, compared to 4.8% in 2019, in line with our generally expected annualized rate. The lower rate for 2019 was a result of discrete tax benefits relating to restructuring of our HMI group companies and US Tax Reform regulations.



Net income

Net income in 2020 amounted to €3,697 million, or 26.4% of total net sales, representing €8.84 basic net income per ordinary share, compared with net income in 2019 of €2,581 million, or 21.8% of total net sales, representing €6.13 basic net income per ordinary share.



Cash flow analysis

This year has been exceptional for companies worldwide, including ASML. We faced increased risk and uncertainty, especially in the first half of the year due to the COVID-19 pandemic. At that time, despite having a healthy balance sheet, as well as flexibility in our cost structure, we felt it prudent to preserve cash to protect our own operations, but also in order to be able to support our suppliers as best we can in these extraordinary circumstances. These measures included the pause of our share buyback program in Q1, later resumed in Q4, as well as issuing €750 million of senior notes due in 2029 in May 2020 as part of our cash preservation measures. This offering was in addition to our previous issuance of €750 million of senior notes due in 2030 in February 2020.

Free cash flow in 2020 increased by €1.2 billion, driven by an increase in Net income of €1.1 billion and improvements in our working capital. Historically our EUV contracts did not include down payments, and actually provided extended payment terms for customers, given the maturity curve of our EUV systems. Now we are moving into a direction where we ask for down payments of EUV tools, reflecting the long lead times and early supply chain commitments that ASML has to enter into. We have started to see the benefits of this in 2020, and expect further improvement in 2021.

We continue to heavily invest in our next generation technologies in order to secure future growth opportunities which requires significant cash investment in net working capital, capital expenditures and R&D. However, our capital allocation policy remains unchanged. Cash that will not be required to support the future growth of our business, will be returned to our shareholders through growing dividends and share buybacks.

Year ended December 31 (€, in millions)	2019	2020
Cash and cash equivalents, beginning of period	3,121.1	3,532.3
Net cash provided by (used in) operating activities	3,655.1	5,306.6
Net cash provided by (used in) investing activities	(1,463.1)	(1,972.3)
Net cash provided by (used in) financing activities	(1,785.4)	(811.9)
Effect of changes in exchange rates on cash	4.6	(5.3)
Net increase (decrease) in cash and cash equivalents	411.2	2,517.1
Cash and cash equivalents, end of period	3,532.3	6,049.4
Short-term investments	1,185.8	1,302.2
Cash and cash equivalents and short-term investments	4,718.1	7,351.6

Net cash provided by (used in) operating activities

Net cash provided by operating activities in 2020 totaled €5.3 billion, an increase of €1.7 billion compared to 2019, which is primarily due to an increase in Net income of €1.1 billion and improvements in working capital. These improvements can primarily be seen through an increase in down payments from customers and a reduction of outstanding Accounts receivable despite higher sales. This is partially offset by the increase in our Inventories to meet the upcoming customer demand and increase in Finance receivables to provide customers systems with a free-use period before payment, either for evaluation purposes or to support the capacity ramp-up of EUV as part of the early-insertion life cycle of the technology. Cash provided from operating activities includes the sale of Accounts receivable through factoring arrangements in 2020 totaling €2.2 billion, compared to €1.3 billion in 2019.

Net cash provided by (used in) investing activities

During 2020 we used €2.0 billion of Net cash for investing activities, mainly for purchasing €1.6 billion of Property, plant and equipment and Intangible assets, which includes €0.6 billion of capitalized development expenditures. In addition we acquired Berliner Glas, during the fourth quarter for a purchase price of €257.1 million, having a net impact on our investing activities of €222.8 million after netting the cash received and contingent consideration. The remaining activity is due to the timing of maturities and reinvestment of short-term investments.

Net cash provided by (used in) financing activities

Net cash used in financing activities amounted to €0.8 billion in 2020. We continued to return a substantial amount of cash to our shareholders as seen through the annual growth of our dividend, paid semi-annually totaling €1.1 billion in 2020, as well as share buybacks made during the year of €1.2 billion. This cash used in financing activities is partially offset by the completion of two bond offerings during 2020 for a total of €1.5 billion.

Financing policy

We continue to hold on to our long-held prudent financing policy, which is based on three foundational elements:

- **Liquidity:** Maintain financial stability with a target to keep our cash & cash equivalents, together with short-term investments, above a minimum range of €2.0 to €2.5 billion
- **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 semi-annually, 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 and Taiwanese dollars.

Year ended December 31 (€, in millions)	2019	2020
Deposits with financial institutions, governments and government related bodies	434.8	1,545.3
Investments in money market funds	2,139.7	3,841.9
Bank accounts	957.8	662.2
Cash and cash equivalents	3,532.3	6,049.4
Deposits with financial institutions, governments and government related bodies	1,185.8	1,302.2
Short-term investments	1,185.8	1,302.2

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 2020 and 2019. This facility has a maturity date of July 2025 with an uncommitted 1-year extension option. 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.

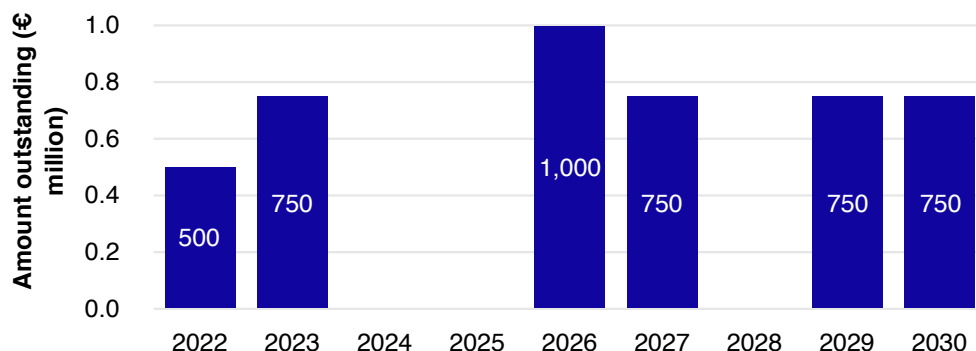
Capital structure

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 historical financing policy in relation to our capital structure.

Our current credit rating from Moody's is A3 (stable) and from Fitch is A- (stable), which is consistent with the credit ratings as of December 31, 2019. Solvency measured as debt-to-equity ratio slightly increased from 0.73 in 2019 to 0.89 in 2020.

We have Eurobonds with an outstanding principal of €4.5 billion, having the following maturities:

Outstanding Eurobond Maturity Amounts



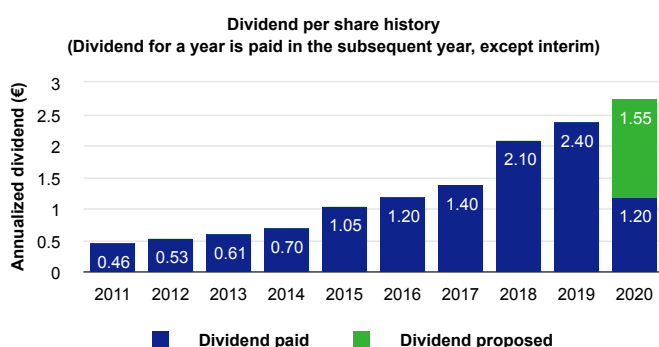
Cash return policy

ASML aims to distribute a dividend that will be growing over time, paid semi-annually. 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. 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.

ASML intends to declare a total dividend in respect of 2020 of €2.75 per ordinary share. Recognizing the interim dividend of €1.20 per ordinary share paid in November 2020, this leads to a final dividend proposal to the General Meeting of €1.55 per ordinary share. This is a 15% increase compared to the 2019 total dividend of €2.40 per ordinary share.

On January 22, 2020 we announced a new three year share buyback program, to be executed within the 2020-2022 time frame pursuant to which ASML expects to purchase shares up to €6 billion, which includes a total of up to 0.4 million shares to cover employee share plans. ASML intends to cancel the remainder of the shares repurchased.

This program was temporarily paused in the first quarter of 2020 in order to address the uncertainty related to COVID-19, and subsequently resumed in the fourth quarter of 2020. In 2020 we repurchased 3,908,429 shares (2019: 1,948,808 shares) for a total consideration of €1,207.5 million (2019: €410.0 million).



Tax policy

Our tax policy is an integral part of our sustainability strategy, which in turn is part of our business strategy. Tax is included in the materiality assessment for sustainability purposes and is an element of our Corporate Citizenship (corporate social responsibility). The taxes we pay are an important part of ASML's contribution to the economies we operate in. Tax is of continued interest to our stakeholders, so we strive for transparency in the way we report and pay our taxes in accordance with the letter and the spirit of tax laws and regulations.

Our policy is based on a well-defined set of principles and internationally accepted standards. We support and adhere to the principles on tax transparency and responsible tax management as set out in the OECD Action Plan on Base Erosion and Profit Shifting (BEPS) and the EU Anti-Tax Avoidance Directives (ATAD I and II).

Tax governance

Our globally organized tax department is responsible for tax management. It falls under the supervision of our Board of Management via the CFO, who is ultimately responsible for the tax strategy. Our integrated global tax department is spread over three hubs in the three regions in which ASML operates and aligns on cross-border tax matters. ASML's global tax department is well connected to ASML's operations worldwide. This helps to ensure compliance with applicable local tax laws and regulations. Tax filing obligations are monitored via a central tax compliance dashboard. Controls are implemented and executed via our SOx and Internal Control Frameworks.

The Audit Committee of the Supervisory Board (SB) reviews our tax strategy and annually confers with our tax professionals to discuss tax policies and the impact of tax laws and regulations on ASML.

Training programs are in place in order to ensure that global tax department members stay aligned and up to date with latest developments in the global tax landscape. Additionally, tax department members regularly provide tax awareness sessions for stakeholders from business and other finance departments.

Our tax strategy

ASML aims to report on and pay taxes in accordance with all relevant tax laws and regulations. We commit to not only comply with the letter of these laws and regulations, but also with their intent.

We aim to be clear about all aspects of our tax position and to share these in a transparent manner, fostering a relationship of honesty, transparency and trust with the tax authorities. The latter is reflected in the number of bilateral advance pricing agreements (BAPA) we have with the tax authorities in our significant jurisdictions.

ASML's technology is driving our profitability. Around 90% of our income is taxable in the Netherlands as most of our value creation through research, design and manufacturing activities is based there. The income from other activities, such as regional equipment sales and after-sales support, is subject to taxation in the countries where these activities take place – the main ones being China, South Korea, Taiwan and the US.

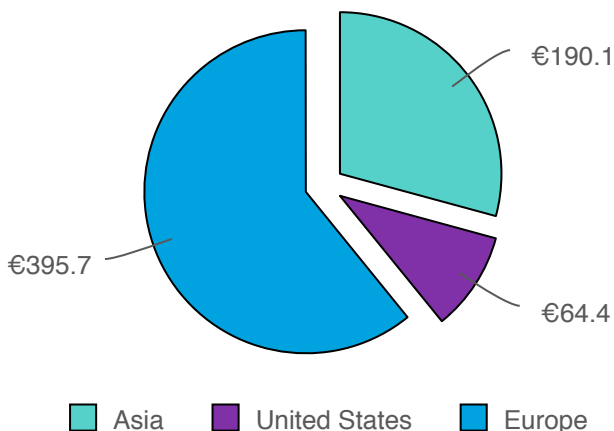
To drive innovation, Dutch corporate income tax law provides for the so-called Innovation Box facility. Based on this facility, qualified income associated with R&D is subject to an effective tax rate of 7% (increased to 9% as of 2021), as compared to the Dutch statutory rate of 25%. For more information see note 21 in the Consolidated financial statements.

Our tax principles

We base our tax principles on our Code of Conduct. It guides us in how we report and pay tax in the countries we operate in.

- We act in accordance with the letter and the spirit of tax laws and regulations.
- We report taxable income in a jurisdiction commensurate with the added value of the business activities in that jurisdiction.
- ASML's profit allocation methods are based on internationally accepted standards as published by the OECD, as well as relevant rules and regulations in the local jurisdictions we operate in.
- We pursue an open and constructive dialogue with the tax 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.
- We do not use tax havens (as defined by the European Commission's 'blacklist') for tax-avoidance purposes.
- We make tax disclosures in accordance with reporting requirements, US GAAP and IFRS.

Disclosures are provided in our financial statements and cover tax payments in our main markets. We provide country-by-country tax reporting in a transparent and accurate manner to the tax authorities. A high level overview of income taxes paid during 2020 is set out below (in millions).



Risk profile

ASML is active in over 60 offices located in 16 countries. The tax regulations in these countries are subject to change, among others due to recent developments in the international tax arena (e.g. BEPS 2.0). The tax regulations are often complex and subject to interpretation. Failure to comply with these tax regulations may lead to additional tax assessments, including penalties.

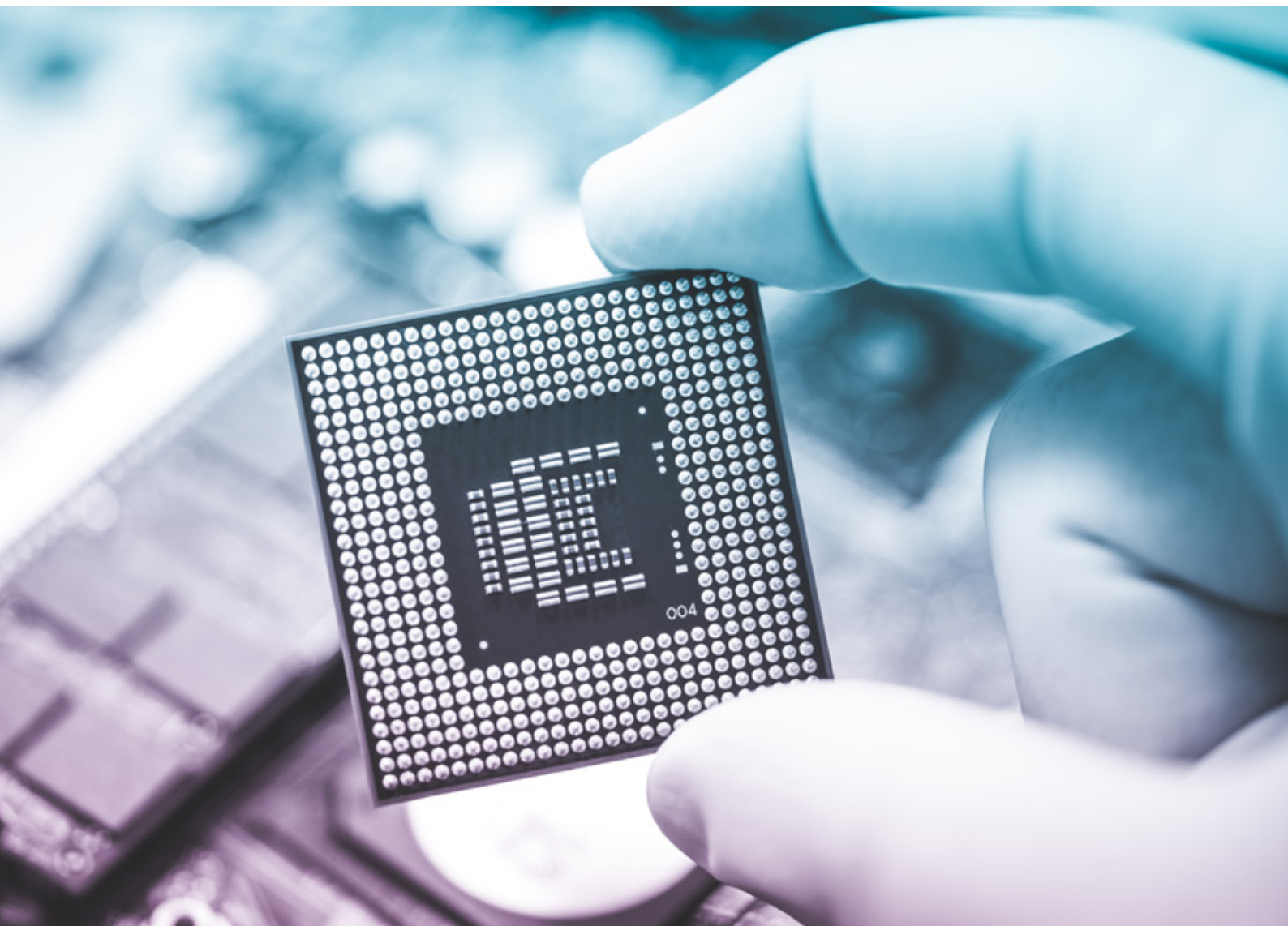
ASML's tax strategy is aimed at maintaining a low tax-risk appetite, for which it has set up a comprehensive tax risk-management framework. As such, via the organizational structure of the global tax department, clear segregation of roles and responsibilities as well as a strict internal review and approval processes for tax filings, mitigates risks and facilitates alignment with external parties.

Tax Risk Management framework

We aim to file all the required tax-relevant returns with the appropriate tax authorities in a correct, timely and complete manner. To ensure this happens, tax-compliance & reporting processes are monitored through ASML's comprehensive corporate (SOx and Internal Control) and tax control framework. The control frameworks are regularly reviewed, tested and challenged by the ASML Risk & Business Assurance department. Additionally, in various areas automation is used for efficient and effective monitoring of tax compliance obligations, validation of tax relevant data and execution of tax compliance & reporting processes. In these ways, we continue to focus on further improvement and automation going forward.

We discuss potential tax risks and our tax positions with the Audit Committee on a regular basis. Additionally, in the Netherlands, we participate in a cooperative compliance program with the Dutch tax authorities.

Internal control on tax reporting is included in the overall internal control statement, which is part of the management report on internal control over financial reporting.



Long-term growth opportunities

Trend information

We expect 2021 to be another growth year supported by healthy Logic demand and growth in the Memory market. The expected growth is primarily driven by increasing EUV sales, as well as growth in our installed base business. The positive industry momentum around innovation and expanding new markets further strengthen our confidence in the 2021 outlook and our 2025 growth scenarios.

In Logic, we see the major innovation drivers that fueled increased demand for leading edge nodes in 2020, continuing to drive demand in 2021. This is evident in several customer announcements regarding ramp-up plans for 7 and 5 nm nodes.

In Memory, customers have indicated systems are operating at higher utilization levels. As customers are making the technology transition to support projected growth, additional capacity additions are expected to be required. Subsequently, this is expected to trigger equipment demand. As a result, it seems likely that we will see stronger lithography equipment demand from the Memory market in 2021.

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 continue to see demand building up for next years' shipments and expect a healthy order flow to continue. Due to this demand increase, we expect EUV revenue to increase around 30% in 2021.

We expect further growth in our Installed Base Management business as the demand for services will continue to expand as our installed base grows. Additionally, we anticipate an increased contribution to service sales from EUV as more and more systems start running wafers in volume manufacturing, as well as expect significant demand for upgrades, particularly in EUV, as customers utilize upgrades as a quick way to increase capacity.

Total net sales for the first quarter of 2021 is guided between €3.9 billion and €4.1 billion.

The trends discussed above are subject to risks and uncertainties. See Special note regarding forward-looking statements.

Outlook 2025

In November 2018, we presented our long-term growth opportunity up to 2025 in which we modeled revenue scenarios within the context of different business sensitivities. We recognize our growth opportunity is primarily sensitive to market growth, with a projected annual revenue for 2025 between €15 billion in a low-market scenario and €24 billion in a high-market scenario.

Our next Investor Day is currently planned to take place on June 23, 2021 in London, where we will update our 2025 expectations for the market developments since 2018.

Our revenue potential is primarily based on organic growth. We continuously review our product roadmap and have, from time to time, made focused acquisitions or investment in associates 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 annualized dividends and share buybacks.



How we manage risk

How we manage risk

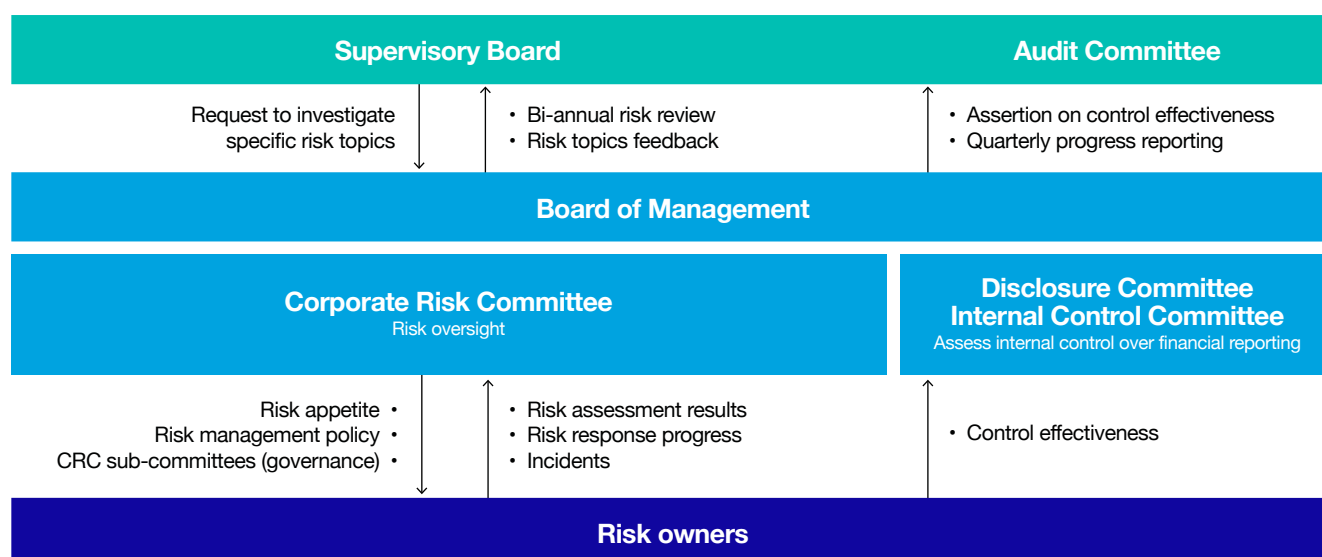
Dynamics in the global semiconductor industry present both opportunities and risks. ASML manages risk through an Enterprise Risk Management (ERM) framework that integrates risk management into our daily business activities and strategic planning.

Enterprise Risk Management

We deploy our ERM framework through 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 and its affiliates. It takes a systematic approach to identify, manage and monitor risks in pursuit of our business objectives by setting standards and enabling management to make ASML's governance, risk management, internal control and compliance more efficient and effective. The function also helps to identify opportunities that allow us to achieve our objectives and enable continuous sustainable growth.

ERM is a continuous process. Its related activities are periodically repeated to identify and address risks in a timely fashion, and its results remain relevant for decision-making purposes. Our Vice President of Risk and Business Assurance is responsible for leading the development and maintenance of the ERM framework and makes sure the ERM process is carried out. ASML has adopted the ISO 31000:2018 standard as the foundation of its enterprise risk management. In addition, the Vice President of Risk and Business Assurance, reporting to ASML's CFO, is responsible for leading the security, and internal control function and for the development and maintenance of the compliance process.

Risk management governance structure



Supervisory Board and Audit Committee

The Supervisory Board provides independent oversight on management's response to mitigating critical risk areas based on regular risk reviews. The Supervisory Board's Audit Committee provides independent oversight on the ERM process and the timely follow-up on 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 legislation and regulations. The Board of Management has delegated its risk oversight to ASML's Corporate Risk Committee.

Corporate Risk Committee

The Corporate Risk Committee is a central risk oversight body, which reviews, manages and controls risks in the ASML Risk Universe, including information 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 from all sectors at ASML, including the CEO, CSO and COO.

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 and applicable stock exchange rules, and other regulatory requirements.

Internal Control Committee

The Internal Control Committee, which includes two 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 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 report to the Audit Committee.

Risk owners

Risk owners monitor the development of risks in the ASML risk universe and drive risk response across the ASML organization 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 effect in achieving our business objectives. It consists of 38 risk categories grouped into six risk types. This allows us to have a consistent view across ASML when assessing risks.

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 on a yearly basis, 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
- Product portfolio risk
- Business model risk
- Merger & acquisition risk
- Competition risk
- Innovation risk
- Product stewardship risk
- Roadmap execution
- Intellectual property rights

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

Partners

- Customer dependency risk
- Cost of ownership risk
- Product / service quality risk
- Supplier strategy & performance risk
- Supply chain disruption risk

People

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

Operations

- Product industrialization risk
- Process effectiveness & efficiency risk
- Safeguarding of assets risk
- Environment, health & safety risk
- Continuity of own operation risk
- Information security risk
- Information technology risk

Legal and compliance

- Legal liability risk
- Violation of laws & regulations risk
- Internal control / compliance risk

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.

The results from periodic risk-assessments and potential impact of external trends 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.

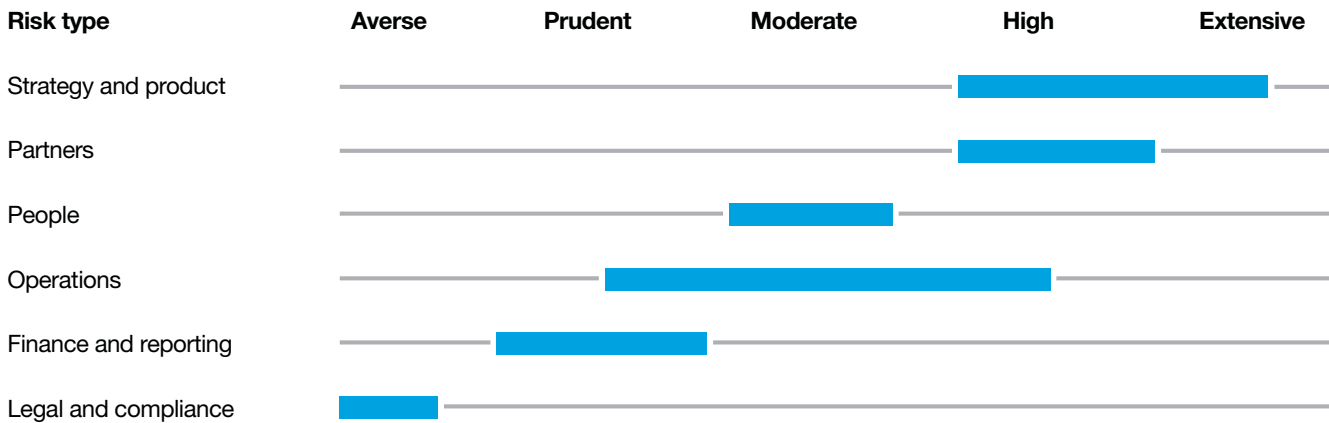
The execution of the risk assessments is done according to the risk management plan and any additional engagement approved by the Corporate Risk Committee. We define strategies to address relevant risks and take these into account when we define the corporate priorities. ASML defines risk responses with the aim to mitigate the risks up to the level defined by the risk appetite.

Risk management process



Risk appetite

Our risk appetite depends on the nature of the risk. ASML's risk appetite – the level of risk ASML is willing to accept to achieve its objectives – may vary based on the specific risk and is divided in five levels: Averse, Prudent, Moderate, High and Extensive. Our approach is geared towards mitigating the risks to the level defined in our risk appetite.



Risk developments

The table below presents examples of external developments that have affected the exposure of a series of risk categories in 2020, including examples of our responses. The list of risks and risk responses below is not exhaustive.

COVID-19 pandemic	Risk category
<p>COVID-19 has spread globally, leading to quarantines, travel and workplace restrictions, business shutdowns and restrictions, supply chain interruptions, labor shortages, changes of legislation and overall economic and financial market instability.</p> <p>The pandemic has a significant impact on the global economy. Going forward, there is uncertainty on how the pandemic will develop, and its impact on global GDP development, (end) markets, and our manufacturing capability and supply chain. The longer the pandemic lasts, the greater the risks.</p> <p>Examples of such risks are:</p> <ul style="list-style-type: none"> • Our employees may face health risks associated with the COVID-19 pandemic. • The COVID-19 pandemic has increased the level of remote working within our organization, which impacts productivity, may delay our roadmap, increase the risks of cybersecurity incidents and may impact our control environment. • We are dependent on our suppliers, so 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 tools and services can change. • An important part of our business involves installing and servicing tools at customer premises around the globe. Current travel restrictions impact that activity. <p>The full impact of this pandemic on ASML will depend on future developments. This includes its continued severity, and the actions taken to contain the pandemic or address its impact which are outside of our control.</p> <p>So far, the COVID-19 pandemic had limited impact on our results of operations.</p>	<ul style="list-style-type: none"> • Industry cycle • Continuity of own operation • Supply chain disruption • Environment, Health and Safety • Human resource • Process effectiveness and efficiency • Roadmap execution • Information security
Risk response	
<ul style="list-style-type: none"> • Set health and safety of our employees as our first priority and implement preventive measures globally • Strong financial capabilities to react to a downturn • Activation of business continuity management plan • Active engagement with our critical suppliers and increased inventory • Implementation of virtual remote support solution on customer sites • Measures implemented to facilitate (secure) remote working and to support the well-being of our employees 	
Increasing complexity of regulatory requirements	Risk category
<p>Rules and regulations are becoming more complex, in particular those relating to trade, national security, tax, exchange controls, reporting, anti-corruption laws, climate change, data protection, product safety.</p> <p>We are committed to full compliance with relevant laws and regulations.</p>	<ul style="list-style-type: none"> • Violations of laws and regulations • Product stewardship • Environment health and safety
Risk response	
<ul style="list-style-type: none"> • Code of Conduct and Business Principles • Corporate policies such as Anti-bribery & corruption, Anti-fraud, Antitrust, Insider trading, Tax and Export control • Speak Up policy and system • Implementation of global compliance program • Establishment of Privacy Office and implementation of personal data protection program including, among others, the following elements: governance, systems & procedures, disciplinary actions, audits. 	

Geopolitical tensions

Risk category

Export restrictions are rising and global trade is shifting from globalization to regionalization, particularly between China and US. This may lead to a decoupled ecosystem. Trade and export barriers have impacted our ability to sell and maintain systems to certain customers and impact our business by limiting our ability to sell our products and services in certain jurisdictions or to certain customers.

- Political
- Continuity of own operations
- Human resource
- Business model

Geopolitical tensions also result in movement restrictions of the employees across countries. Protectionism and bureaucracy are increasing, as well as restrictions impacting international knowledge workers from certain countries, (e.g. restricted technology access, visa/travel restrictions).

We aim to serve and support all our customers around the world to the best of our ability, while being compliant with laws and regulations set by the jurisdictions where we operate.

Risk response

- Monitor geopolitical developments
- Apply for export licenses as required
- Comply with (existing and new) regulations
- Collaborate with peers in global advocacy

IP technology leadership pressure

Risk category

There is an increased 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.

- Information security
- Intellectual property rights
- Competition

We are experiencing an increasing number of cyberattacks on our information technology systems as well as the information technology systems of our suppliers, customers and other service providers.

We are committed to protect our information assets and those of our partners.

Risk response

- Establishment of an information security function and information security policy to implement controls to ensure authorized use of information
 - Significant increase of our information security investments (people, systems) and security roadmap to increase security of our processes and systems
 - Cyber Defense Center
 - Security incident response procedure in place and tested at least annually
 - Awareness and training programs
 - IP rights management
 - Patents and relevant technical publications monitoring
-

Risk factors

In conducting our business, we face many risks that may interfere with our business objectives. It is important to understand the nature of these risks. We assess our risks by using the ASML risk universe, consisting of six risk types (Strategy and Products, Finance and reporting, Partners, People, Operations, Legal and compliance). The risk categories related to the Risk factors below. 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 we do not currently believe to be material could become material in the future. Many of the risks described below may be exacerbated by the COVID-19 pandemic, global measures taken in response, and any worsening of the global business and economic conditions resulting from the pandemic.

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 in enhancing our existing products, 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. 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, or 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 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 and other resources to develop and introduce new technologies, products and product enhancements. If we are unsuccessful in developing (or if our customers do not adopt) new technologies, products and product enhancements such as High-NA and multi-beam, or if competitors successfully introduce alternative technologies or processes, our competitive position and business may suffer, and we may be unable to recoup some or all of the investments that we have made.

We may 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 are also dependent 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, the impact of the COVID-19 pandemic 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: Roadmap execution, Innovation

Our lithography systems and applications have become increasingly complex, and accordingly, the costs and time period 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 High-NA and multi-beam, requires significant R&D investments by us and our suppliers to meet our and our customers' technology demands. Our suppliers may not have, or may not be 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.

We face intense competition

Risk category: Competition

The lithography equipment industry is highly competitive. Our competitiveness depends upon our ability to develop new and enhanced lithography equipment, related applications and services that are competitively priced and introduced on a timely basis, as well as our ability to protect and defend our intellectual property rights. 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, industry 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 may also face competition from new competitors with substantial financial resources, as well as 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, e.g. Applied Materials Inc. and KLA-Tencor Corporation. These applications effectively compete with our Applications offering, which is a significant part of our business. The competition we face in our applications business may be higher than for our systems, as there are more competitors and potential competitors in this market.

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

Risk category: Industry cycle risk

As a supplier to the global semiconductor industry, we are subject to the industry's business cycles, of which the timing, duration and volatility are difficult to predict. The semiconductor industry has historically been cyclical. Newer entrants in the industry, including Chinese entrants, could increase the risk of cyclicality in the future. Certain key end-market customers – Memory and Logic – exhibit different levels of cyclicality 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 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, including as a result of the COVID-19 pandemic, or incorrect assumptions by us about our customers' capital expenditures, could adversely impact our business.

Our ability to maintain profitability in an industry downturn will depend substantially on whether we are able to lower our costs and break-even level, which is the level of sales that we must reach in a year to have positive net income. If sales decrease significantly as a result of an industry downturn and we are unable to adjust our costs over the same period, our net income may decline significantly or we may suffer losses. Furthermore, as the value per system increases and we have grown, and continue to grow, in terms of employees, facilities and inventories, it may be more difficult for us to reduce our costs to respond to an industry downturn.

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

Risk category: Business model, Product portfolio

We derive most of our revenues from the sale of a relatively small number of lithography systems: (258 units in 2020 and 229 units in 2019). 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 may have a material adverse effect on our business, financial condition and results of operations in that period. This risk is increasing due to the higher average sales price of EUV systems as compared to DUV systems.

In addition, we aim to derive more revenue from servicing and upgrading our installed base. However, we may not be able to increase revenues to the extent we planned as, for example, customers may perform more of these services themselves or find other third party suppliers for that service.

Failure to adequately protect the intellectual property rights, trade secrets or other confidential information could harm our business

Risk category: Intellectual property rights

We rely on intellectual property rights such as patents, copyrights and trade secrets to protect our proprietary technology and applications. However, we face the risk that such measures could prove to be inadequate and we could suffer material harm because, among other things:

- Intellectual property laws may not sufficiently support our proprietary rights or may change in the future in a manner adverse to us;
- Patent rights may not be granted or interpreted as we expect;
- Patents 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; and
- Third parties may be able to develop or obtain patents for similar competing technology.

In addition, legal proceedings may be necessary to enforce our intellectual property rights, to determine the validity and scope of the proprietary rights of others, or to defend against claims of infringement. Any such proceedings may result in substantial costs and diversion of management resources, and, if decided unfavorably to us, could result in significant costs or have a significant impact on our business.

We are increasingly subject to attempted misappropriation attacks, including theft of our trade secrets, proprietary customer data, intellectual property or other confidential information by third parties or our own employees. For example, in the past we have been subject to the misappropriation of our software by certain employees.

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

Risk category: Intellectual property rights

In the course of our business, we are subject to claims by third parties alleging that our products or processes infringe upon their intellectual property rights. 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, 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 or suppliers 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 disputes or to potentially strengthen or expand our intellectual property rights or limit our exposure to intellectual property claims of third parties.

We were subject to a number of patent infringement claims by Nikon between 2017 and 2019. While we settled the litigation with Nikon in 2019, we continue to face the risk that we may be subject to claims alleging the infringement of others' patents or intellectual property rights or involved in patent litigation to defend our intellectual property rights.

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, and / or settlement involving significant costs to be paid by us.

We are exposed to economic and political 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, including the ability to obtain required licenses and approvals and the effects of trade sanctions, export controls, tariffs and similar regulations and international trade disputes, impact our ability to produce and deliver our systems and services internationally.

Certain of our manufacturing facilities as well as customers are located in Taiwan. Customers in Taiwan represented 33.8% of our 2020 total net sales and 45.3% of our 2019 total net sales. Taiwan has a unique international political status. The People's Republic of China asserts sovereignty over Taiwan and does not recognize the legitimacy of the Taiwanese government. 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 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 29.7% of our 2020 total net sales and 18.6% of our 2019 total net sales. 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 have a presence or do business in a number of jurisdictions, including the People's Republic of China and Russia. In particular, our business in People's Republic of China has increased in recent years and is expected to increase further. Such increased presence increases the risks we face, including risks relating to compliance with multilateral and bilateral treaties, delays in receipt of appropriate permits, compliance with anti-corruption and anti-bribery laws and regulations, our ability to effectively manage and control our growing business, attracting and retaining sufficiently qualified personnel, the protection of our intellectual property and information technology

systems, and restrictions on repatriation of cash abroad. For example, we have experienced, and are continuing to experience, delays in processing work permits for foreign nationals, which could potentially delay development and support provided to customers.

The US administration has enacted trade measures, including import tariffs and restrictions on conducting business with certain Chinese entities, restricting our ability to provide 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 are subject to change. 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 sensitive technologies that may be the subject of increased export regulations, policies or practices. 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 can impact our ability to obtain necessary permits, including permits for use of US technology and for employees producing and developing such technology. Such developments could also lead to long-term changes in global trade, competition and technology supply chains, which could adversely affect our business and growth prospects.

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

Risk category: Merger & acquisition

From time to time we acquire, and may in the future acquire, businesses or technologies to complement, enhance or expand our current business or products or that might otherwise offer us growth opportunities. For example, we recently completed the acquisition of Berliner Glas, a privately held manufacturer of ceramic and optical modules to support the future roadmap for our EUV and DUV products. Any such acquisitions could lead to failure to achieve our financial or strategic objectives, 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 of our existing business. Furthermore, we may be unable to retain key personnel of acquired businesses or 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, anti-trust 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, as the industry is becoming more consolidated, anti-trust and national-security clearances may become harder to obtain, which could inhibit future desired acquisitions.

As a result of acquisitions, we have recorded, and may continue to record, a significant amount of goodwill and other intangible assets. Current accounting guidelines require, at least annually and potentially more frequently, assessment of whether there are indicators that the value of goodwill or other intangible assets has been impaired.

We may not be able to achieve our Environmental, Social, 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 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 focus on contribution to society and minimizing environmental and social impacts of products throughout all life cycle stages. Failure to achieve our ESG objectives and meet the emerging ESG expectations of our stakeholders could negatively affect our brand, reputation and license to operate, and may also increase our vulnerability to ESG-related risks, such as risks associated with climate change in the medium- to long-term. Furthermore, our ability to achieve our product-related environmental objectives (such as energy efficiency) may be affected by the complexity of our technology and products, and the technological and other capabilities of ourselves and our suppliers.

A global transition to a lower carbon economy and / or climate change may result in the imposition of increased environmental regulations that could lead to technology restrictions, modification of product designs, an increase in energy prices and the introduction of energy or carbon taxes, pollution requirements, required remediation equipment, or other requirements. A variety of regulatory developments have been introduced that focus on restricting or managing the emission of carbon dioxide, methane and other greenhouse gases. This could result in a need to purchase at higher costs new equipment or raw materials with lower carbon footprints.

Finance and reporting

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

Risk category: Liquidity, Interest rate, Counterparty credit, Foreign exchange

We are a global company and are exposed to a variety of financial risks, including liquidity risk, interest rate risk, credit risk and foreign exchange risk.

Liquidity risk: Negative developments in our business or global capital markets could affect our ability to meet our financial obligations or to raise or re-finance debt in the capital or loan markets.

Interest rate risk: We are exposed to interest rate risks. 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 expectation of a downgrade), developments in capital and lending markets or developments in our businesses.

Counterparty credit risk: We are exposed to counterparty credit risks, 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 €2,757.0 million, or 80.1%, of accounts receivable and finance receivables at December 31, 2020, compared with €2,191.8 million, or 77.2%, at December 31, 2019. Accordingly, business failure or insolvency of one of our main customers could result in significant credit losses.

Currency risk: We are exposed to currency risks. 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 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.

In general, our customers run their businesses in US dollars and therefore a weakening of the US dollar against the euro might impact the ability or desire of our customers to purchase our products at quoted prices.

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, as the highly specialized nature of many of our components, particularly for EUV systems, means it is not economical to source from more than one supplier. 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 a timely manner or at all, additional costs resulting from switching to alternate suppliers 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, cyberattacks, energy shortages, pandemic outbreaks such as COVID-19, flooding or other natural disasters, can lead to delays in delivery of our products which would impact our business. For example, certain of our suppliers experienced disruptions in their operations as a result of COVID-19. 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). If Carl Zeiss SMT GmbH is 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 if Carl Zeiss SMT GmbH is unable to maintain production of optics over a prolonged period, we would effectively cease to be able to conduct our business.

In addition, some 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, and 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 capabilities 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. To the extent our suppliers do not meet our requirements or timetable in product development, our business could suffer.

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 of 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 from each year accounted for €4,394.8 million, or 31.4% of total net sales in 2020, compared with €4,688.6 million, or 39.7% of total net sales in 2019 and €2,476.8 million, or 22.6% of total net sales in 2018. The loss of any significant customer or any significant reduction or delay in orders by a significant customer may have a material adverse effect on our business, financial condition and results of operations.

People

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

Risk category: Human resource, Knowledge management, Organizational effectiveness

Our business and future success significantly depends upon our employees, including a large number of highly qualified professionals, as well as our ability to attract and retain employees. Competition for such personnel is intense and has increased in recent years, and we may not be able to continue to attract and retain such personnel. Our R&D programs require a significant number of qualified employees. If we are unable to attract sufficient numbers of qualified employees, this could affect our ability to conduct our R&D on a timely basis. In addition, if we lose key employees or officers to retirement, illness or otherwise, particularly a number of our highly qualified professionals and / or senior management, we may not have sufficient time to find a suitable replacement. 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 (e.g. from other industries or companies). As a result, we must educate and train our employees to work on our systems. Therefore, a loss of a number of key professionals and / or senior management can be disruptive, costly and time consuming. Our R&D activities with respect to new technology systems, such as High-NA and for further development of EUV technology, and our service activities have increased our need for qualified personnel.

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 the occurrence of significant additional costs. Our suppliers face similar risks in attracting qualified employees, including attracting employees in connection with R&D programs that will support our R&D programs and technology developments. To the extent that our suppliers are unable to attract qualified employees, this could impact our R&D programs or deliveries of components to us.

In recent years, our organization has grown significantly. As a result of this growth in a short period of time, we may be unable to effectively manage, monitor and control our employees, facilities, operations and other resources.

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 our ability to manage costs. Customer acceptance of our products depends on performance of our products in the field. As our products become more complex, we face an increasing risk that products that we develop may not meet development milestones or specifications and that our products 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 supply of components and training qualified personnel, and 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.

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 to produce 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 servicing a growing number of EUV systems that are operational in the field could affect the timing of shipments, and the efficient execution of maintenance, servicing and upgrades, which is key to the 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, in Berlin, Germany, in Wilton, Connecticut, US and in San Diego and San Jose, California, US, in Pyeongtaek, South Korea, in Beijing, China, in Linkou and Tainan, Taiwan. These facilities may be subject to disruption for a variety of reasons, including work stoppages, fire, energy shortages, pandemic outbreaks such as COVID-19, flooding or other disasters, natural and otherwise. We cannot ensure that alternative production capacity would be available if a major disruption were to occur.

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.

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, including 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. The increasing complexity 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, including such risks resulting from the COVID-19 pandemic. Failing 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.

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

Risk category: Information security, Information technology

We rely on the accuracy, availability and security of our information technology 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.

We are experiencing an increasing number of cyberattacks on our information technology systems as well as the information technology systems of our suppliers, customers and other service providers, whose systems we do not control. These attacks include malicious software (malware), attempts to gain unauthorized access to data, and other electronic security breaches of our information technology systems. They also include the information technology 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).

In addition, any system failure, accident or security breach could result in business disruption, theft of our intellectual property, 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. 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 or litigation. We may also be required to incur significant costs to protect against or repair the damage caused by these disruptions or security breaches in the future, 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.

These cybersecurity threats are constantly evolving. We, therefore, remain potentially vulnerable to additional known or yet unknown threats, as in some instances, we, our customers, and our suppliers may be unaware of an incident or its magnitude and effects. We also face the risk that we expose our customers to cybersecurity attacks through the systems we deliver to our customers, including in the form of malware or other types of attacks as described above, which could harm our customers. Furthermore, the COVID-19 pandemic has increased the level of remote working within our organization, which increases the risks of cybersecurity incidents.

In addition, from time to time, we implement updates to our information technology systems and software, which can disrupt or shutdown our information technology 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 (ONE program). As a result of this system implementation or otherwise, we have and could continue to experience disruptions in our operations.

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, the complexity of complying with rules and regulations has increased. Furthermore, as we have expanded our business in countries where we did not previously operate, we have become increasingly subject to compliance with additional rules and regulations in such jurisdictions, including anti-corruption, anti-bribery and human rights standards, which can be complex. We are also subject to investigations, audits and reviews by authorities in such jurisdictions regarding compliance with rules and regulations, including tax laws.

Furthermore, the existing rules and regulations that we are subject to, including regulations relating to trade, national security, tax, exchange controls, reporting, anti-corruption laws, data protection, are becoming more complex and the trade and national security environment has resulted in increasing restrictions. We also face the risk that trade and security regulations could limit our ability to sell our products and services in certain jurisdictions.

Such changes in the regulation that applies to our business can increase compliance costs and the risk of non-compliance. Noncompliance can result in fines and penalties and regulation could impact our ability to sell our products and services.

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 numerous other jurisdictions. Our effective tax rate has fluctuated in the past and may fluctuate in the future.

Changes in tax legislation in the countries where we operate can affect our effective tax rate. For example, in past years the OECD has implemented measures against so-called Base Erosion and Profit Shifting or BEPS and is currently working on additional proposals to avoid tax evasion and enhance tax transparency. Based on the BEPS reports the EU has proposed directives to counter base erosion and profit shifting which in turn have resulted in legislative proposals in EU member states. Similar legislative initiatives inspired by the BEPS reports have been taken in Asian jurisdictions in which we operate. These initiatives have resulted in increased compliance requirements for ASML.

In September 2020, the previously proposed reduction in the general Dutch corporate income tax rate was reversed. Furthermore, an increase from 7% to 9% as of 2021 to the favorable Dutch corporate income tax rate for innovation was adopted. We continuously monitor and assess the impact of developments in tax legislation on ASML.

Changes to tax legislation of jurisdictions we operate in, 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 we operate in. An example is the so-called innovation box tax legislation in the Netherlands (mentioned above). In case jurisdictions alter their tax policies in this respect, this 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 affect our worldwide effective tax rate and adversely impact our net income.

Other risk factors

The COVID-19 pandemic may impact our operations

The COVID-19 pandemic and the measures implemented to address this pandemic globally continue to impact our business and our suppliers and customers. The pandemic has already had a significant impact on the global economy, which can potentially impact our end markets. There is significant uncertainty about how the current COVID-19 pandemic will impact global GDP development, end markets, our manufacturing capability and supply chain, and the longer this pandemic lasts the greater are the risks. The full impact of this pandemic on ASML will depend on future developments, including continued severity of the COVID-19 pandemic, and the actions to contain the outbreak or address its 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 incorporated in the US or another jurisdiction.

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 their 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.

See Leadership and governance - Corporate governance - Board of Management and Supervisory Board, and Consolidated Financial Statements - Notes to the Consolidated Financial Statements - Note 22 Shareholders' equity.

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

We aim to pay a semi-annual dividend that is growing (on an annualized basis) over time, and we conduct share buyback programs from time to time. The dividend proposal and amount of share buybacks 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. We may also suspend buyback programs from time to time, which would reduce the amount of cash we are able to return to shareholders. Accordingly, the Board of Management may decide to propose not to pay a dividend or 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.

Responsible business

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. 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 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.

Guided by feedback from employees on ASML's first-ever Global Ethics Survey in 2019, we took the opportunity in 2020 to improve our ethics organization. Among other activities, we set out to grow and professionalize our network of Ethics Liaisons, highlight the role of the Ethics Office, revise the Code of Conduct to align more clearly with ASML's values, and raise awareness around how the company responds to questions related to ethics.

Business ethics and Code of Conduct

We live our values – Challenge, Collaborate and Care – a shared belief system at ASML that defines who we are. These values are reflected in our Code of Conduct. It sets clear expectations and guiding principles on 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 helps our employees make smart decisions that will benefit all stakeholders and puts integrity at the center of what we do.

ASML relies heavily on the skills, commitment and behavior of its employees for its continued success as a company, and for its positive contribution to society. That's 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 to acknowledge our Code, and we expect our business partners to respect our Code.

Our ethics governance consists of four levels:

1. Our Ethics Board, chaired by our CEO and reporting to the Board of Management, 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.
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.

As a member of the Responsible Business Alliance (RBA), we have adopted the RBA Code of Conduct, which is a common set of social, environmental and ethical industry standards. 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 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. For more information, see What we achieved in 2020 - Our supply chain.



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 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 (IP), 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 of Conduct is available on our website (www.asml.com), our intranet and in our Employee app.

Promoting ethical behavior

We provide a dedicated Ethics Program, which offers 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 foster a culture of integrity. It also helps create an open and honest culture where the instinct to do the right thing, and to comply with the law and ASML policies, is embedded across the organization.

Fostering a culture of integrity starts with management setting the right example. To support managers to be leaders who act with integrity, we've developed a practical handbook with guidelines, tips about dealing with specific situations, and tools they can use in daily operations.

In every location where we operate, we have Ethics Liaisons. They serve as trusted representatives and act as the first local point of contact for employees with questions and concerns related to ethics. They support management in managing ethical risks, and employees can go to them to speak up in good faith.

In 2020, we developed a new ethics training curriculum, which introduces and raises awareness about the Code and related topics in an interactive and inspiring way. The curriculum includes five modules for all employees, and a separate module for managers that needs to be completed over a period of two years. The modules cover our Code and other compliance-related topics, and raise awareness around the importance of ethical behavior and our Speak Up 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.

The Ethics Program includes our annual Ethics Awareness Week, where we address a specific theme around ethics. In 2020, due to the volume of new information we wanted to share with employees, we expanded the week-long event, running a series of activities over the whole of November. At this time, we launched the new Code and the updated training curriculum.

The refreshed online training goes to all new employees within the first three months of starting at ASML. The first module covers the Code, and this will be followed by other modules addressing different topics, as well as those connected to the Code, over the next two years.

We also expanded our network of Ethics Liaisons globally in 2020 (up to 55 from 42 in 2019), ensuring even more global coverage. We also increased the number of areas Ethics Liaisons come from, so encouraging people from all over the business to become involved and increasing diversity in this area.

Our liaisons were especially important during the COVID-19 pandemic when travel was not possible. We relied on them to keep channels of communication open and to help us better understand the types of issues our employees were facing across the globe. This, and growing our capability in terms of Ethics Investigators – the people looking into the most serious kinds of ethics complaints – are just two of the ways we have been professionalizing the Ethics Office.

Encouraging people to speak up

We encourage everyone, including external business partners, such as suppliers, contractors and other workers, to express, in good faith, any concerns they might have regarding possible violations of our Code, our company's policies, or the law.

Our Speak Up policy, which includes our Whistleblower policy and our Ethics Investigation procedure, outlines the steps employees are encouraged to take if they experience or suspect a breach of our business ethics. These policies and procedure reassure employees that they can report a breach without fear of repercussions. For employees or external stakeholders who prefer to remain anonymous, we have a Speak Up system available to report breaches anonymously. This is run by an independent, external service company.

We look into all Speak Up messages. The role of the Ethics Office is to assess each Speak Up message, and bring it to the attention of the relevant employee, team or committee, so that remediation actions can be taken by the appropriate body.

We group Speak Up messages in three categories: questions, concerns and complaints. With regard to concerns and complaints, this could include a shortfall in a procedure or a policy that is possibly not being applied as it should be or has been misinterpreted. We discuss the issue with the policy owner or those working in the particular area as to how it could be better handled or improved. A complaint is the most serious type of case the Ethics Office deals with. To be categorized as a complaint, there must be an alleged breach or a violation of the Code, which cannot be resolved by line managers or HR.

If we reach the stage where an allegation remains beyond this point, it is referred to our Ethics Committee, which investigates significant cases of potential breaches of ASML's Code worldwide. We have established an Investigation Procedure policy, which describes the steps to be followed in the event of an investigation into an ethics complaint. This ensures ethics complaints are dealt with fairly, independently, and in an impartial and unbiased manner as set out in ASML's Speak Up policy. The investigation procedure has three phases – an initial review phase, a fact-finding and assessment phase, and a decision phase. The aim is to bring closure within two months, and, once a decision is made, we are committed to implementing an appropriate remedy.

We registered 229 Speak Up messages from employees in 2020. As in previous years, many of these related to issues resulting from cultural differences, leading to discrimination, and challenges with the style and language of communication between employees. Other messages concerned issues such as alleged bullying and conflicts of interest, including, for example, if employees are allowed to accept gifts from customers. We have looked into and addressed all Speak Up messages.

As in previous years, we did not incur any fines for breaches of ethical regulations.

Anti-bribery and anti-corruption

The role of our Legal Compliance function is to make sure 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.

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. Examples of such regulatory compliance areas are our securities and insider trading, competition law (antitrust), and anti-bribery and anti-corruption. When needed, Legal Compliance takes charge of any regulatory investigations.

We are committed to personal and business integrity and avoiding improper influence on others or ourselves. In 2020, we have updated our Anti-bribery and anti-corruption policy. Our Anti-bribery and anti-corruption policy details our commitment and the measures we take to prevent bribery and corruption at ASML. It also ensures compliance with applicable laws prohibiting domestic and foreign bribery and corruption as well as the ASML Code of Conduct. For more information or download of the policy, please visit www.asml.com.

There were no breaches of our Anti-bribery and anti-corruption policy in the reporting year.

Competition Law Compliance policy

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.

Our Competition Law Compliance policy demonstrates our ongoing commitment to ensuring compliance with applicable competition laws and our Code of Conduct. For more information or download of the policy, please visit www.asml.com.

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 to prevent the 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 the ASML Privacy policy. Our privacy program includes, among others, the following elements:

- **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 consist 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 registered 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 2020, we updated our Global Privacy Notices for workers, job applicant, business partners and visitors. The new privacy notices reflect the latest processing of personal data within ASML, and meet both the requirements of GDPR (Europe) and CCPA (US).

Respecting 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 to respect human rights and contribute to positive impact.

We are committed to respecting universal human rights and honoring the value of ethics as expressed in our Code of Conduct. We support the principles laid down in the OECD Guidelines for Multinational Enterprises, United Nations Guiding Principles (UNGPs) on Business and Human Rights and those in the International Labor Organization's (ILO) Tripartite Declaration of Principles concerning Multinational Enterprises and Social Policy. We have established a Human Rights policy, which is publicly available on www.asml.com.

Our Human Rights policy complements our ASML Code of Conduct and the RBA Code of Conduct we adhere to. 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 & Chief Strategy Officer.

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. We assessed possible impacts on people's human rights across our value chain. We focused our efforts on seeking stakeholder input on the one hand and performing due diligence in relation to our initial salient issues on the other hand. 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 stakeholder engagement, internal human rights assessment in our operations, and suppliers' due diligence and sustainability risk management. Read more in: [Responsible supply chain](#).

We received no grievance on breaches on human rights in 2020.

Our operations

In 2019, we conducted a risk assessment to identify the inherent risks related to human rights within our own operations. The results of our analysis showed that the inherent risk of human rights vulnerabilities in ASML's 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. In addition, we also conduct internal EHS audits regularly. Read more in: [Ensuring employee safety](#).

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 workweek must not exceed the maximum set by local law and a workweek should not be more than 60 hours per week, 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 keep monitoring the use of overtime and take appropriate measures to manage the situation.

Health and safety

It is our obligation to provide safe and healthy working conditions for all our employees and others working on our premises. In our products and processes, we think about how to make ASML a safe place to work. We put significant effort into creating awareness and to have a proactive safety culture within ASML. Read more in: [Ensuring employee safety](#).

Workplace harassment

We are a global company with operations in more than 60 locations in 16 countries. We have a culturally diverse workforce, employing 120 nationalities. This leads to a higher inherent risk around the issue of workplace harassment in human rights. Read more in: [Encouraging people to speak up, Promoting diversity and inclusion](#). Through our Ethics Program, we raise awareness around the importance of ethical behavior and our Speak Up 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 & safety and environmental standards across our full supply base. In the event of a medium or high risk relating to labor being 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 defined relate to working conditions (forced and bonded labor), health and safety, and trade union rights. However, operating 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: Responsible supply chain.



Leadership and governance

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.

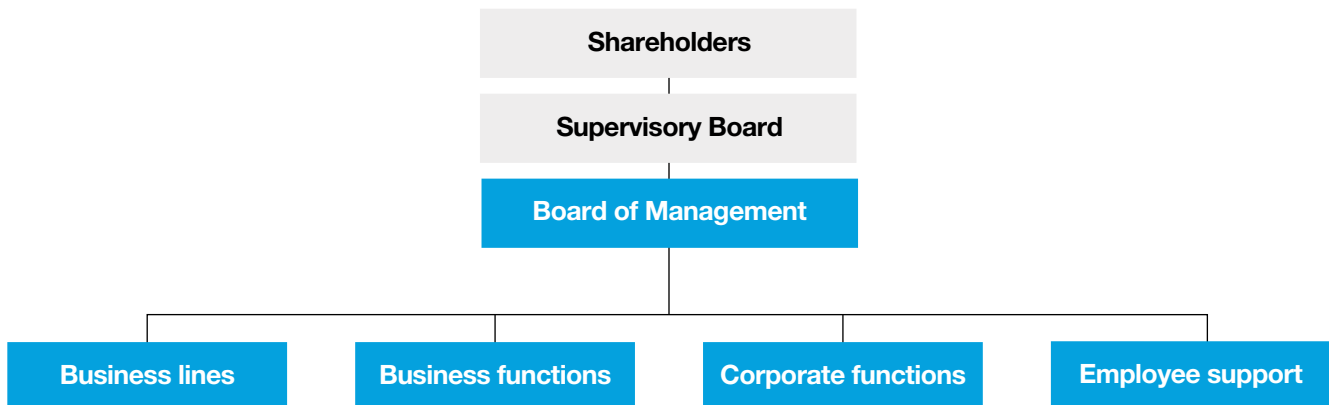
Our governance structure is based on ASML's articles of association, Dutch corporate and securities laws and the Dutch Corporate Governance Code. Because we are listed on NASDAQ, we are also required to comply with the Sarbanes-Oxley Act, the NASDAQ Listing Rules, and the rules and regulations promulgated by the US Securities and Exchange Committee.

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 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.

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. See the Our strategy - How we create value - Our company - How we manage risk sections in this annual report.

ASML corporate governance structure



Board of Management

ASML's 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 is comprised of six members. It has a dual leadership structure, under the chairmanship of the President and CEO, and the vice chairmanship of the President and Chief Technology

Officer. The Board of Management has adopted a division of tasks, charging individual members with a specific part of the managerial tasks, but 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. Besides 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, see the Supervisory Board section of this Corporate Governance chapter.

Further information regarding the general responsibilities of the Board of Management, the relationship 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 on 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.

Since 2013, the relationship between a member of the Board of Management and a listed company can no longer qualify as an employment relationship. All members of the Board of Management who were appointed and

reappointed at the 2018 AGM are engaged by means of a management services agreement for the duration of their appointment.

The 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 Code.

The Supervisory Board may suspend and dismiss members of the Board of Management, but this can only be done after consulting the General Meeting.



Peter T.F.M. Wennink (1957, Dutch)

*President, Chief Executive Officer and Chair of Board of Management
Term expires 2022*

Peter Wennink became President and CEO in 2013, having served as Executive VP, CFO and member of the Board of Management since 1999. Peter was previously a partner at Deloitte Accountants, focusing on the semiconductor industry. He has an extensive background in finance and is a member of the Dutch Institute of Registered Accountants. Peter was a member of the Advisory Board of the Investment Committee of Stichting Pensioenfonds ABP until December 31, 2020. He serves on the board of the FME-CWM, Peter is also a member of the board of Captains of Industry Eindhoven Region and is Chair of the Eindhovensche Fabrikantenkring and of the Supervisory Board of the Eindhoven University of Technology. Furthermore Peter is a member of the Exchange Council of Euronext, council member of Topconsortium voor 'Kennissen en Innovatie' TKI HTS&M, member of the Advisory Committee of the Dutch National Growth Fund and a member of the Circle of Influence of Startup Delta.



Martin A. van den Brink (1957, Dutch)

*President, Chief Technology Officer and Vice Chair of Board of Management
Term expires 2022*

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 2022*

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, having been CEO of Deloitte Holding. Roger holds a master's in Economics and Business Administration, a post-master's in Auditing, and a PhD in Business and Economics, 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+.



Frits J. van Hout (1960, Dutch)

*Executive Vice President and Chief Strategy Officer
Term expires 2021*

Frits van Hout was named Executive Vice President and Chief Strategy Officer in 2018. He joined ASML at its founding in 1984 and, after an eight-year absence, returned in 2001 as Vice President Customer Support. He has served in several executive positions and in 2009 joined the Board of Management. Frits holds two master's degrees: one in Theoretical Physics from Oxford University, the other in Applied Physics from Eidgenössische Technische Hochschule, Zürich. He is a member of the Board of the Stichting Brainport, the Eindhoven Region Economic Development Board, and Stichting Continuïteit BE Semiconductor Industries, Deputy Chair of the Supervisory Board of Aixtron SE, as well as a member of the Supervisory Board of Bambi Belt Holding B.V and Stichting PhotonDelta.



Christophe D. Fouquet (1973, French)

*Executive Vice President EUV
Term expires 2022*

Christophe Fouquet was appointed Executive Vice President EUV and member of the Board of Management in 2018. 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 2022*

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 that company's Hydro Business. Before joining Alstom, Frederic held various positions at the French Ministry of Trade and Industry. He is a graduate of Ecole Polytechnique (1985) and Ecole 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 subsidiaries, as well as the relevant interests of its stakeholders. In the 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 task, 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 its 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 and the parameters to be applied in relation thereto, 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 check whether the charter still complies with the applicable rules and regulations, especially those relating to the Sarbanes-Oxley Act.

For detailed information on the meetings and activities of the Supervisory Board in 2020, see Leadership and governance - 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 Annual General Meeting of Shareholders (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 on 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.

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.



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. From 2011 to 2020, he was Chair of the Board of Vodafone Group. He was also Deputy Chair and Senior Independent Director of Royal Dutch Shell from 2010 until May 2020.



Antoinette (Annet) P. Aris (1958, Dutch)

*Member of the Supervisory Board since 2015; third term expires in 2024
Member of 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 from 2014-2019 she was the Non-Executive Director of Thomas Cook Group. She also sits on the supervisory boards of Jungheinrich AG, Randstad Holding NV and the Rabobank Group.



Clara (Carla) M.S. Smits-Nusteling (1966, Dutch)

*Member of the Supervisory Board since 2013; second term expires in 2021
Chair of the Audit Committee*

Carla Smits-Nusteling has served on the Supervisory Board since 2013. From 2009 to 2012, she was CFO and a member of the Board of Management of Royal KPN NV. Prior to that, she held several management- finance- and business-related positions at KPN and PostNL. Carla is also the Chair of the Board of Tele2, Non-Executive Director of the Board of Directors of Nokia and Allegro EU and a member of the Management Board of the Dutch foundation Stichting Continuïteit Ahold Delhaize. Since 2015 she has been a lay judge at the Enterprise Court of the Amsterdam Court of Appeal.



Douglas A. Grose (1950, American)

*Member of the Supervisory Board since 2013; second term expires 2021
Vice Chair of the Supervisory Board, Chair of the Technology Committee and member of the Selection and Nomination Committee*

Douglas Grose is Vice Chair of the Supervisory Board, having been appointed a member of the Board in April 2013. Douglas was CEO of GlobalFoundries from 2009 until 2011. Previously, he served as Senior Vice President of Technology Development, Manufacturing and Supply Chain for Advanced Micro Devices. He was also General Manager of Technology Development and Manufacturing for the Systems and Technology Group at IBM for 25 years. Douglas sits on the Board of Directors of SBA Materials, and is President of the New York Center of Research, Economic Advancement, Technology, Engineering and Science (NY CREATES).



Johannes (Hans) M.C. Stork (1954, American)

*Member of the Supervisory Board since 2014; second term expires in 2022
Member of the Technology Committee and the Remuneration Committee*

Hans Stork joined the Supervisory Board in 2014. He is Senior Vice President and CTO of ON Semiconductor Corporation, a position he has held since 2011. Prior to that, Hans held a range of senior positions, including Senior Manager at IBM Corporation, Director of ULSI Research Lab at Hewlett Packard Company, Senior Vice President and CTO of Texas Instruments, Inc and Group Vice President and CTO of Applied Materials, Inc. He has also been a member of the Board of Sematech, and currently sits on the Scientific Advisory Board of imec.



Mark. M.D. Durcan (1961, American)

*Member of the Supervisory Board since 2020; first term expires in 2024
Member of the Technology Committee*

Mark Durcan was appointed as a member the Supervisory Board in 2020, and sits on the Technology Committee. 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 and MWI Veterinary Supply. Mark is a Non-Executive Director at Advanced Micro Devices, Inc and Veoneer, a member of the board of AmerisourceBergen Corporation, member of the board of trustees for Rice University (Texas) and director at St. Luke's Health System (Idaho).



Terri L. Kelly (1961, American)

*Member of the Supervisory Board since 2018; first term expires in 2022
Member of the Remuneration 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 Nemours Foundation, Vice-Chair of the University of Delaware, and a Trustee of the Unidel Foundation. She is also a member of the Board of Directors of United Rentals, Inc.



Rolf-Dieter Schwalb (1952, German)

*Member of the Supervisory Board since 2015; second term expires in 2023
Chair of the Remuneration Committee and member of the Audit Committee*

Rolf-Dieter Schwalb has been a member of the Supervisory Board since 2015. He is also Chair of the Remuneration Committee and a member of the Audit Committee. He was CFO and member of the Board of Management of Royal DSM NV 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.



Warren D.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, and also sits on the Audit Committee. Warren has been CEO of Rolls-Royce Group Plc since 2015. 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 as its CEO from 2001 to 2013.

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 adopted by the General Meeting. The current Remuneration Policy was adopted by the General Meeting in 2020.

The remuneration of the Supervisory Board is based on the Remuneration Policy adopted by the General Meeting. The current Remuneration Policy was adopted by the General meeting in 2020. 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 Leadership and governance - Remuneration report.

Diversity

Until January 1, 2020, Dutch legislation provided for statutory provisions to ensure a balanced representation of men and women on the management boards and supervisory boards of companies governed by this legislation. Balanced representation of men and women was deemed to exist if at least 30% of the seats were filled by men and at least 30% were filled by women. Within the meaning of this legislation, our Supervisory Board currently qualifies as balanced. No seats are taken by women on the Board of Management, which, as a result, would not qualify as balanced. Currently, new Dutch legislation is being prepared aimed at improving gender diversity in listed companies, among others by imposing a quota of at least one-third for both women and men on supervisory boards. We are closely monitoring developments in this area.

We recognize the importance of diversity and inclusion: a diverse and inclusive workforce provides the necessary mix of voices and points of view required to continue to innovate and drive our business forward. Ensuring balanced gender representation has proven to be challenging in a technology environment such as the one ASML operates in. Historically, there is a lower ratio of women compared to men in technology and science-related studies and the labor market in STEM (science, technology, engineering, and mathematics) fields. We run an intensive technology promotion program aimed at getting women more interested in a career in science, engineering and technology, and at the same time increasing our future talent pool, so that more women will be available in the future for technical positions and (senior) management positions, including the Board of Management. Given the specific nature of our industry, this is a challenging and long-term process.

In 2020, we started the development of a detailed Diversity & Inclusion strategy and action plan for the company, to further enhance gender diversity as well as other dimensions of diversity.

In 2020, we made progress in gender diversity among all employees and senior management. Female employees now make up 17% of our workforce worldwide, having gradually moved up from 10% in 2010. The percentage of women in senior management positions increased from 9.6% in 2019 to 10.5% in 2020 to include greater gender diversity. Yet we still have work to do in this area. For more information on our diversity and inclusion initiatives and performance data, see What we achieved in 2020 - Our people - Promoting diversity and inclusion and Non-financial statements - Non-financial indicators - Our people.

Conflict of interest

Conflicts 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 2020, 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.

Outside positions

Pursuant to Dutch legislation, a member of the Board of Management may not be a Supervisory Board member in more than two other large companies or large foundations, as defined in Dutch law. A member of the Board of Management may never be the Chair of a Supervisory Board of a large company. Board of Management members require prior approval from the Supervisory Board before accepting 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.

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 double.

During the financial year 2020 all members of the Board of Management and the Supervisory Board complied with the requirements described above.

Shareholders and General Meeting

A General Meeting is held at least once a year and generally takes place in Veldhoven, the Netherlands. 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
- 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 by 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 the latest 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 the shareholders with the information relevant to the topics on the agenda by means of an explanation to the agenda and other 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.

ASML shareholders may appoint a proxy who can vote on their behalf at the AGM. We also 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 COVID-19 pandemic, we organized a hybrid AGM in 2020, accommodating virtual attendance of the AGM by enabling shareholders to follow the proceedings of the meeting via webcast and to vote electronically during the meeting. This opportunity to participate in the AGM virtually was offered in addition to the existing possibilities of attending and voting in person or voting in advance via written or electronic proxy. As we highly value the interaction with our shareholders, we invited shareholders to submit questions about the agenda items prior to the AGM and, in view of the unprecedented nature of the 2020 AGM, we also decided that follow-up questions in response to the answers received, could be asked via the virtual meeting platform. We received a total of 19 questions, which were all answered during the AGM.

Resolutions are adopted by the General Meetings 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 will be made available on our website within 15 days of the meeting. The draft minutes of the AGM are 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 minutes are adopted by the Chairman and the Secretary of the meeting. The adopted minutes are 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;
- 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.

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.

Share capital

ASML's authorized share capital amounts to €126.0 million and is divided into:

Type of shares	Amount of shares	Nominal value	Votes per share
Cumulative preference shares	700,000,000	€0.09 per share	9
Ordinary shares	699,999,000	€0.09 per share	9
Ordinary shares B	9,000	€0.01 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	2018	2019	2020
Issued ordinary shares with nominal value of €0.09	421,097,729	419,810,706	416,514,034
Issued ordinary treasury shares with nominal value of €0.09	10,368,038	5,848,998	2,983,454
Total issued ordinary shares with nominal value of €0.09	431,465,767	425,659,704	419,497,488

77,733,738 ordinary shares were held by 288 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.

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.

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 ordinary shares B and no cumulative preference shares have been issued.

Special voting rights, limitation voting rights and transfers of shares

There are no special voting rights on the issued shares in our share capital.

Certain voting restrictions apply in respect of ordinary shares issued in connection with the customer co-investment program, which ASML entered into in 2012 with three key customers – Intel, TSMC and Samsung – 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. The voting restrictions in respect of these ordinary shares are set out in the underlying agreement between ASML and the relevant customer.

There are currently no limitations, either under Dutch law or in ASML's Articles of Association, on the transfer of ordinary shares in the share capital of ASML. Pursuant to ASML's Articles of Association, the Supervisory Board's approval shall be required for every transfer of cumulative preference shares.

Issue and repurchase of (rights to) shares

Our Board of Management has the power to issue ordinary shares and cumulative preference shares insofar as it has been authorized to do so by the General Meeting. The Board of Management requires approval of the Supervisory Board for such an issue. The authorization by the General Meeting can only be granted for a certain period not exceeding five years and may be extended for no longer than five years on each occasion. If the General Meeting has not authorized the Board of Management to issue shares, the General Meeting will be authorized to issue shares on the Board of Management's proposal, provided that the Supervisory Board has approved such 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.

2020 authorization to issue shares

At our 2020 AGM, the Board of Management was authorized from April 22, 2020 through October 22, 2021, 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 22, 2020, plus an additional 5% of our issued share capital at April 22, 2020 that may be issued in connection with mergers, acquisitions and / or (strategic) alliances. Our shareholders also authorized the Board of Management through October 22, 2021, 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 10% of our issued share capital.

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.

2020 authorization to repurchase shares

At the 2020 AGM, the Board of Management was authorized, subject to Supervisory Board approval, to repurchase through October 22, 2021, up to a maximum of two times 10% of our issued share capital at April 22, 2020, 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.

For details on our share buyback program, see 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 of the following members: Mr A.P.M. van der Poel, Mr S. Perrick, Mr A.H. Lundqvist and Mr. J. Streppel.

Other than the arrangements made with the Foundation as described above, ASML has not established any other anti-takeover devices.

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, 2020. The information set out below with respect to shareholders is based on public filings with the SEC and AFM as of January 31, 2021.

	Shares	% of Class ⁶
Capital Research and Management Company ¹	63,658,826	15.28%
BlackRock Inc. ²	32,024,422	7.69%
Baillie Gifford & Co ³	18,262,995	4.38%
Members of ASML's current Board of Management (6 persons) ^{4,5}	102,260	0.02%

- As reported to the AFM on February 28, 2020, Capital Research & Management Company ("CRMC") reports 572,929,434 voting rights, corresponding to 63,658,826 ordinary shares (based on 9 votes per share), but do not report ownership rights related to those shares. Capital World Investors reported on a Schedule 13-G/A filed with the SEC on February 14, 2020, that it is the beneficial owner of 34,865,768 shares of our ordinary shares as a result of its affiliation with CRMC. Capital International Investors, which consists of Capital International Investors divisions of CRMC and Capital Bank and Trust Company, as well as the following CRMC subsidiaries: Capital International Limited, Capital International Sarl, Capital International K.K. and Capital International, Inc, reported on a Schedule 13-G/A filed with the SEC on February 14, 2020 that it is the beneficial owner of 21,988,261 of our ordinary shares. We believe that some or all of these shares are included within the shares reported to be owned by Capital Research and Management Company, as set forth above.
- Based solely on the Schedule 13-G/A filed by BlackRock Inc. with the SEC on January 29, 2021; BlackRock reports voting power with respect to 28,755,630 of these shares. A public filing with the AFM on November 9, 2020 shows an aggregate indirect capital interest of 5.68% and voting rights of 6.92%, based on the total number of issued shares and voting rights at that time.
- A public filing with the AFM on October 1, 2019 shows Baillie Gifford & Co have 147,694,140 voting rights, corresponding to 18,262,995 shares (based on 9 votes per share), but no ownership rights related to those shares.
- Does not include unvested shares granted to members of the Board of Management. For further information see Leadership and governance - Remuneration report.
- No shares are owned by members of the Supervisory Board.
- As a percentage of the total number of ordinary shares issued and outstanding (416,514,034) as of December 31, 2020, which excludes 2,983,454 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.

Financial Reporting and Audit

ASML publishes, among others, the following annual reports regarding the financial year 2020:

- 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;
- 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.

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;
- Information about the quality, and variability, of our earnings and cash flow.

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. See also How we manage risk - Business risk and continuity where ASML's internal risk management and control systems are discussed.

The Supervisory Board has reviewed and approved, and all Supervisory Board members signed, ASML's 2020 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 2019 AGM, KPMG was appointed as the external auditor for the reporting year 2020.

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 preapproved 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 and US rules require strict separation of audit and advisory services for Dutch public-interest entities. 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 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. For more information on principal accountant fees and services see 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 also attends the Supervisory Board meeting in which the annual external audit report is discussed. The external auditor may also attend Supervisory Board meetings in which the quarterly financial results are discussed.

The Audit Committee is informed by the external auditor without delay in case the external auditor would discover 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 to 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.

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. Our major operating subsidiaries, each of which is ultimately wholly owned by ASML Holding N.V., are ASML Netherlands B.V., ASML Hong Kong Ltd. and ASML US LLC. See 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'), 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 and except to the extent that such exemptions would be contrary to US federal securities laws. Our corporate governance practices are primarily based on Dutch requirements. The table below sets forth the 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 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 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, 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 Dutch Corporate Governance Code.

The Board of Management and the Supervisory Board,

Veldhoven, February 10, 2021

Message from the Chair of our Supervisory Board



Gerard Kleisterlee, Chair of the Supervisory Board

Dear Stakeholder,

The year 2020 was extremely turbulent due to the global COVID-19 pandemic, yet ASML managed to move through this period in a remarkably successful way. The Supervisory Board wishes to commend all ASML employees who supported each other in these difficult times, and who remained committed to serving customers around the world in the face of the most stringent peacetime travel and contact restrictions. The Supervisory Board members, too, experienced some of the challenges faced by ASML employees. As with the hundreds of colleagues who joined the company during the pandemic, and had to be onboarded virtually, the Supervisory Board welcomed two new board members we have yet to meet in a physical setting.

ASML was well prepared when the crisis hit the global stage early in 2020. It very quickly implemented a wide range of measures to keep its people safe and support its communities with protective equipment and communication tools. We fully support ASML's unwavering commitment to prioritize employee health and safety.

With employees safe and secure in the work place and at home, ASML's next priority was to support our customers with their production plans despite the severe restrictions. ASML employees worked miracles and overcame obstacles every day, from solving supply chain bottlenecks, to the introduction of augmented reality glasses that enabled mid-level engineers to provide specialized support in customer fabs. The ingenuity and flexibility of ASML employees and our partners in the supply chain impressed us all.

Additionally, it was also priority to continue ASML's ambitious technology development program. When looking at the roadmap, the Supervisory Board was pleased to see progress in improving maturity of the EUV scanner platform and the advances in the development of the next-generation EUV platform: the High-NA systems that will first ship a few years from now. Keeping control of

affordability and quality of lithography systems was a specific focus area for the Supervisory Board, due to the increasing technological complexity of the most advanced systems. Combined with increasing focus on re-use and the circular economy, we see improved performance on long-term value creation, which serves not only customers, but all ASML's stakeholders.

As a Supervisory Board we are convinced that ASML's focus on people and leadership development is critical to its success as a fast growing organization. Therefore a lot of attention was given to the new Leadership Framework, which provides the instruments to help leaders grow their skills and competences, and prepare for increasing responsibilities.

Lastly, as if 2020 had not brought enough challenges, the year also emerged as one with deteriorating geopolitical relationships. The semiconductor industry is one of the battlefields in a trade conflict between the world's superpowers. ASML's position has always been clear: that while the company always operates within applicable rules and regulations, the world's electronics ecosystem is best served with a global and open market, where all players can collaborate and compete on equal terms.

Such a global, open, high-tech industry delivers the fastest innovation with the available resources in the ecosystem. The significant R&D intensity of the semiconductor industry is a clear incentive to avoid fragmentation. Unilateral trade restrictions that were introduced in 2020 however may eventually lead to such fragmentation with all its negative consequences.

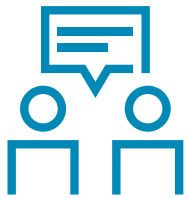
Despite some global geopolitical uncertainty and ongoing efforts to overcome the COVID-19 crisis, the Supervisory Board is nevertheless optimistic about ASML's future and we believe strongly that ASML has the right vision which is to enable groundbreaking technology to solve some of humanity's toughest challenges and the right strategy to support the global electronics ecosystem, delivering positive outcomes for all its stakeholders.

Gerard Kleisterlee
Chair of the Supervisory Board

Supervisory Board Report

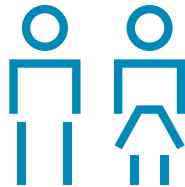


The Supervisory Board supervises and advises the Board of Management in performing its management tasks and setting the direction for ASML, focusing on long-term and sustainable value creation. The members of the Supervisory Board are fully independent.



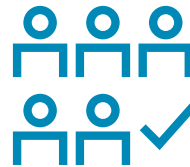
9

Supervisory Board meetings



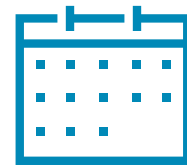
33%

Female members



97.8%

Attendance rate



4.8

Years average tenure

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 to ensure that the Board of Management pursues a strategy that secures its leading position as a supplier of holistic lithography solutions to the semiconductor industry. We uphold an appropriate system of checks and balances, provide oversight, evaluate performance and give 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 2020.

Our activities in 2020

The agenda of the Supervisory Board is driven by the Strategic Priorities for ASML as agreed in the Annual Strategy Review between the Supervisory Board and the Board of Management and by our Annual Financial Calendar. Recurring agenda items are developments in the semiconductor market and the customer domain, financial and operational performance and ASML's share price development and investor perceptions. During 2020, the (potential) impact of COVID-19 was also a recurring topic of discussion.

Strategy review

During 2020, the Supervisory Board devoted a considerable amount of time discussing strategic topics. We performed the recurring annual review of ASML's overall corporate strategy, the long-term financial plan and the long-term plans of the EUV, DUV and Applications business lines. Special attention was paid to the introduction of 'strengthen customer trust' as a new, overarching element of the corporate strategy, which we, as a Supervisory Board, fully support. As part of the annual strategy review we held dedicated break-out sessions to discuss, from various perspectives, the strategic challenges related to the current geopolitical situation.

External speakers were invited to provide their views on this topic, allowing the Supervisory Board to take into account various perspectives on this topic.

Besides the annual strategy review, strategic topics were addressed throughout the year by means of deep dives, allowing focused, in-depth review by the Supervisory Board. Topics covered in deep dive sessions during 2020 include the Mature Products & Services strategy, the Installed Base & Services strategy and the Data Policy.

The Supervisory Board also performed an in-depth review of the High-NA program, looking at market and customer-related aspects as well as the technological and operational dimension of the program and the risks associated with it. An external speaker was invited to provide an outside-in view on High-NA, focusing on the role of High-NA in driving Moore's Law and allowing the development of ever-more powerful chips for new applications and devices by our customers at reduced cost. The Supervisory Board particularly focused on aspects such as affordability and quality of the tools in view of increasing complexity.

Financial review

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.

Given ASML's rapid growth, the Supervisory Board suggested reviewing the process with the Board of Management to discuss and agree on the annual plan, the long-term financial plan as well as large R&D and CAPEX plans, for which an additional Supervisory Board meeting was convened.

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 2020 interim dividend and discussed the 2020 final dividend proposal, which will be submitted to the General Meeting in April 2021. Furthermore, the Supervisory Board approved the 2020-2022 share buyback program and discussed the execution of the program with the Board of Management on a quarterly basis. Lastly, the issuance of two Eurobonds was approved by the Supervisory Board.

Risk management

As risk management is a key element of the Supervisory Board's responsibilities, we received periodic risk-management updates during the year. Attention was paid to 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. Special attention was paid to the impact of the COVID-19 pandemic on ASML's risk landscape and the risk responses defined by management. Bi-annually, specific risk areas were reviewed in deep dive sessions. Topics covered in 2020 include IT continuity, IT security, and political risks in light of the global trade situation. For further information on ASML's risk management, see the section 'How we manage risk'.

People and organization

Given the significant growth of ASML in recent years, people and organization continued to be an area of focus for the Supervisory Board in 2020. On several occasions, we were provided with updates in this area. We spent time discussing the culture and values initiative, which was set-up in 2019 and implemented in 2020, with the aim to support the execution of ASML's strategy aimed at long-term value creation for all stakeholders. We also reviewed the ASML leadership framework and discussed the results of the annual employee engagement survey. 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 program as well as succession planning for the Board of Management and senior management.

IT and Our New Enterprise (ONE)

As the pace of business and technology transformation continue to accelerate, the importance of the IT strategy within ASML increases. This led the Supervisory Board to perform a review of ASML's IT strategy, focusing on both the IT foundational services strategy and the initiatives aimed at improving the business with IT.

On two occasions during 2020, the Board of Management updated us on the status of the ONE program. ONE is ASML's transformation program dedicated to secure 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 expected benefits and risks of the program, and discussed with management the challenges related to it, such as change management and business process transformation.

Other topics

We discussed the acquisition of Berliner Glas, through which ASML acquired technical capabilities that are important to support the future roadmap for our EUV and DUV products, providing increased value to ASML's

customers. We performed a post-acquisition review of HMI, which ASML acquired in 2016. Though, due to changed market circumstances, the acquisition business plan had not been fully realized, the conclusion was that value creation still could be achieved, as HMI, together with other parts of ASML, will contribute to the building of a comprehensive product roadmap for metrology and inspection.

We also paid attention to the sustainability strategy, not only because sustainability is also a long-term qualitative target for the Board of Management, but also because it is now also covered in the corporate strategy as part of the 'strengthen customer trust' element. We are pleased with the increasing focus on re-use and circular economy, which contributes to ASML's performance on long-term value creation, thereby serving customers as well as other stakeholders.

The Supervisory Board also monitored compliance with rules and regulations including the Dutch Corporate Governance Code and reviewed the legal matters overview.

As a Supervisory Board, we also extensively discussed our own composition, profile and functioning, the composition and functioning of its committees as well as the composition and functioning of the Board of Management. 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 and Nomination Committee and the Remuneration Committee.

There was one site visit in 2020: we visited the Development and Engineering (D&E) sector at ASML's headquarters, and were updated on how this sector is organized and what the key priorities are. There was a particular focus on the Product Generation Process and the D&E operating model, which was amended to serve the changing needs of ASML's customers and its business lines.

COVID-19

As a Supervisory Board we closely monitored the development of the COVID-19 pandemic and the potential impact on our people, business and operations. Management kept us informed during the scheduled meetings, but we also received separate updates, informing us about the main developments in our company, markets and supply chain. We support management's approach, choosing the health and safety of our people and their families and business continuity as priorities, and we are pleased to see that the values of Challenge, Collaborate and Care served as a strong basis dealing with the challenges of this pandemic. Looking back at 2020, while we realize that COVID-19 is not behind us, we can say management has delivered on its priorities.

Meetings with the Works Council

A Supervisory Board delegation held two formal meetings with the Works Council in 2020. We exchanged views on ASML's strategy and priorities, including the continued implementation of the EUV roadmap, the initiatives on

quality and cost reduction, the supply chain, management development and succession and the ONE program. The culture and values initiative was also discussed, in particular how the Supervisory Board was involved and what the Board sees as the main challenges for implementation. Another topic of discussion was the COVID-19 pandemic, its impact on ASML in various areas, and the challenges of working from home, while at the same time maintaining the innovative nature of ASML. The composition of the Supervisory Board and the Board of Management was discussed, especially the increase of the number of Supervisory Board members to nine and the proposals for (re)appointment of Supervisory Board members. The Works Council and Supervisory Board also discussed the Remuneration Policies for Board of Management and Supervisory Board prior to submission to the General Meeting.

Topics overview 2020

Topics discussed at the Supervisory Board meetings are a combination of recurring topics and other topics that are relevant during the year. Our recurring agenda topics are:

- Business performance
- Financial performance and financing
- Review of quarterly financial results, observations external auditor and press release
- Market situation
- Customer developments
- Investor perceptions and share price development
- Management development
- Committee reports
- Supervisory Board-only meeting

Other topics discussed during Supervisory Board meetings of 2020 included:

<p>Q1</p> <ul style="list-style-type: none"> • 2019 Annual Results and Annual Report • 2019 external audit report • Capital return: final dividend 2019 and share buyback program • Remuneration Board of Management and Supervisory Board • Risk Management • IT continuity • HR&O update: culture & values initiative • Legal update • M&A update • HMI post-acquisition review • Corporate Governance • Composition Supervisory Board • AGM agenda 	<p>Q2</p> <ul style="list-style-type: none"> • Business Line Mature Products & Services • HR&O update • Risk Management update • Global trade situation and strategic implications • IT strategy • IT security • ONE Program • AGM update
<p>Q3</p> <ul style="list-style-type: none"> • 2020 statutory interim report • M&A update • Strategy review, incl. • Semiconductor industry outlook & ASML vision • Long term strategy & technology roadmap • Global trade situation and strategic implications 	<p>Q4</p> <ul style="list-style-type: none"> • Installed Base and Services strategy • Data Policy • High-NA review • Long-term financial plan • Financing policy • Annual plan 2021 • HR&O update: leadership framework • ONE Program • Board of Management and Supervisory Board composition and evaluation

Meetings and attendance

The Supervisory Board meets at least four times per year in accordance with an annual meeting schedule and whenever the Chairman, one or more of its members, or the Board of Management requests a meeting.

In 2020, the Supervisory Board held nine meetings. Of these meetings, one was held at the company's headquarters in Veldhoven, one was held via telephone conference and seven meetings were held virtually. In addition to these meetings, there were several informal meetings and telephone calls among Supervisory Board and/or Board of Management members.

The Supervisory Board meetings and the 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.

Virtual meetings

The majority of the Supervisory Board and Supervisory Board committees meetings in 2020 were held virtually due to the COVID-19 pandemic. To address the challenges resulting from meeting virtually, various measures were taken: we planned shorter meeting sessions spread over more days; we held break-out sessions in smaller groups to optimize interaction, and we also made use of video as a means for meeting preparation, in addition to providing written meeting documents. The Supervisory Board is very positive about these virtual meetings and intends to continue to use several of these measures going forward, including when in-person meetings are possible again.

The Supervisory Board meetings and the meetings of the four Supervisory Board committees were well attended, as is shown in the table below.

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 for the Supervisory Board meetings in 2020. 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.

Supervisory Board meeting attendance overview

Name	Supervisory Board	Audit Committee	Remuneration Committee	Selection and Nomination Committee	Technology Committee
Gerard Kleisterlee (Chair)	8/9	8/9	n/a	6/6	5/5
Annet Aris	9/9	n/a	n/a	6/6	5/5
Douglas Grose	9/9	n/a	n/a	6/6	5/5
Terri Kelly	9/9	n/a	5/5	n/a	n/a
Rolf-Dieter Schwalb	9/9	9/9	5/5	n/a	n/a
Carla Smits-Nusteling	9/9	9/9	n/a	n/a	n/a
Hans Stork	9/9	n/a	5/5	n/a	5/5
Mark Durcan ¹	6/6	n/a	n/a	n/a	3/3
Warren East ²	5/6	5/6	n/a	n/a	n/a
Wolfgang Ziebart ³	4/4	4/4	n/a	n/a	3/3

1. Appointed at the AGM on April 22, 2020 also appointed as a member of the Technology Committee at the same date.

2. Appointed at the AGM on April 22, 2020 also appointed as a member of the Audit Committee at the same date.

3. Stepped down per the AGM on April 22, 2020.



Composition

The Supervisory Board determines the number of Supervisory Board 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.

Supervisory Board skills matrix

	Gerard Kleisterlee (Chair)	Annet Aris	Douglas Grose	Terri Kelly	Rolf-Dieter Schwalb	Carla Smits-Nusteling	Hans Stork	Mark Durcan	Warren East
General skills									
Executive board member of (listed) international company	•		•	•	•	•	•	•	•
Finance / governance	•	•			•	•		•	•
Remuneration	•	•		•	•	•	•	•	•
Human resources / employee relations	•	•	•	•	•	•	•	•	•
IT / digital / cyber	•	•			•	•	•		•
ASML-specific skills									
Semiconductor ecosystem	•	•	•				•	•	•
Deep understanding of semiconductor technology	•	•	•				•	•	
High-tech manufacturing / integrated supply chain management	•	•	•	•			•	•	
Business in Asia	•		•	•	•		•	•	•

Changes in composition in 2020

Per the 2020 AGM, the term of appointment of Annet Aris and Wolfgang Ziebart expired. Mr. Ziebart stepped down from the Supervisory Board per the 2020 AGM, after 11 years of service. Ms. Aris made herself available for reappointment. In addition to nominating persons for filling the vacancies arising due to the retirement by rotation of Ms. Aris and Mr. Ziebart, the Supervisory Board decided to nominate another candidate for appointment to the Supervisory Board, thereby increasing the number of members to nine. The Supervisory Board wanted to use the opportunity to add an additional member with a background and experience in semiconductor technology, and the semiconductor industry in 2020, anticipating the upcoming retirement of Mr. Grose in 2021. The Board's rotation schedule was also taken into account in nominating an additional member. The Works Council of ASML Netherlands B.V. decided not to use its enhanced recommendation right in respect of this appointment, because of the temporary nature of the increase in the number of Supervisory Board members. At the 2020 AGM, Mark Durcan and Warren East were appointed for a term of four years. Ms. Aris was reappointed for a term of four years; her reappointment was also based on the Works Council's enhanced recommendation right.

Changes in composition in 2021

Per the 2021 AGM, the appointment terms of Carla Smits-Nusteling and Douglas Grose will expire. Both Supervisory Board members have informed the Supervisory Board that they are not available for reappointment and will retire per the 2021 AGM, upon completion of their current term. The Supervisory Board extends its thanks to both Ms. Smits-Nusteling and Mr. Grose for their valuable contribution over the past eight years, during which the Supervisory Board has greatly benefited from their knowledge and experience.

As announced on January 20, 2021, the Supervisory Board intends to nominate Ms. Birgit Conix for appointment as member of the Supervisory Board effective from the 2021 AGM. In preparation for her appointment, Ms. Conix attended a number of Supervisory Board meetings as an observer in order to ensure a smooth onboarding. The agenda and explanatory notes for the 2021 AGM will contain further information about this intended nomination for appointment.

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 Leadership and governance - Corporate governance - Supervisory Board as well as the Supervisory Board skills matrix.

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, Mark Durcan and Warren East followed an induction program, which was held fully virtually.

The Supervisory Board is provided with regular updates on a variety of topics, both in the plenary meetings and in the meetings of the committees. During 2020, we also invited external speakers on a number of occasions in order to obtain outside-in views on topics such as geopolitics and the value of new technologies such as High-NA for the semiconductor industry.

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-on-one meetings between the Chair and individual Supervisory Board members.

The 2020 evaluation of the Supervisory Board and its committees was performed through a web-based survey, which was prepared by the Selection and Nomination Committee. The chair of the committee also held meetings 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. In addition, the evaluation included a case study of how effectively the Supervisory Board oversaw the Board of Management in addressing the challenges of the COVID-19 pandemic. 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 2021. The conclusion was that the Supervisory Board and its committees continue to function well. Suggestions to further improve the functioning of the Supervisory Board include optimizing the meeting agenda to ensure an appropriate balance between recurring items and strategic topics, as well as the balance between presentation and discussion during meetings, and increasing the engagement with management and the organization, also outside meetings. Important focus area identified was the successful onboarding and integration of new members, also in light of the challenges related to the COVID-19 pandemic.

The Board of Management also conducted a self-evaluation in 2020, 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 separate sessions dedicated to this topic. The self-evaluation was facilitated by the EVP HR&O, who held interviews with the individual Board of Management members in preparation for the discussion. Themes addressed include the Board of Management's strategic focus, stakeholder involvement, people & organization, board dynamics and board organization. After the discussion, a summary was prepared per theme with items to be followed up on. Follow-up will take place in several special Board of Management sessions planned throughout 2021. 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, whose members are 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.



3 members

Assisting in overseeing the integrity and quality of our financial reporting and the effectiveness of risk management and controls

3 members

Overseeing the development and implementation of the Remuneration Policies, in cooperation with the Audit Committee and Technology Committee

5 members

Providing advice with respect to our technology plans required to execute the business strategy

3 members

Assisting with the preparation of the selection criteria and appointment procedures for the Supervisory Board and Board of Management

The four committees of the Supervisory Board prepare the decision-making of the full Board. In the plenary Supervisory Board meetings, the chairs of the committees report on the items discussed in the 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.

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

- Carla Smits-Nusteling (Chair)
- Rolf-Dieter Schwalb
- Warren East

The members of the Audit Committee are all independent members of the Supervisory Board.

The Supervisory Board has determined that both Ms. Smits-Nusteling and Mr. Schwalb qualify as an Audit Committee financial expert pursuant to Section 407 of the Sarbanes-Oxley Act and Dutch statutory rules, taking into consideration their extensive financial backgrounds and experience.

Main responsibilities

- Integrity and quality of ASML's financial statements and related non-financial disclosure and submitting proposals to ensure such integrity;
- Accounting and financial reporting processes and the audits of the financial statements;
- Effectiveness of our internal risk management and control systems, including the compliance with the relevant legislation and regulations, and the effect of codes of conduct;
- Integrity and effectiveness of our system of disclosure controls and procedures and our system of internal controls over financial reporting;
- External Auditor's qualifications, independence, performance and determining its compensation; and
- Functioning of Internal Audit.

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 be able to judge 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 2020

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 2020, the Audit Committee held nine meetings.

Recurring agenda topics (quarterly)	Attendance
<ul style="list-style-type: none"> • Financial update and financing • Review of the quarterly financial results and press release • Accounting update • Internal control update • Observations External Auditor • Risk and Internal Audit update • Disclosure Committee report • Legal matters report • Ethics and compliance 	<p>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 2020. The CEO, CFO, EVP Finance, Corporate Chief Accountant and the VP Risk and Business Assurance are invited to the meetings.</p>

The below overview provides a number of topics discussed during Audit Committee meetings in 2020, in addition to the recurring agenda topics.

<p>Q1</p> <ul style="list-style-type: none"> • 2019 Annual Report and financial statements US GAAP and IFRS-EU • Balance sheet review • 2019 External audit report • Capital return: final dividend 2019 and share buyback program • Fraud-risk assessment • Results of the External Auditor evaluation 2019 • Results Self-Evaluation Audit Committee • Annual plans Risk and Internal Audit • COVID-19 update, with focus on cost control and cash preservation, and impact on financial results 	<p>Q2</p> <ul style="list-style-type: none"> • COVID-19 update, with focus on cost control and cash preservation • Approval external audit plan 2020 • Internal management letter follow-up • Deep-dive: Process Improvement projects for revenue recognition (I/II) • Compliance deep-dive • Legal entity structure simplification • Tax update
<p>Q3</p> <ul style="list-style-type: none"> • Deep-dive: Process Improvement projects for revenue recognition (II/II) • Review internal control framework • Finance and IT transformation program 	<p>Q4</p> <ul style="list-style-type: none"> • Long-term financial plan • Annual Plan 2021 • Financing Policy • Deep-dive: revenue recognition accounting focus areas • Compliance deep-dive • External audit update • Review rules of procedure Audit Committee • Rotation Lead Audit Partner • Process for the External Auditor evaluation

Financials

In 2020 the Audit Committee focused, among other things, on financial reporting, most particularly the review of ASML's 2020 Integrated and Interim Reports, including the annual and interim financial statements and non-financial information. We 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. The Audit Committee also reviewed the press release issued on March 27, 2020 in which ASML updated the market on the expected Q1 2020 results, primarily related to the COVID-19 impact.

On a quarterly basis, the Audit Committee was provided accounting updates by the Corporate Chief Accountant, highlighting the main accounting matters relevant for the quarter. Other important elements of the Audit Committee's quarterly procedures were 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 deep dive sessions. Several sessions were dedicated to revenue recognition, which has been identified as a critical audit matter. These sessions focused on aspects such as focus areas and process improvement projects in respect of revenue recognition. An annual in-depth balance sheet review was also performed.

The operational and financial short- and long-term performance of ASML was also discussed extensively, with a focus on various performance scenarios and their impact on ASML's results, cash generation, and financing and capital return policies. A special meeting was organized to discuss the potential impact of the COVID-19 pandemic on ASML's business, results and cash situation.

An area of attention for the Audit Committee in 2020 was liquidity and free cash flow, due to the ongoing ramp-up of EUV, and ASML's continued investment into the future, which led to growth of net working capital and increased R&D and capital expenditure spend.

The Audit Committee reviewed and provided the Supervisory Board with advice regarding the long-term financial plan, the financing of ASML and ASML's capital return policy. Specifically discussed were the dividend policy and the proposed final dividend payment in respect of the 2019 and 2020 financial years and the interim dividend for the 2020. The 2020-2022 share buyback program was discussed on a quarterly basis, focusing on the desirability of issuing quarterly mandates in view of the cash position and free cash flow of ASML, also taking into account the potential impact of COVID-19. We also discussed the issuance of two bond offerings during 2020 and provided the Supervisory Board with our recommendations in this area.

Risk management and internal control

Throughout 2020, 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. Focus was 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. In 2020, an in-depth review was performed of ASML's internal control framework, with focus on the level of automation of controls.

Compliance and ethics

During 2020 we discussed ASML's compliance program and performed detailed reviews of specific compliance topics such as treasury compliance and customs compliance. An annual fraud update was provided and quarterly reports were given on the Ethics program, including whistleblower reporting. The Audit Committee was also involved in the update of our Code of Conduct and business principles, which was implemented in November 2020.

Internal audit

The Audit Committee reviewed the annual internal audit plan, including the scope of the audit. 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 2020 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 2020 financial year contained no significant items that need to be mentioned in this report.

The Audit Committee also evaluated the performance of the external auditor at the end of 2020, including a review of their independence. The results of the evaluation have led the Audit Committee to recommend to the Supervisory Board to submit to the 2021 AGM a proposal to appoint KPMG as the External Auditor for the reporting year 2022.

After completion of the 2020 audit, the current lead audit partner will rotate off the ASML assignment. The Audit Committee and the CFO have been involved in the succession process of the new lead audit partner by interviewing candidates and selecting the new lead partner, as well as taking notice of the transition plan. As part of the transition plan, the new lead audit partner joined the Audit Committee meetings as an observer as of November 2020 to facilitate a smooth transition.

Other topics

Other topics discussed by the Audit Committee in 2020 were ASML's tax policy and planning, the Finance and IT transformation program, the project to simplify ASML's legal entity structure and the quarterly legal matters overviews.

The Audit Committee also performed an annual review and update of its Rules of Procedure.

After most of the Audit Committee meetings, the internal and external auditor each have a session 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.

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	Main responsibilities
<ul style="list-style-type: none"> • Rolf-Dieter Schwalb (Chair); • Terri Kelly; • Hans Stork <p>Each member is an independent, non-executive member of our Supervisory Board in accordance with the NASDAQ Listing Rules. Mr. Schwalb 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.</p>	<ul style="list-style-type: none"> • 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; • 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.

Remuneration Committee meetings in 2020

The Remuneration Committee meets at least two times a year and more frequently when deemed necessary. In 2020, the Remuneration Committee held five meetings.

Recurring agenda topics	Attendance
<ul style="list-style-type: none"> • Remuneration of the Board of Management • Remuneration of the Supervisory Board • Update on performance on STI and LTI targets 	<p>In addition to the Remuneration Committee members, the Remuneration Committee generally invites the CEO, the EVP HR&O, the Head of Compensation and Benefits and in some instances also the CFO to attend (parts of) its meetings. The Remuneration Committee's external advisor is also invited to attend the Remuneration Committee meetings when deemed necessary.</p>

The below overview provides details on the topics discussed during Remuneration Committee meetings in 2020.

<p>Q1</p> <ul style="list-style-type: none"> • Base salary Board of Management 2020 • Short-term Incentive Plan: performance 2019, pay-out 2019 and targets 2020 • Long-term Incentive Plan: share vesting performance period 2017-2019, and conditional grant and targets performance period 2020-2022 • Remuneration Policies Board of Management and Supervisory Board • Remuneration Report 2019 • Self-Evaluation Remuneration Committee 	<p>Q2</p> <ul style="list-style-type: none"> • Review reference group remuneration Board of Management and benchmark approach • Benchmark approach Supervisory Board remuneration
<p>Q3</p> <ul style="list-style-type: none"> • Results benchmark Board of Management remuneration • Results benchmark Supervisory Board remuneration • Review investor and shareholder interest organizations' feedback on Remuneration Report 2019 	<p>Q4</p> <ul style="list-style-type: none"> • Potential adjustments to Board of Management Remuneration Policy • Potential adjustments to Supervisory Board Remuneration Policy • Compliance Board of Management members with share ownership guideline • Budget for ASML Equity Plans • Engagement of external auditor for agreed upon procedures on remuneration

Remuneration Board of Management

In Q1 2020, the Remuneration Committee finalized the adjustments to be made to the Remuneration Policy for the Board of Management in light of the implementation of the revised EU Shareholder Rights Directive. The adjusted Remuneration Policy was submitted to and adopted by the General Meeting on April 22, 2020.

In line with ASML's practice of benchmarking Board of Management remuneration every two years, a benchmark was performed in 2020 in order to assess the level of competitiveness of the Board of Management's remuneration. The Remuneration Committee also reviewed the composition of the labor market reference group in connection with the benchmark. Based on the outcome of this review, the Supervisory Board intends to submit a proposal for implementing some adjustments to the Remuneration Policy for the Board of Management to the 2021 AGM. The proposed adjustments will be set out in the convocation documents for the 2021 AGM, which will be published in March 2021.

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 a short term incentive in cash and a long term incentive in shares. The Remuneration Committee proposed 2020 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 2020 targets and related compensation levels for the Board of Management members. Special attention was paid to the impact of the COVID-19 on ASML's performance and the potential consequences for Board of Management remuneration.

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.

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 Remuneration Committee reviewed the shareholding positions of the Board of Management members based upon the share ownership guideline of the Remuneration Policy.

The Remuneration Committee also reviewed the Remuneration Report, which details the remuneration of members of the Supervisory Board and the Board of Management. As the 2019 Remuneration Report was submitted to the 2020 AGM for an advisory vote, in line with the new legal requirements resulting from the revised EU Shareholder Rights Directive, the committee discussed the result of the vote on this item: 93.78% of the votes were cast in favor. The committee discussed the feedback received from investors and shareholder interest organizations on the Report. As a result of the discussion, some enhancements were made to the 2020 Remuneration Report, which is included in this Annual Report.

The Remuneration Committee engaged the external auditor to perform certain agreed-upon procedures with respect to the execution of the Remuneration Policy.

Remuneration Supervisory Board

In Q1 2020 the Remuneration Committee finalized the Remuneration Policy for the Supervisory Board in order to comply with the revised EU Shareholder Rights Directive. The policy was submitted to and adopted by the General Meeting on April 22, 2020.

The Remuneration Committee reviewed the reference group for Supervisory Board remuneration and performed a benchmark review in 2020. Based on this benchmark review, the Supervisory Board intends to submit a proposal for implementing some adjustments to the Remuneration Policy for the Supervisory Board to the 2021 AGM. The proposed adjustments will be set out in the convocation documents for the 2021 AGM, which will be published in March 2021.

For further details, see Leadership and governance - Remuneration report.

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 to the monitoring of corporate governance developments.

Members	Main responsibilities
<ul style="list-style-type: none"> • Gerard Kleisterlee (Chair) • Annet Aris • Doug Grose <p>Each member is an independent, non-executive member of our Supervisory Board in accordance with the NASDAQ Listing Rules.</p>	<ul style="list-style-type: none"> • the preparation of 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; • the periodical evaluation of the scope and composition of the Board of Management and the Supervisory Board, and proposing the profile of the Supervisory Board; • the periodical evaluation of the functioning of the Board of Management and the Supervisory Board, and their individual members. • the preparation of 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 • monitoring and discussing developments in corporate governance.

Selection and Nomination Committee meetings

The Selection and Nomination Committee meets at least two times a year and more frequently when deemed necessary. In 2020, the Selection and Nomination Committee held five meetings.

Recurring agenda topics	Attendance
<ul style="list-style-type: none"> • Role, composition, functioning Board of Management • Role, composition, functioning Supervisory Board • Corporate governance 	<p>Besides the Selection and Nomination Committee members, the two Presidents and the EVP HRO are regularly invited to attend (parts of) its meetings. An external advisors is also invited to attend the Selection and Nomination Committee meetings when deemed necessary.</p>

The below overview provides details on the topics discussed during Remuneration Committee meetings in 2020.

1st Half Year	2nd Half Year
<ul style="list-style-type: none"> • Future composition Board of Management, incl. diversity aspects, and succession pipeline • Changes in composition Supervisory Board per 2020 AGM and nominations for (re)appointment of Supervisory Board members • Composition of the Supervisory Board committees per 2020 AGM • Implementation revised Shareholder Rights Directive and impact on ASML 	<ul style="list-style-type: none"> • Future composition Board of Management, incl. diversity aspects, and succession pipeline • Composition Board of Management per 2021 AGM • Changes in composition Supervisory Board per 2021 AGM and nomination for appointment of a Supervisory Board member • Composition of the Supervisory Board committees per 2021 AGM • Evaluation of the Supervisory Board and committees • Consultation composition Board of Directors Preference Shares Foundation per January 1, 2021

Composition, role and responsibilities Board of Management

In 2020 the Selection and Nomination Committee spent ample time to discuss the future composition, role and responsibilities of the Board of Management, e.g. reviewing the talent bench, discussing 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, the Chair held meetings with each individual Board of Management member, the outcome of which was discussed with the Committee.

Frits van Hout will retire as member of ASML's Board of Management upon completion of his current appointment term, which will end per the 2021 AGM. Frits van Hout first served with ASML from 1984 to 1992, later rejoining the company in 2001. He was appointed to the Board of Management in 2009, first serving as Chief Marketing Officer and later as Chief Program Officer, where he successfully oversaw the development of the EUV business, bringing it to a level where EUV

was widely accepted as the next lithography platform for the semiconductor industry. In 2018, Frits van Hout became Chief Strategy Officer, focusing on strategy and strategic supplier relations, which has grown in significance given the rise of EUV and High-NA EUV as well as e-beam metrology and optical systems. The Supervisory Board wants to thank Frits for his significant contribution to ASML's growth and development.

ASML will not appoint a successor to Frits van Hout. As a result, the Board of Management will consist of five members effective per the 2021 AGM. Frits van Hout's current responsibilities will be taken over by the remaining Board of Management members, securing the uninterrupted execution of ASML's strategy to reach its stated targets for stakeholders.

Composition, role and responsibilities Supervisory Board

The Selection and Nomination Committee also extensively discussed the composition of the Supervisory Board. A significant amount of time was spent discussing the Supervisory Board's rotation schedule, particularly the appointment and reappointment of Supervisory Board members to fill vacancies both in the short and longer term. This resulted in recommendations from the Selection and Nomination Committee to nominate two new members for appointment and one current member for reappointment by the General Meeting in 2020. The Selection and Nomination Committee also discussed the changes to its composition effective per the 2021 AGM and made a recommendation to the Supervisory Board to nominate Birgit Conix as new Supervisory Board member. For further details, see Supervisory Board report - composition, independence and diversity.

At the end of 2020 and early 2021, 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. For further details on the self-evaluation, see Supervisory Board report - Evaluation.

Corporate Governance

As part of its responsibility to monitor corporate governance developments, the Selection and Nomination Committee discussed, among other things, the revised EU Shareholder Rights Directive as implemented into Dutch law in December 2019, and the impact on ASML, the legislative and other developments in relation to diversity and the focus items of investors and shareholder interest organizations.

Technology Committee

The Technology Committee advises the Supervisory Board with respect to our technology plans required to execute our business strategy.

Members	Main responsibilities
<ul style="list-style-type: none"> • Doug Grose (Chair) • Annet Aris • Mark Durcan • Gerard Kleisterlee • Hans Stork <p>The Technology Committee is supported by external experts and as experts from within ASML who act as advisers on the subjects reviewed and discussed by this committee. 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.</p>	<ul style="list-style-type: none"> • 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; • 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.

Technology Committee meetings in 2020

In general, the Technology Committee meets at least two times a year and more frequently when deemed necessary. In 2020, the Technology Committee held five meetings.

Recurring agenda items	Attendance
<ul style="list-style-type: none"> • Product Roadmap • Progress Technology Leadership Index 	Besides the Technology Committee members, the committee's external and internal advisors regularly attended committee meetings. The advisers do not have voting rights.

In addition to the recurring agenda items, the Technology Committee also reviewed and discussed other matters in 2020. Below table provides an overview of these topics.

Q1 <ul style="list-style-type: none"> • Performance evaluation and new targets related to Technology Leadership Index • Business Line review: EUV • Era beyond High-NA • Portfolio Research Department • Self-Evaluation Technology Committee 	Q2 <ul style="list-style-type: none"> • Business Line review: DUV • High-NA deep dive, incl. presentation from Zeiss
Q3 <ul style="list-style-type: none"> • Business Line review: Applications • Business Line review: DUV • Business Line review: EUV 	Q4 <ul style="list-style-type: none"> • No meetings

Review of technology programs

In 2020, the Technology Committee's primary focus was the execution and implementation of technology programs in EUV, DUV and Applications. The Technology Committee was informed on and discussed the key challenges and opportunities from a business and technology development perspective. Furthermore ASML's product roadmaps and the alignment thereof with customers' roadmaps were reviewed and discussed in depth. The Technology Committee provided the Supervisory Board with advice in this area. The Technology Committee was also provided with an overview of the current portfolio of ASML's Research department. It discussed the research activities that are being conducted in support of the current product roadmaps as well as activities for the era 'beyond High-NA'. On EUV, special attention was paid to further improving the operational performance of the EUV systems and execution of the roadmaps that have been defined. In Q2 the Technology Committee specifically focused on the developments and achievements in the field of High-NA. Special attention was paid to the accomplishments at Zeiss in the field of optics and interferometry. The Technology Committee also discussed the value proposition of High-NA. With respect to DUV the focus was primarily on operational excellence and improving competitiveness. In this respect the Technology Committee discussed the overall product roadmap as well as the developments in the installed base management. On Applications, the developments on e-beam metrology, computational lithography and patterning control were reviewed and discussed. In Q3 each Business Line provided a complete overview of its roadmap in preparation of the strategy meeting of the full Supervisory Board. The Technology Committee also discussed the technology targets and achievements related to our technology programs, and provided the Remuneration Committee and the Supervisory Board with advice on this matter.

The Technology Committee's in-depth technology discussions and the subsequent reporting on the main points of these discussions in 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 2020, 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 2020 financial statements. We also recommend that our shareholders adopt the Board of Management's proposal to make a final dividend payment of €1.55 per ordinary share, which together with the interim dividend of EUR 1.20 per ordinary share, leads to a total dividend of €2.75 per ordinary share in respect of the 2020 financial year.

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
Douglas Grose, Vice Chair
Annet Aris
Mark Durcan
Warren East
Terri Kelly
Rolf-Dieter Schwalb
Carla Smits-Nusteling
Hans Stork

Veldhoven, February 10, 2021

Remuneration report

This report describes how the Remuneration Policies of the Board of Management and the Supervisory Board were implemented in 2020.



€21.8m

Total remuneration of the Board of Management



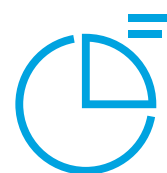
139.2%

Achieved of target



146.5%

Achieved of target



40

Internal pay ratio (CEO versus average per FTE)

Message from the Chair of the Remuneration Committee

Dear stakeholder,

On behalf of the Remuneration Committee I am pleased to present the Remuneration Report, providing a summary of the remuneration policies for the Board of Management and the Supervisory Board and an explanation about how they were implemented in 2020.

Summary of 2020 performance

We started 2020 with a positive view on the year for all the different markets. During the first quarter, the COVID-19 pandemic began to affect our business. We were not able to ship our systems to either Wuhan or California and we had to ship EUV systems without Factory Acceptance Test (FAT). This resulted in delays in revenue recognition.

On the full year we were able to execute our business activities with limited impact on our financials. Delayed revenue at the start of the year could be recognized in later quarters and with the use of remote control activities, including augmented reality, we were able to support our customers with the installs, upgrades and maintenance actions. We continued to return capital to our shareholders by means of growing dividends and execution of our share buyback program, which was paused in Q1 following the COVID-19 outbreak, but resumed in Q4, as part of our unchanged capital return policy.

Decisions made in 2020

In 2020, we finalized the review of the remuneration policies for the Board of Management and Supervisory Board to ensure compliance with the revised EU Shareholders Rights Directive, following its implementation in Dutch law on December 1, 2019. We submitted adjusted remuneration policies to the AGM in 2020. These adjusted policies did not contain substantive changes to the remuneration structure or elements; main changes related to better explaining how the Remuneration Policies encourage behavior that is focused on the long-term interests and sustainability of ASML. In this process, the Supervisory Board and the Remuneration Committee, advised by an external remuneration expert, took into account the level of support in society and considered the external environment ASML operates in, the relevant statutory provisions and provisions of the Dutch Corporate Governance Code, competitive market practice as well as the guidance issued by organizations representing institutional shareholders and input from ASML's major shareholders. The Works Council issued a positive advice in respect of the Remuneration Policies for the Board of Management and the Supervisory Board. Both policies were adopted by the General Meeting on April 22, 2020.

During the year we also monitored to what extent COVID-19 impacted ASML's business and financial performance and we discussed the potential impact of the pandemic on remuneration. Given that ASML experienced only limited impact from the global economic consequences of COVID-19, we decided to not make (temporary) adjustments to the remuneration elements or policy in response to the COVID-19 pandemic.

Looking forward to 2021

During 2020, the Remuneration Committee reviewed the reference groups for Board of Management and Supervisory Board remuneration and performed the recurring bi-annual benchmark reviews. Based on the outcome of those reviews, we intend to submit proposals for implementing some adjustments to the Remuneration Policies for the Board of Management and the Supervisory Board to the 2021 AGM. The proposed adjustments will be set out in the convocation documents for the 2021 AGM, which will be published in March 2021.

Rolf Dieter Schwalb
Chair of the Remuneration Committee

Board of Management remuneration

In this section of the Remuneration Report we provide an overview of the Board of Management Remuneration Policy which was adopted by the General Meeting on April 22, 2020 and applied as of January 1, 2020. It also contains the details of the Board of Management members' actual remuneration for the financial year 2020. The Board of Management Remuneration Policy can be found in the governance section of our website.

Remuneration policy

Remuneration as a strategic instrument

The Board of Management Remuneration Policy supports the long-term development and strategy of ASML in a highly dynamic environment, while aiming to fulfill all stakeholders' requirements and maintaining an acceptable risk profile. More than ever, the challenge for us is 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 policy. The Supervisory Board ensures that the policy and its implementation are linked to ASML's objectives.

The Remuneration Policy is designed to enable ASML to attract, motivate and retain qualified industry professionals for the Board of Management in order to define and achieve our strategic goals. The policy acknowledges the internal and external context as well as our business needs and long-term strategy. The policy encourages 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. It is aimed at motivating for outstanding achievements, using a combination of non-financial and financial performance measures. Technology leadership and customer value creation 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 pay what is fair in the relevant labor market. 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.

The Board of Management Remuneration Policy is built on the following principles:

- **Transparent** – The policy and its execution are clear and practical;
- **Aligned** – The Remuneration Policy is aligned with the Short-term Incentive and/or Long-Term Incentive policy for ASML senior management and other ASML employees;
- **Long-term** – The incentives focus on long-term value creation;
- **Compliant** – ASML adopts the highest standards of good corporate governance; and
- **Simple** – The policy and its execution are as simple as possible and easily understandable to all stakeholders.

Reference group and market positioning

Similar to the remuneration philosophy for all ASML employees, we offer the Board of Management a remuneration package that is competitive compared to a relevant labor market. This market is defined by creating a reference group of companies comparable to ASML in terms of size and complexity, data transparency and geographical area. The median market level serves as reference point for determining the level of pay for the Board of Management for as long as ASML is positioned around the median of the reference group in terms of company size (measured by enterprise value, revenue and number of employees) and thus complexity.

In principle, a benchmark is conducted every two years. 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. Substantial changes applied to the composition of the reference group will be proposed to the shareholders. In the year without a market assessment, the Supervisory Board considers the appropriateness of any change of base salary in light of the market environment as well as the salary adjustments for other ASML employees.

Current reference group composition

AkzoNobel	Leonardo-Finmeccanica
Alstom	Linde
Continental	Nokia
Covestro	Philips
DSM	SAP
Essilor	Schindler
Evonik	Shire
Givaudan	Smith & Nephew
Infineon Technologies	Solvay
Legrand	Yara International

Total direct compensation

The remuneration levels are determined using the total direct compensation. Total direct compensation consists of a fixed base salary and variable remuneration in the form of a short-term incentive (STI) and a long-term incentive (LTI). Other remuneration elements are pension and expense reimbursements.

Variable compensation

The performance parameters are set by the Supervisory Board and consist of financial and qualitative measures in such a way that an optimal balance is achieved between the various corporate objectives, both in the short term and the long term. By doing so, it is ensured that the variable compensation contributes to the strategy, long-term interests and sustainability of ASML. The Supervisory Board may adjust the performance measures and their relative weighting of the variable income based on the rules and principles as outlined in the Remuneration Policy, if required by changed strategic priorities in any given year. The Supervisory Board may use its discretionary power to adjust the incentive pay-out upward or downward ('ultimum remedium').

The following table represents the variable pay as percentage of base salary for the Presidents and the other Board of Management members in the case of on-target performance.

2020 variable compensation (on-target)	Presidents	Other board members
Short-term incentive	80%	80%
Long-term incentive	110%	100%
Total variable compensation as % of base salary	190%	180%

Summary of Remuneration Policy Board of Management

The elements of the Remuneration Policy for the Board of Management and their link to the strategy of ASML are summarized as:

Base salary	<p>Description and link to company strategy: Fixed cash compensation</p> <p>Attract, motivate and retain qualified industry professionals for the Board of Management in order to define and achieve strategic goals</p> <hr/> <p>Policy summary:</p> <ul style="list-style-type: none"> • Derived from total direct compensation • Determined by the Supervisory Board 																		
Short-term incentive (STI)	<p>Description and link to company strategy: Short-term performance-related cash incentive</p> <p>Ensure a balanced focus on both the (financial) performance of ASML in the short term, as well on the sustained company future in terms of technological advancement and customer satisfaction, fueling long-term success</p> <hr/> <p>Policy summary:</p> <ul style="list-style-type: none"> • On-target level: 80% of base salary • Performance measures (in principle set and evaluated annually) <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 80%;"></th> <th style="text-align: right;">Weight</th> </tr> </thead> <tbody> <tr> <td>• Qualitative: Technology Leadership Index</td> <td style="text-align: right;">20%</td> </tr> <tr> <td>• Qualitative: Market Position</td> <td style="text-align: right;">20%</td> </tr> <tr> <td>• Financial measures, equally weighted, in principle selected from a pre-defined list: https://www.asml.com/rempolicy-bom</td> <td style="text-align: right;">60%</td> </tr> </tbody> </table> • Pay-out levels <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 80%;"></th> <th style="text-align: right;">% of target</th> </tr> </thead> <tbody> <tr> <td>• Maximum</td> <td style="text-align: right;">150%</td> </tr> <tr> <td>• Target</td> <td style="text-align: right;">100%</td> </tr> <tr> <td>• Threshold</td> <td style="text-align: right;">50%</td> </tr> <tr> <td>• Below threshold</td> <td style="text-align: right;">0%</td> </tr> </tbody> </table> <p style="margin-left: 20px;">Linear pay-out between threshold and target, and between target and maximum</p> • Aligned with STI applicable to ASML employees (except employees in Netherlands subject to CLA with own profit sharing plan) 		Weight	• Qualitative: Technology Leadership Index	20%	• Qualitative: Market Position	20%	• Financial measures, equally weighted, in principle selected from a pre-defined list: https://www.asml.com/rempolicy-bom	60%		% of target	• Maximum	150%	• Target	100%	• Threshold	50%	• Below threshold	0%
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	% of target																		
• Maximum	150%																		
• Target	100%																		
• Threshold	50%																		
• Below threshold	0%																		
Long-term incentive (LTI)	<p>Description and link to company strategy: Long-term performance-related share-based incentive</p> <p>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</p>																		

Policy summary:

- On-target levels as % of base salary
 - Presidents 110%
 - Other members Board of Management 100%
 - Performance measures (set annually, evaluated over 3-year period) Weight
 - ROAIC 40%
 - Total shareholder return (TSR) vs Index 30%
 - Technology Leadership Index 20%
 - Sustainability 10%
 - Pay-out levels TSR vs Index (TSR ASML–TSR PHLX Index (X.SOX)) % of target
 - Greater than or equal to 20% 200%
 - 0 to 20% 100-200%
 - -20 to 0% 50-100%
 - Less than or equal to -20% 0%
 - Pay-out levels ROAIC, Technology Leadership Index, Sustainability % of target
 - Maximum 200%
 - Target 100%
 - Threshold 50%
 - Below threshold 0%
- Linear pay-out between threshold and target, and between target and maximum
- Aligned with LTI of ASML employees eligible to receive performance shares - by using identical performance measures

Share ownership guidelines**Description and link to company strategy:**

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

Policy summary:

- Presidents 3x annual base salary, other Board members 2x annual base salary
- 3-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

Other remuneration**Description and link to company strategy:**

Contribute to the competitiveness of the overall remuneration package and creates alignment with market practice

Policy summary:

- 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
-

Remuneration Board of Management in 2020

The remuneration of the Board of Management for the financial year 2020 is based upon and complies with the Remuneration Policy as further explained below. As such, the remuneration of the Board of Management in 2020 contributed to the objectives of the Remuneration Policy 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 are conducted.

Base Salary

At the beginning of 2020 the Supervisory Board decided to increase the base salaries of the members of the Board of Management by 2%, taking into account the market environment as well as the salary adjustments for other ASML employees.

Short-Term Incentive

The financial and non-financial target levels for the STI were set at the beginning of the 2020 financial year in accordance with the Remuneration Policy and taking into account the annual plan for 2020, ensuring that targets are realistic, but challenging.

For the STI, the following qualitative performance metrics applied in 2020:

- Market Position, measuring ASML's performance in the market, not only in terms of market share, but also customer satisfaction and quality.
- Technology Leadership Index, consisting of a set of targets related to ASML's product and technology roadmaps. It 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. Both the STI and LTI make use of the Technology Leadership Index as a qualitative performance measure. The objective is the same, but the applicable measures, targets and performance periods are different and aligned with specific short- and long-term strategic priorities.

In addition to the Technology Leadership Index and Market Position performance metrics, three financial performance metrics were selected for the 2020 STI. Based on ASML's business challenges and circumstances in 2020, the Supervisory Board chose the following three financial measures from the pre-defined list as included in the Remuneration Policy:

- EBIT Margin %, measuring Income from operations as percentage of revenues
- EUV Gross Margin %, measuring Gross Profit as a percentage of revenues for EUV
- Free Cash Flow, measuring Cash flow from operations minus purchases of Property, Plant and Equipment and intangible fixed assets.

After the end of the performance period, the Supervisory Board assessed the performance achieved against the targets, in cooperation with the relevant subcommittees Technology Committee, Audit Committee and Remuneration Committee. We do not disclose the exact actual target and achievement levels for the STI performance criteria, as these qualify as commercially or strategically sensitive information, but in view of transparency, we report performance as follows:

STI Performance metric 2020	Weight	Pay-out (as % of target)
EBIT Margin %	20%	149.5%
EUV Gross Margin %	20%	150.0%
Free Cash Flow	20%	150.0%
Technology Leadership Index	20%	Between target and max
Market position	20%	Between target and max
Total	100%	139.2%

The total STI outcome results in a cash pay-out of €5.4 million, representing 111.3% of the base salary of the Board of Management.

At the beginning of 2021, the Supervisory Board decided to apply the same three financial performance measures for 2021 as in the previous year: 1. EBIT Margin %, 2. EUV Gross Margin % and 3. Free Cash Flow.

Long-Term Incentive

For the LTI, the following performance metrics apply, in accordance with the Remuneration Policy:

- Total shareholder return vs. Index, measuring ASML's relative change in share price, plus dividends paid over the relevant performance period. ASML's total shareholder return is compared to the PHLX Semiconductor Sector Index, a NASDAQ index designed to track the performance of a set of companies engaged in the design, distribution, manufacture, and sale of semiconductors.
- Return on Average Invested Capital (ROAIC), measuring ASML's rate of return on capital it has put to work, regardless of our capital structure. It is used as a fundamental metric to measure value creation of the company. The ROAIC is calculated by dividing the Net Operating Profit After Tax by the Average Invested Capital.
- Technology Leadership Index, a qualitative measure which is also applied for the STI. Reference is made to the description under STI.
- Sustainability, a qualitative measure for determining our performance in the area of sustainability by benchmarking our result from the annual comprehensive Dow Jones Sustainability Index (DJSI) against the best of the semiconductor industry. This DJSI Assessment is a comprehensive assessment measuring our performance on more than 20 ESG aspects. It allows us to benchmark our company performance in the wider field of ESG with our industry peers and drive continuous improvement. Underlying is our Sustainability Strategy 2019-2025 containing a set of 16 KPIs and targets, which we define by means of a comprehensive materiality assessment and input from continuous stakeholder engagement. For more information see Non-financial statements - Materiality: assessing our impact.

Vesting LTI 2018-2020

After the end of the three-year performance period 2018-2020, the Supervisory Board assessed the performance achieved against the LTI targets, in cooperation with the Technology Committee, Audit Committee and Remuneration Committee. For the LTI performance criteria, the actual target and achievement levels are not disclosed for the same reason as mentioned under STI, with the exception of total shareholder return. We report performance as follows:

LTI Performance metric 2018-2020	Weight	Pay-out (as % of target)
Total Shareholder Return	30%	200.0%
ROAIC	40%	88.4%
Technology Leadership Index	20%	164.2%
Sustainability	10%	183.5%
Total	100%	146.5%

The total LTI outcome results in a share vesting of 146.5% of target (73.3% of max).

Grant 2020

At the beginning of 2020, 9,245 performance shares were conditionally granted to each of the two Presidents; the other members of the Board of Management were each conditionally granted 5,718 performance shares. These conditional grants are based on the maximum achievable opportunity.

The targets levels related to the LTI performance measures ROAIC, Technology Leadership Index and Sustainability were set at the beginning of 2020 for the performance period 2020-2022. This was done taking into account the long-term product roadmap, sustainability 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.

Other remuneration

In 2020, the Board of Management members 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 consist of a gross pension element (for the salary below approximately 110,000 euro) and a net pension element (for the salary above 110,000 euro). Some members opted out of the net pension due to different tax treatment of this outside the Netherlands. Details on the incurred accounting expenses relating to the application of the pension arrangement in 2020 can be found in the table Total Remuneration Board of Management.

Expenses reimbursed by ASML in 2020 included company car costs, travel expenses, representation allowances, housing costs, social security costs, and health and disability insurance costs.

Share ownership guidelines

All members of the Board of Management complied with the share ownership guidelines as incorporated in the Remuneration Policy.

Total remuneration Board of Management

The remuneration of the members of the Board of Management based on incurred accounting expenses in 2020, 2019 and 2018 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	2020	1,020	216	57	1,293	28.3%	1,135	2,136	3,271	71.7%	4,564	0.40
	2019	1,000	207	53	1,260	28.9%	1,070	2,031	3,101	71.1%	4,361	0.41
	2018	978	203	53	1,234	35.9%	747	1,452	2,199	64.1%	3,433	0.56
M.A. van den Brink	2020	1,020	216	57	1,293	28.3%	1,135	2,136	3,271	71.7%	4,564	0.40
	2019	1,000	207	52	1,259	28.9%	1,070	2,031	3,101	71.1%	4,360	0.41
	2018	978	203	51	1,232	35.9%	747	1,452	2,199	64.1%	3,431	0.56
F.J. van Hout	2020	694	122	47	863	29.4%	773	1,302	2,075	70.6%	2,938	0.42
	2019	680	114	44	838	30.6%	728	1,172	1,900	69.4%	2,738	0.44
	2018	661	114	44	819	37.6%	505	853	1,358	62.4%	2,177	0.60
F.J.M. Schneider-Maunoury	2020	694	122	36	852	29.1%	773	1,302	2,075	70.9%	2,927	0.41
	2019	680	114	30	824	30.3%	728	1,172	1,900	69.7%	2,724	0.43
	2018	661	114	31	806	37.2%	505	858	1,363	62.8%	2,169	0.59
R.J.M. Dassen	2020	694	100	51	845	22.2%	773	2,186	2,959	77.8%	3,804	0.29
	2019	680	93	47	820	27.7%	728	1,408	2,136	72.3%	2,956	0.38
	2018	386	53	28	467	52.0%	295	135	430	47.9%	897	1.09
C.D. Fouquet	2020	694	83	51	828	27.8%	773	1,374	2,147	72.2%	2,975	0.39
	2019	680	74	47	801	36.4%	728	674	1,402	63.6%	2,203	0.57
	2018	496	45	32	573	50.9%	379	173	552	49.1%	1,125	1.04
Total Board of Management	2020	4,816	859	299	5,974	27.4%	5,362	10,436	15,798	72.6%	21,772	0.38
	2019	4,720	809	273	5,802	30.0%	5,052	8,487	13,539	70.0%	19,341	0.43
	2018	4,160	732	239	5,131	38.8%	3,178	4,923	8,101	61.2%	13,232	0.63

The remuneration reported as part of the LTI (share awards) is based on costs incurred under US GAAP and EU-IFRS. The costs of share awards are charged to the Consolidated Statements of Operations over the 3-year vesting period based on the number of awards expected to vest. For the first 2 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 amounts 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.

The LTI (share awards) remuneration reported for the year 2020 includes a release for the 2018 performance share plan based on the actual number of share awards vesting early 2021. The release is as follows: Mr. Wennink: €772,357; Mr. van den Brink: €772,357; Mr. van Hout: €443,710; Mr. Schneider-Maunoury: €443,840; Mr. Dassen: €281,317; Mr. Fouquet: €361,691.

The Supervisory Board applied an upward adjustment for the pay-out related to the ROAIC performance metric of the 2018-2020 LTI plan. This adjustment is made to correct for the effects of higher than anticipated investments in R&D and CAPEX since target setting. The increase in investments is mainly needed to meet customer development roadmaps for High-NA and as such supports long-term value creation of ASML and our stakeholders. The pay-out changed from 111.2% to 146.5%. The upward adjustments are as follows: Mr. Wennink: 2,307 shares for €369,050; Mr. van den Brink: 2,307 shares for €369,050; Mr. Van Hout: 1,326 shares for €212,017; Mr. Schneider-Maunoury: 1,326 shares for €212,087; Mr. Dassen: 773 shares for €140,560; Mr. Fouquet: 994 shares for €180,720. Amounts involved are based on the number of extra vested shares multiplied with the share price at grant date adjusted for the number of service days until vesting in 2021. The modified vesting conditions have been taken into account in the adjustment.

The net impact in the 2020 Consolidated Statement of Profit or Loss is a release of: Mr. Wennink: €403,307; Mr. Van den Brink: €403,307; Mr. Van Hout: €231,693; Mr. Schneider-Maunoury: €231,753; Mr. Dassen: €140,757; Mr. Fouquet: €180,971.

W.U. Nickl is no longer part of the Board of Management since he left the company in 2018.

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
W.U. Nickl	2018	220	25	19	264	18.2%	168	1,020	1,188	81.8%	1,452	0.22

Share-based payments

Performance based share-based remuneration current members of the Board of Management

Board of Management	Grant date	Status	Full control	Market based element		Non-Market based element		Total target shares at grant date	Maximum shares (200%)	Vesting date	Number of shares at vesting date	Share price at vesting	End of lock-up date
				Number of shares at target	Fair value at grant date	Number of shares at target	Fair value at grant date						
P.T.F.M. Wennink	1/24/20	Conditional	No	1,387	286.9	3,235	263.7	4,622	9,245	1/1/23	n/a	n/a	1/1/25
	7/19/19	Conditional	No	2,217	245.4	5,173	194.4	7,390	14,780	1/1/22	n/a	n/a	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
	1/20/17	Unconditional	No	3,037	145.4	7,085	110.5	10,122	20,243	1/1/20	16,733	263.7	1/1/22
	1/22/16	Unconditional	No	n/a	n/a	8,290	83.6	8,290	16,579	1/22/19	12,435	141.4	1/22/21
M.A. van den Brink	1/24/20	Conditional	No	1,387	286.9	3,235	263.7	4,622	9,245	1/1/23	n/a	n/a	1/1/25
	7/19/19	Conditional	No	2,217	245.4	5,173	194.4	7,390	14,780	1/1/22	n/a	n/a	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
	1/20/17	Unconditional	No	3,037	145.4	7,085	110.5	10,122	20,243	1/1/20	16,733	263.7	1/1/22
	1/22/16	Unconditional	No	n/a	n/a	8,290	83.6	8,290	16,579	1/22/19	12,435	141.4	1/22/21
F.J. van Hout	1/24/20	Conditional	No	858	286.9	2,001	263.7	2,859	5,718	1/1/23	n/a	n/a	1/1/25
	7/19/19	Conditional	No	1,371	245.4	3,198	194.4	4,569	9,137	1/1/22	n/a	n/a	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
	1/20/17	Unconditional	No	1,745	145.4	4,070	110.5	5,815	11,629	1/1/20	9,613	263.7	1/1/22
	1/22/16	Unconditional	No	n/a	n/a	5,603	83.6	5,603	11,205	1/22/19	8,404	141.4	1/22/21
F.J.M. Schneider-Maunoury	1/24/20	Conditional	No	858	286.9	2,001	263.7	2,859	5,718	1/1/23	n/a	n/a	1/1/25
	7/19/19	Conditional	No	1,371	245.4	3,198	194.4	4,569	9,137	1/1/22	n/a	n/a	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
	1/20/17	Unconditional	No	1,745	145.4	4,070	110.5	5,815	11,629	1/1/20	9,613	263.7	1/1/22
	1/22/16	Unconditional	No	n/a	n/a	5,603	83.6	5,603	11,205	1/22/19	8,404	141.4	1/22/21
R.J.M. Dassen	1/24/20	Conditional	No	858	286.9	2,001	263.7	2,859	5,718	1/1/23	n/a	n/a	1/1/25
	7/19/19	Conditional	No	1,371	245.4	3,198	194.4	4,569	9,137	1/1/22	n/a	n/a	1/1/24
	1/25/19	Conditional	No	3,000	169.0	7,000	148.3	10,000	20,000	1/1/22	n/a	n/a	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	1/24/20	Conditional	No	858	286.9	2,001	263.7	2,859	5,718	1/1/23	n/a	n/a	1/1/25
	7/19/19	Conditional	No	1,371	245.4	3,198	194.4	4,569	9,137	1/1/22	n/a	n/a	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

W.U. Nickl is no longer part of the Board of Management since he left the company in 2018.

Former Board of Management	Grant date	Status	Full control	Market based element		Non-Market based element		Total target shares at grant date	Maximum shares (200%)	Vesting date	Number of shares at vesting date	Share price at 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						
W.U. Nickl	1/19/18	Unconditional	No	375	215.1	876	162.8	1,251	2,501	1/19/21	1,833	439.9	1/19/23
	1/20/17	Unconditional	No	1,745	145.4	4,070	110.5	5,815	11,629	1/1/20	9,613	263.7	1/1/22
	1/22/16	Unconditional	No	—	—	5,603	83.6	5,603	11,205	1/22/19	8,404	141.4	1/22/21

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 table summarizing the Remuneration Policy for the Board of Management and to the section Board of Management Remuneration in 2020 - Long Term Incentive as included in this Remuneration Report.

The principal conditions applicable to the 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:	Two days after the publication of ASML's annual results in January of the year in which the three-year performance period starts
Performance period:	Three years, starting on January 1 in year of grant
Vesting:	The shares will become unconditional in the year after the end of the three-year performance period, depending on the level of achievement of the predetermined performance targets
Lock-up period:	The minimum holding period is two years after the vesting date. Upon termination of contract the transfer restrictions will remain in place during the holding period except in case of decease. In case a tax payment is due by the members of the Board of Management over the retrieved variable income, performance shares may be partially sold at vesting ('sell to cover') in accordance with the law and internal regulations.

Relationship between accounted remuneration and company's performance

The following table sets forth an overview of the relationship between accounted remuneration and the company's performance:

For the year ended December 31 (€, in thousands)	2016	2017	2018 ¹	2019	2020
Net sales	6,875,073	8,962,658	10,944,016	11,820,001	13,978,452
Net income based on US GAAP	1,557,850	2,066,679	2,591,614	2,592,252	3,553,670
Net income based on EU-IFRS	1,642,800	2,173,400	2,525,515	2,581,107	3,696,813
ASML share price (closing price on Euronext Amsterdam in €)	106.7	145.2	137.2	263.7	397.6
Average number of FTEs (payroll and temporary)	12,852	15,136	18,204	22,192	24,727
Remuneration P.T.F.M. Wennink (CEO)	3,458	3,455	3,433	4,361	4,564
Remuneration M.A. van den Brink	3,462	3,454	3,431	4,360	4,564
Remuneration R.J.M. Dassen	—	—	897	2,956	3,804
Remuneration F.J. van Hout	2,360	2,276	2,177	2,738	2,938
Remuneration C.D. Fouquet	—	—	1,125	2,203	2,975
Remuneration F.J.M. Schneider-Maunoury	2,301	2,260	2,169	2,724	2,927
Average remuneration per FTE	110	109	107	106	113
Internal pay ratio (CEO versus employee remuneration)	31	32	32	41	40

1. The remuneration of the R.J.M. Dassen and C.D. Fouquet is lower in 2018 as they were appointed as members of the Board of Management during 2018.

Explanation of changes in company's performance versus remuneration

The table set out above aims to provide insight into the Company's performance over the past five years and the development of the remuneration. The metrics 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 the last years, not only reflected in the number of employees but also in terms of revenue. Since 2016, net sales increased by 103%. The performance of the Company in that same period has increased significantly as well, reflected for example in Net Income (125% growth since 2016 based on EU-IFRS) and Total Shareholder Return (273% 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 size of the company (measured by enterprise value, revenue and number of employees) is taken into account in determining the group of reference companies that are used for the benchmark to assess the competitiveness of the Board of Management remuneration compared to the labor market. This has led to revisions of the Board of Management remuneration policy in 2017 and 2019, resulting into higher base salaries as well as higher levels of STI (at target) and LTI (at target). 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 ratio¹ (CEO versus employee remuneration) remained stable 40:1 in 2020 (2019 41:1) after the reset performed in 2019. 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 40:1 to be equitable, considering the current size and organization structure of the company.

1. This ratio consists of the CEO's total remuneration during 2020 of €4,564 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 + pension and retirement expenses + share-based payments) / average number of payroll employees = €2,756 million / 24,727 = €113 thousand. This ratio is prepared in accordance with the Dutch Corporate Governance Code and has not been prepared to comply the Pay Ratio Disclosure requirements under SEC regulations.

Remuneration Supervisory Board

In this section of the Remuneration Report we provide an overview of the Supervisory Board's Remuneration Policy as adopted by the General Meeting on April 22, 2020 and as in force as of April 1, 2020. It also provides the details of the Supervisory Board members' actual remuneration in 2020. The Remuneration Policy for the Supervisory Board can be found in the Governance section of our website.

Remuneration Policy

Remuneration objectives and principles

The remuneration policy for the Supervisory Board is designed to enable ASML to attract and retain qualified Supervisory Board members, which together compose a diverse and balanced Supervisory Board with the appropriate level of skills, competences 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 remuneration policy 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 made dependent on the results of the company.

Reference group and market positioning

The remuneration of the Supervisory Board should be competitive compared to a relevant reference market. This market is defined using a reference group of companies with a two-tier board structure listed on the AEX Index of Euronext Amsterdam. To determine the positioning in this group, enterprise value, revenue and number of employees are taken into account.

Summary of Remuneration Policy Supervisory Board

The table below provides an overview and description of the elements of the Remuneration Policy for the Supervisory Board.

Remuneration element	Description	Value
Fixed remuneration	Basic membership fee	Chair € 110,000 Vice-Chair € 80,000 Member € 70,000 Chair Audit Committee € 23,000 Member Audit Committee € 15,000 Chair other committees € 18,000 Member other committees € 12,000
Extra allowance for intercontinental meetings	Extra, fixed allowance paid in connection with additional time commitment for intercontinental travel	€ 5,000 for each meeting that involves intercontinental travel
Expenses	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	Depends on level of expenses € 1,980 for the Chair of the Supervisory Board and € 1,380 for the other Supervisory Board members
Loans and guarantees	No (personal) loans or guarantees or the like will be granted	Not applicable
Shares and share ownership	No (rights to) shares are granted by way of remuneration. Any holding of ASML shares for the purpose of long-term investment. Any trading activity is subject to ASML's Insider Trading Rules	Not applicable
Other arrangements	(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

Remuneration Supervisory Board in 2020

Overview of the remuneration awarded to the Supervisory Board members over five years (amounts are in € thousands):

	Membership fees 2020	Committee fees 2020	Allowances 2020 ¹	Proportion fixed vs. variable 2020	Total remuneration 2020	Total remuneration 2019	Total remuneration 2018	Total remuneration 2017	Total remuneration 2016
G.J. Kleisterlee	110	45	2	100:0	157	154	138	135	113
D.A. Grose	80	30	7	100:0	117	133	115	113	105
T.L. Kelly	70	12	6	100:0	88	101	60	—	—
A.P. Aris	70	24	1	100:0	95	98	80	80	76
R.D. Schwalb	70	33	1	100:0	104	101	88	86	81
C.M.S. Smits Nusteling	70	24	1	100:0	95	91	80	79	75
J.M.C. Stork	70	24	6	100:0	100	118	100	100	94
D.W.A. East	48	10	1	100:0	59	—	—	—	—
D.M. Durcan	48	8	1	100:0	57	—	—	—	—
Total	636	210	26	100:0	872	796	661	593	544

1. Allowances consist of fixed expense allowances and allowances for intercontinental meetings.

No shares and options have 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.

Overview of the remuneration awarded to the former Supervisory members in 2020, 2019 and 2018 (amounts are in € thousands):

	Membership fees 2020	Committee fees 2020	Allowances 2020 ¹	Proportion fixed vs. variable 2020	Total remuneration 2020	Total remuneration 2019	Total remuneration 2018
P.F.M. van der Meer Mohr	—	—	—	—	—	—	27
W.H. Ziebart	22	8	—	100:0	30	101	82
Total	22	8	—	100:0	30	101	109

1. Allowances consist of fixed expense allowances and allowances for intercontinental meetings.

Other information

Total remuneration

The annual remuneration for the members of the Board of Management and Supervisory Board members during 2020 amounts to €22.6 million (2019: €20.1 million).

Other arrangements

No remuneration has been granted and allocated by subsidiaries or other companies whose financials are consolidated by ASML, since all members of the Board of Management and the Supervisory Board are paid directly by ASML Holding 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 2020 and no variable remuneration has been clawed-back.

Derogation

In 2020 no deviations took place from the decision-making process for the implementation of the Remuneration Policies for the Board of Management and the Supervisory Board and no temporary deviations took place from the Remuneration Policies.

Shareholder voting

At the 2020 AGM the 2020 Remuneration Policy for the Board of Management was adopted with 95% of the votes cast in favor. The Remuneration Policy for the Supervisory Board was also adopted at the 2020 AGM with a majority of 99.47% of the votes cast in favor of the proposal.

The Remuneration Report for the financial year 2019 was submitted to the 2020 AGM for an advisory vote. 93.78% of the votes were cast in favor. As a result there are no specific topics to be addressed in this Remuneration Report.

This Remuneration Report will be submitted to the 2021 AGM for an advisory vote in line with Dutch law.

Directors' responsibility statement

Managing directors' statement

The Board of Management hereby declares that, to the best of its knowledge, the Financial Statements prepared in accordance with EU-IFRS and Part 9 of Book 2 of the Dutch Civil Code provide a true and fair view of the assets, liabilities, financial position and profit or loss of ASML Holding N.V. and the undertakings included in the consolidation taken as a whole and that the Annual Report includes a fair review concerning the position, as per the statement of financial position date, the development and performance of ASML Holding N.V. and the undertakings included in the consolidation taken as a whole, together with the principal risks and uncertainties that they face.

In accordance with the Dutch Corporate Governance Code, the Board of Management hereby states that to the best of its knowledge and belief, that based on the current state of affairs, it is justified that the financial reporting is prepared on a going concern basis, and the Annual Report discloses all material risks and uncertainties that are relevant regarding the expectation as to the continuity of ASML for the 12-month period after the date of issue of this Annual Report.

In control statement

As the Board of Management of ASML Holding N.V., we hereby state that we are responsible for the design, implementation and operation of ASML's internal risk management and control systems. The purpose of these systems is to adequately and effectively manage the significant risks to which ASML is exposed. Such systems can never provide absolute assurance regarding achievement of corporate objectives, nor can they provide an absolute assurance that material errors, losses, fraud and the violation of laws or regulations will not occur.

We acknowledge the importance of internal control and risk management systems. Additionally, ASML is required to properly manage internal controls over financial reporting, per section 404 of the Sarbanes-Oxley Act of 2002. Under the supervision and with the participation of ASML's CEO and CFO, ASML's management conducts an annual evaluation of the effectiveness of ASML's internal control over financial reporting based upon the framework in "Internal Control - Integrated Framework" (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission. Outcomes of the annual assessment, periodical updates, as well as significant changes and improvements, are regularly reported to and discussed with ASML's Audit Committee and external auditors. The Audit Committee reports about these subjects to the Supervisory Board on a regular basis. In addition, once a year, the Board of Management discusses the effectiveness of this internal control framework with the Audit Committee and the full Supervisory Board.

The establishment of our internal control and risk management systems is based on the identification of external and internal risk factors that could influence our operational and financial objectives and contains a system of monitoring, reporting and operational reviews. All material risk management activities have been discussed with the Audit Committee and the Supervisory Board. For more information on our risk management activities and our internal control and risk management systems, we refer to Leadership and governance - Corporate governance - Corporate Information - ASML Reports and How we manage risk - How we manage risk. For a summary of our risk factors, we refer to How we manage risk - Risk factors.

Summary

Based on the outcome of the above-mentioned measures and to the best of its knowledge and belief, the Board of Management states that:

1. The above-mentioned measures provide reasonable assurance that the Financial Statements do not contain any material errors.
2. The Annual Report provides sufficient insights into any important deficiencies in the internal risk management and control systems as far as such important deficiencies occur. No such important deficiencies have been detected during the 2020 financial year.

The Board of Management,

Peter T.F.M. Wennink, President, Chief Executive Officer and Chairman of the Board of Management
Martin A. van den Brink, President, Chief Technology Officer and Vice Chairman of the Board of Management
Roger J.M. Dassen, Executive Vice President and Chief Financial Officer
Frits J. van Hout, Executive Vice President and Chief Strategy Officer
Christophe D. Fouquet, Executive Vice President EUV
Frédéric J.M. Schneider-Maunoury, Executive Vice President and Chief Operations Officer

Veldhoven, February 10, 2021

Consolidated financial statements

Consolidated Statement of Profit or Loss

Year ended December 31 (€, in millions, except per share data)	Notes	2018	2019	2020
Net system sales	3, 4	8,259.1	8,996.2	10,316.6
Net service and field option sales		2,684.9	2,823.8	3,661.9
Total net sales	4	10,944.0	11,820.0	13,978.5
Cost of system sales		(4,452.0)	(5,055.9)	(5,597.9)
Cost of service and field option sales		(1,773.7)	(1,864.0)	(2,012.0)
Total cost of sales		(6,225.7)	(6,919.9)	(7,609.9)
Gross profit		4,718.3	4,900.1	6,368.6
Research and development costs		(1,347.0)	(1,662.9)	(1,579.9)
Selling, general and administrative costs		(488.0)	(520.5)	(544.9)
Operating income		2,883.3	2,716.7	4,243.8
Finance income		13.5	11.6	8.4
Finance costs	16	(41.8)	(36.6)	(43.3)
Income before income taxes		2,855.0	2,691.7	4,208.9
Income tax expense	21	(335.7)	(128.8)	(600.7)
Income after income taxes		2,519.3	2,562.9	3,608.2
Profit from investments in associates	10	6.2	18.2	88.6
Net income		2,525.5	2,581.1	3,696.8
Basic net income per ordinary share	23	5.94	6.13	8.84
Diluted net income per ordinary share	23	5.92	6.12	8.82
Number of ordinary shares used in computing per share amounts				
Basic	23	424.9	420.8	418.3
Diluted	23	426.4	421.6	419.1

Consolidated Statement of Comprehensive Income

Year ended December 31 (€, in millions)	Notes	2018	2019	2020
Net income		2,525.5	2,581.1	3,696.8
Other comprehensive income:				
Proportionate share of other comprehensive income from associates		(4.8)	(19.8)	(1.3)
Foreign currency translation, net of taxes:				
Gain (loss) on foreign currency translation and effective portion of hedges	22	18.5	20.3	(75.1)
Financial instruments, net of taxes:				
Gain (loss) on derivative financial instruments	22, 25	8.3	3.2	(21.0)
Transfers to net income	22, 25	11.8	(10.7)	(2.3)
Other comprehensive income, net of taxes ¹		33.8	(7.0)	(99.7)
Total comprehensive income, net of taxes		2,559.3	2,574.1	3,597.1
Attributable to equity holders		2,559.3	2,574.1	3,597.1

1. All items in accumulated other comprehensive income as of December 31, 2020, comprised of our proportionate share of other comprehensive income from associates of €26.9 million loss (2019: €25.6 million; 2018 €5.8 million), the hedging reserve of €22.3 million losses (2019: €1.0 million gains; 2018: €8.5 million gains) and the currency translation reserve of €57.4 million gains (2019: €129.9 million gains; 2018: €109.9 million gains), will be reclassified subsequently to profit or loss when specific conditions are met.

Consolidated Statement of Financial Position

(Before appropriation of net income)

As of December 31 (€, in millions, except share and per share data)	Notes	2019	2020
Assets			
Finance receivables, net	7	421.1	400.5
Deferred tax assets	21	573.4	807.4
Other assets	9	727.4	827.7
Derivative financial instruments	25	103.0	123.8
Investments in associates	10	833.0	820.6
Goodwill	11	4,562.7	4,650.6
Intangible assets, net	12	2,519.4	2,653.7
Property, plant and equipment, net	13	1,999.3	2,470.3
Right-of-use assets	14	323.9	344.9
Total non-current assets		12,063.2	13,099.5
Cash and cash equivalents	5	3,532.3	6,049.4
Short-term investments	5	1,185.8	1,302.2
Accounts receivable, net	6	1,786.8	1,310.3
Finance receivables, net	7	564.5	1,710.5
Contract assets	3	231.0	119.2
Current tax assets	21	178.7	67.3
Inventories, net	8	3,809.2	4,569.4
Other assets	9	649.1	599.9
Derivative financial instruments	25	34.5	39.0
Total current assets		11,971.9	15,767.2
Total assets		24,035.1	28,866.7
Equity and liabilities			
Shareholders' equity	22	13,876.9	15,300.9
Long-term debt	16	3,108.3	4,662.8
Deferred and other income tax liabilities	21	355.2	401.9
Contract liabilities	3	1,759.6	1,639.9
Accrued and other liabilities	15	241.0	257.5
Total non-current liabilities		5,464.1	6,962.1
Accounts payable		1,062.2	1,378.1
Accrued and other liabilities	15	1,036.0	1,126.0
Derivative financial instruments	25	3.9	20.0
Current tax liabilities	21	65.6	110.0
Current portion of long-term debt	16	—	15.4
Contract liabilities	3	2,526.4	3,954.2
Total current liabilities		4,694.1	6,603.7
Total equity and liabilities		24,035.1	28,866.7

Consolidated Statement of Changes in Equity

(Before appropriation of net income)

(€, in millions)	Notes	Share Capital	Share Premium	Treasury Shares at Cost	Retained Earnings	Other Reserves ¹	Net Income	Total
Balance at January 1, 2018		38.8	4,192.4	(557.9)	4,560.0	1,649.6	2,173.4	12,056.3
Prior year net income		—	—	—	2,173.4	—	(2,173.4)	—
Components of comprehensive income:								
Net income		—	—	—	—	—	2,525.5	2,525.5
Share of OCI from associate		—	—	—	—	(4.8)	—	(4.8)
Foreign currency translation		—	—	—	—	18.5	—	18.5
Gain (loss) on financial instruments	25	—	—	—	—	20.1	—	20.1
Total comprehensive income		—	—	—	—	33.8	2,525.5	2,559.3
Purchase of treasury shares		(0.3)	—	(1,145.9)	—	—	—	(1,146.2)
Share-based payments ³	20, 28	—	48.3	—	—	—	—	48.3
Issuance of shares		0.1	(37.5)	82.0	(22.8)	—	—	21.8
Dividend paid		—	—	—	(597.1)	—	—	(597.1)
Development expenditures		—	—	—	82.1	(82.1)	—	—
Balance at December 31, 2018		38.6	4,203.2	(1,621.8)	6,195.6	1,601.3	2,525.5	12,942.4
Opening balance adjustment ²		—	—	—	(13.9)	—	—	(13.9)
Balance at January 1, 2019		38.6	4,203.2	(1,621.8)	6,181.7	1,601.3	2,525.5	12,928.5
Prior year net income		—	—	—	2,525.5	—	(2,525.5)	—
Components of comprehensive income:								
Net income		—	—	—	—	—	2,581.1	2,581.1
Share of OCI from associate		—	—	—	—	(19.8)	—	(19.8)
Foreign currency translation		—	—	—	—	20.3	—	20.3
Gain (loss) on financial instruments	25	—	—	—	—	(7.5)	—	(7.5)
Total comprehensive income		—	—	—	—	(7.0)	2,581.1	2,574.1
Purchase of treasury shares		—	—	(410.0)	—	—	—	(410.0)
Cancellation of treasury shares		(0.5)	—	902.3	(901.8)	—	—	—
Share-based payments ³	20	—	82.8	—	—	—	—	82.8
Issuance of shares		0.1	(43.9)	109.9	(38.9)	—	—	27.2
Dividend paid		—	—	—	(1,325.7)	—	—	(1,325.7)
Development expenditures		—	—	—	74.1	(74.1)	—	—
Balance at December 31, 2019		38.2	4,242.1	(1,019.6)	6,514.9	1,520.2	2,581.1	13,876.9
Prior year net income		—	—	—	2,581.1	—	(2,581.1)	—
Components of comprehensive income:								
Net income		—	—	—	—	—	3,696.8	3,696.8
Share of OCI from associate ³		—	—	—	—	(1.3)	—	(1.3)
Foreign currency translation		—	—	—	—	(75.1)	—	(75.1)
Gain (loss) on financial instruments	25	—	—	—	—	(23.3)	—	(23.3)
Total comprehensive income		—	—	—	—	(99.7)	3,696.8	3,597.1
Purchase of treasury shares		—	—	(1,207.5)	—	—	—	(1,207.5)
Cancellation of treasury shares		(0.7)	—	1,262.3	(1,261.6)	—	—	—
Share-based payments ³	20	—	62.9	—	—	—	—	62.9
Issuance of shares		0.1	(45.8)	101.6	(18.0)	—	—	37.9
Dividend paid		—	—	—	(1,066.4)	—	—	(1,066.4)
Development expenditures		—	—	—	(192.5)	192.5	—	—
Balance at December 31, 2020		37.6	4,259.2	(863.2)	6,557.5	1,613.0	3,696.8	15,300.9

1. Other reserves consist of our proportionate share of other comprehensive income from associates, the hedging reserve, the currency translation reserve and the reserve for capitalized development expenditures. See Note 22 Shareholders' equity.

2. As of January 1, 2019, ASML has applied the interpretation of IFRIC 23 "Uncertainty over Income Tax Treatments" and chose to adjust the impact of this interpretation retrospectively with the cumulative effect as an adjustment to the opening balance of retained earnings.

3. The share-based payments³ includes income taxes recognized directly in shareholders' equity for the amount of €(9.0) million (2019: €(8.1) million, 2018: €(2.3) million).

Consolidated Statement of Cash Flows

Year ended December 31 (€, in millions)	Notes	2018	2019	2020
Cash Flows from Operating Activities				
Net income		2,525.5	2,581.1	3,696.8
Adjustments to reconcile net income to net cash flows from operating activities:				
Depreciation and amortization ¹	12, 13	733.5	828.3	918.4
Impairment and loss on disposal	12, 13	19.0	7.8	5.5
Share-based compensation expense	20, 28	48.3	74.6	62.9
Inventory reserves	8	218.2	221.5	192.4
Deferred tax expense (benefit)	21	(262.7)	(348.8)	(175.8)
Investments in associates ²	10	61.6	56.9	11.0
Changes in assets and liabilities:				
Accounts receivable	6	212.4	(255.0)	507.5
Finance receivables	7	(664.9)	(95.3)	(1,125.4)
Inventories	8	(515.7)	(404.7)	(706.7)
Other assets	9	(397.7)	(141.8)	(67.9)
Accrued and other liabilities	15	304.8	155.2	106.4
Accounts payable		97.9	(12.1)	334.3
Current tax assets and liabilities	21	13.1	(210.9)	129.2
Contract assets and liabilities	3	975.3	1,198.3	1,418.0
Net cash provided by operating activities		3,368.6	3,655.1	5,306.6
Cash Flows from Investing Activities				
Purchase of property, plant and equipment ^{3,4}	13	(574.0)	(766.6)	(962.0)
Purchase of intangible assets	12	(264.3)	(424.9)	(658.9)
Purchase of short-term investments	5	(918.1)	(1,291.5)	(1,475.5)
Maturity of short-term investments	5	1,034.1	1,019.0	1,359.1
Cash from (used for) derivative financial instruments		(2.4)	—	—
Loans issued and other investing	9	4.4	0.9	(12.2)
Acquisition of subsidiaries (net of cash acquired)	2	—	—	(222.8)
Net cash used in investing activities		(720.3)	(1,463.1)	(1,972.3)
Cash Flows from Financing Activities				
Dividend paid	22	(597.1)	(1,325.7)	(1,066.4)
Purchase of treasury shares	22	(1,146.2)	(410.0)	(1,207.5)
Net proceeds from issuance of shares		21.8	27.2	37.9
Net proceeds from issuance of notes, net of issuance costs		—	—	1,486.3
Repayment of debt and finance lease obligations	14, 16	(69.9)	(76.9)	(62.2)
Net cash used in financing activities		(1,791.4)	(1,785.4)	(811.9)
Net cash flows		856.9	406.6	2,522.4
Effect of changes in exchange rates on cash		5.2	4.6	(5.3)
Net increase (decrease) in cash and cash equivalents		862.1	411.2	2,517.1
Cash and cash equivalents at beginning of the year	5	2,259.0	3,121.1	3,532.3
Cash and cash equivalents at end of the year	5	3,121.1	3,532.3	6,049.4
Supplemental Disclosures of Cash Flow Information:				
Non-cash portion of PP&E in investing activities		24.2	85.9	(46.9)
Interest received		37.3	38.9	32.1
Interest paid		(61.0)	(59.9)	(64.1)
Income taxes paid, net of refunds		(554.4)	(678.7)	(650.2)

1. Depreciation and amortization includes depreciation of property, plant and equipment, amortization of intangible assets, amortization of underwriting commissions and discount related to the bonds and credit facility.

2. Investments in associates includes the profit and dividends received from our associate, as well as the capitalization of R&D and supply chain support funding. The dividend received is a cash inflow in 2020 of €128.1 million (2019: €99.9 million, 2018: €89.2 million).

3. In 2020, an amount of €203.7 million (2019: €184.1 million, 2018: €191.6 million) of the purchase of property, plant and equipment relates to funding provided for facilities and tooling to our investments in associates, which is initially recognized as part of the other assets.

4. In 2018, an amount of €54.7 million of land and buildings was reclassified to other assets.

Notes to the Consolidated Financial Statements

1. General information / summary of general accounting policies

ASML, with its corporate headquarters in Veldhoven, the Netherlands, is engaged in the development, production, marketing, selling and servicing of advanced semiconductor equipment. ASML's principal operations are in the Netherlands, the US and Asia. The registered office of ASML N.V. is located at De Run 6501, Veldhoven, the Netherlands. The statutory seat is in Veldhoven. The company is registered with the Dutch Commercial Register under number 17.085.815.

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.

Our Financial Statements were authorized for issue by the Board of Management on February 10, 2021 and will be filed at the Trade Register of the Chamber of Commerce in Eindhoven (trade registration number 17085815) within eight days after adoption by the 2021 AGM.

Basis of preparation

The accompanying Consolidated Financial Statements are stated in millions of euros unless indicated otherwise.

These Consolidated Financial Statements, prepared for statutory purposes, have been prepared in accordance with EU-IFRS and also comply 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.

The Consolidated Financial Statements have been prepared on historical cost convention unless stated otherwise. The principal accounting policies adopted are set out below.

Use of estimates

The preparation of our Consolidated Financial Statements in conformity with EU-IFRS 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 dates of the Consolidated Statement of Financial Position, and the reported amounts of net sales and costs during the reported periods. The inputs into our estimates and assumptions consider the economic implications of COVID-19 on our critical accounting estimates. We believe that the critical accounting estimates and assumptions are appropriate in light of the increased uncertainties surrounding the severity and duration of the impact of COVID-19. ASML will continue to monitor the impacts of COVID-19 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, including lease accounting
- Inventory reserves
- Unrecognized tax benefits
- Contingencies and litigation
- Evaluation of long-lived assets for impairment
- Capitalization of Development Expenditures

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. The Company consolidates Berliner Glas using a one-quarter lag, to allow for the timely preparation of consolidated financial information. There were no significant intervening events during this lag period that materially affected the Consolidated Financial Statements. All intercompany transactions, balances and unrealized results on transactions with subsidiaries are eliminated.

Foreign currency translation

The financial information for subsidiaries 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 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, with the resulting translation adjustments are recorded directly in shareholders' equity. Income and costs are translated into euros based on the average exchange rate for the corresponding period.

New IFRS accounting standards and interpretations adopted

During 2020, there were no new EU-IFRS accounting standards and interpretations that were adopted which have a material impact on our Consolidated Financial Statements.

New IFRS accounting standards and interpretations issued but not adopted

For the year ended December 31, 2020, there are no new accounting standards and interpretations which have not yet been adopted and are expected to have a material impact on our Consolidated Financial Statements.

2. Business Combinations

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.

On October 30, 2020, we concluded the acquisition of Berliner Glas and obtained control through acquiring 100% of the issued share capital of Berliner Glas, for a total consideration of €257.1 million, of which €3.9 million relates to contingent consideration to be paid in cash in 2021.

Berliner Glas is one of the world's leading providers of optical key components, assemblies and systems, high-quality refined technical glass as well as glass touch assemblies. Berliner Glas is headquartered in Berlin and has facilities at 5 locations throughout Germany, Switzerland and China.

With the acquisition of Berliner Glas, we acquired technical capabilities that are critical to secure the future roadmap for our EUV and DUV products and will provide increased value to ASML's customers.

The following table summarizes the major classes of consideration transferred, and the recognized amounts of the fair value of the identifiable assets distributed and the fair value of the liabilities incurred or assumed at the acquisition date.

€, in millions	October 30, 2020
Deferred tax assets	4.6
Intangible assets, net	32.3
Property, plant and equipment, net	125.1
Right of use assets	6.9
Cash and cash equivalents	30.3
Accounts receivable, net	21.3
Inventories, net	83.4
Other assets	8.2
Assets acquired	312.1
Long-term debt, current and non-current	55.5
Deferred and other tax liabilities	16.5
Accrued and other liabilities, current and non-current	40.2
Accounts payable	13.1
Other liabilities assumed	17.6
Liabilities assumed	142.9
Total net identifiable assets	169.2
Total consideration transferred	257.1
Goodwill on acquisition	87.9

The gross contractual amount for accounts receivable due is €21.6 million, of which €0.3 million is expected to be uncollectible.

The Accrued and other liabilities include a net pension liability of €14.8 million for a defined benefit pension plan in Switzerland. For details see Note 19 Employee benefits.

Prior to the acquisition, supply and investment arrangements existed between Berliner Glas and ASML. These pre-existing relationships were effectively settled as a result of the acquisition. We determined that the supply arrangements as well as the investment arrangement were at current market terms and therefore no gain or loss was recognized. In addition, the consideration has not been adjusted for the settlement of the pre-existing relationships between ASML and Berliner Glas. The total net identifiable assets of €169.2 million include a net liability to ASML of €9.6 million, which is eliminated in the Consolidated Statement of Financial Position.

The majority of the goodwill arising on the acquisition of Berliner Glas 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.

The operating results of Berliner Glas are recognized in the Company's Consolidated Statement of Profit or Loss using a one-quarter time lag. Therefore, the Consolidated Statement of Profit or Loss for the year ended December 31, 2020 do not include any operating results of Berliner Glas for the period between the date of acquisition and December 31, 2020. Additionally, Berliner Glas balance sheet information included in the Company's Consolidated Statement of Financial Position as of December 31, 2020 is as of the acquisition date.

In 2020, we incurred €5.4 million transaction costs relating to the acquisition of Berliner Glas. These costs are included in SG&A.

The following unaudited pro forma summary presents estimated consolidated information of ASML as if the Berliner Glas acquisition had occurred on January 1, 2020. These amounts have been calculated after applying our accounting policies and adjusting the results of Berliner Glas to reflect the charges and benefits assuming the fair value adjustments had been applied from January 1, 2020 with the consequential tax effects.

	Unaudited
Pro forma year ended December 31 (€, in millions)	2020
Total net sales	14,107.2
Net income	3,709.7

3. 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, any 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 term 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.

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 sale of our systems, system related options, installation, training and extended and enhanced (optic) warranty. 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 (optic) 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.

For bundled packages, 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 in the bundled package 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, unless specifically noted in the nature of the performance obligations. 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. Variable consideration is estimated at contract inception for each performance obligation based on communications with the customer to understand their requirements and roadmap. We 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.

Some 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 the promised consideration and the cash selling price arises from other reasons than financing.

The total consideration of the contract is allocated between all distinct performance obligations in the contract based on their stand-alone selling prices. The stand-alone selling prices are determined based on other stand-alone 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 stand-alone selling price is determined using the adjusted market assessment approach, which requires judgment.

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 stand-alone selling price is considered a material right. The discount offered from the stand-alone 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 may enter into a bill-and-hold transaction 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 finance 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.

Leases where substantially all the risks and rewards incidental to ownership of an asset are transferred to the lessee are classified as finance lease arrangements. If we have offered the customer a finance lease arrangement, revenue is recognized at commencement of the lease term. 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 Statement of Profit or Loss over the term of the lease contract using the effective interest method.

Leases whereby all the risks and rewards incidental to ownership are not transferred to the lessee are classified as operating lease arrangements. If we have offered the customer an operating lease arrangement, the system is included in property, plant and equipment upon commencement of the lease. Revenue from operating lease arrangements is recognized in the Consolidated Statement of Profit or Loss 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 data-bbox="413 174 1455 495">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. 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. A system 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 data-bbox="413 521 1455 633">New system sales do not meet the requirements for over time revenue recognition because our customers do not simultaneously receive and or 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> <p data-bbox="413 678 1455 734">Transfer of control of a system undergoing FAT, and recognition of revenue related to this system, will occur upon delivery of the system.</p> <p data-bbox="413 779 1455 831">Transfer of control of a system not undergoing a FAT, and recognition of revenue related to this system, will occur upon customer acceptance of the system at SAT.</p>
Used systems	<p data-bbox="413 857 1455 1032">We have no repurchase commitments in our general sales terms and conditions, however from time to time we repurchase systems that we have manufactured and sold and, following refurbishment, will resell to other customers. This repurchase decision is mainly driven by market demand expressed by other customers and less frequently by explicit or implicit contractual arrangements relating to the initial sale. We consider reasonable offers from any vendor, including customers, to repurchase used systems that we can refurbish, resell, and install as part of our normal business operations.</p> <p data-bbox="413 1070 1455 1126">Transfer of control of a used system, and recognition of revenue, follow the same logic as for our "New systems (established technologies)".</p>
Field upgrades and options (system enhancements)	<p data-bbox="413 1153 1455 1350">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 data-bbox="413 1395 1455 1480">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 data-bbox="413 1503 1455 1588">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 data-bbox="413 1615 1455 1760">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 upon 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 data-bbox="413 1783 1455 1928">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.</p> <p data-bbox="413 1966 1455 2049">As long as we are not able to make a reliable estimate of the total efforts needed to complete the installation, 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 installation completion.</p>

Goods or services	Nature, timing of satisfying the performance obligations, and significant payment terms
Warranties	<p>We provide standard warranty coverage on our systems for 12 months and on certain optic parts for 60 months, providing labor and non-consumable parts necessary to repair our systems during these warranty periods. These standard warranties cannot be purchased and do not provide a service in addition to the general assurance the system will perform as promised. As a result, no revenue is allocated to these standard warranties.</p> <p>Both the extended and enhanced (optic) 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>
Time-based licenses and related service	<p>Time-based licenses relate to software licenses and the related service which are sold for a period of time. The licenses and the related service are not considered to be individually distinct as the support services are integral to the customer's ability to continue to use the software license in the rapidly changing technological environment. The transfer of control takes place over the license term, measured on a straight-line basis, as our performance is satisfied evenly over this period of time. Payments are made in installments throughout the license term.</p>
Application projects	<p>Application projects are node transition and consulting projects which at times may be provided as free service within a volume purchase agreement. Measuring satisfaction of this performance obligation is performed through an input method based on the labor hours expended relative to the estimated total labor hours as this best depicts the transfer of control of these kind of services.</p> <p>As long as we are not able to make a reliable estimate of the total efforts needed to complete these kind of projects, 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 project completion.</p>
Service contracts	<p>Service contracts are entered into with our customers to support our systems used in their ongoing operations during the systems lifecycle, typically in the form of full-service agreements, limited manpower agreements, other labor agreements, parts availability or parts usage agreements. These services are typically for a specified period of time. Control transfers over this period of time, measured on a straight-line basis, as these are stand-ready obligations, with an exception for the labor hour pool service contracts for which we recognize revenue in line with invoicing, using the practical expedient in IFRS 15.B16. Invoicing is typically performed monthly or quarterly throughout the service period.</p>
Billable parts and labor	<p>Billable labor represents maintenance services to our systems installed in the customer's factories while in operation, through purchase orders from our customer. Control over these services is transferred to the customer upon receipt of customer sign-off.</p> <p>Billable parts represent spare parts including optical components relating to our systems installed in the customer's factories while in operation, through purchase orders from our customer.</p> <p>Billable parts can be:</p> <ul style="list-style-type: none"> • Sold as direct spare parts, for which control transfers upon delivery; or • Sold as part of maintenance services, where control transfers upon receipt of customer sign-off.
Field projects (relocations)	<p>Field projects represent mainly relocation services. Measuring satisfaction of this performance obligation is performed through an input method based on the labor hours expended relative to the estimated total labor hours as this best depicts the transfer of control of our service.</p>
OnPulse Maintenance	<p>OnPulse maintenance services are provided over a specified period of time on our light source systems. Payment is determined by the amount 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 IFRS 15.B16.</p>

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
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
2019		
EUV	26	2,799.7
ArFi	82	4,707.7
ArF dry	22	401.2
KrF	65	679.7
I-line	34	133.5
Metrology & Inspection	115	274.4
Total	344	8,996.2
2018		
EUV	18	1,880.1
ArFi	86	4,806.9
ArF dry	16	274.3
KrF	78	860.1
I-line	26	98.6
Metrology & Inspection	114	339.1
Total	338	8,259.1

Net system sales per end-use were as follows:

Year ended December 31	Net system sales in units	Net system sales in € millions
2020		
Logic	260	7,393.0
Memory	135	2,923.6
Total	395	10,316.6
2019		
Logic	238	6,565.3
Memory	106	2,430.9
Total	344	8,996.2
2018		
Logic	125	3,713.7
Memory	213	4,545.4
Total	338	8,259.1

Contract assets and liabilities

The contract assets primarily relate to our rights to a consideration for goods or services delivered but not invoiced at the reporting date. 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 such as down payments received for systems to be delivered, as well as deferred revenue from system shipments, based on the allocation of the consideration to the related performance obligations in the contract. This deferred revenue mainly consists of extended and enhanced warranties, installation and free goods or services provided as part of a volume purchase agreement.

The majority of our customer contracts contain 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 Statement of Financial Position. 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)	2019		2020	
	Contract Assets	Contract Liabilities	Contract Assets	Contract Liabilities
Balance at beginning of the year	95.9	2,953.2	231.0	4,286.0
Transferred from contract assets to accounts receivables	(167.4)	—	(192.2)	—
Revenue recognized during the year ending in contract assets	68.7	—	83.4	—
Revenue recognized that was included in contract liabilities	—	(1,528.4)	—	(2,428.4)
Changes as a result of cumulative catch-up adjustments arising from changes in estimates	—	(133.4)	—	(41.9)
Remaining performance obligations for which considerations have been received	—	2,760.8	—	3,781.4
Transfer between contract assets and liabilities	233.8	233.8	(3.0)	(3.0)
Total	231.0	4,286.0	119.2	5,594.1

The increase in the net contract liability to €5,474.9 million as of December 31, 2020 compared to €4,055.0 million as of December 31, 2019 is mainly driven by the recognition of down payments for systems which will be shipped in the future. Cumulative catch-up adjustments recognized in our current year revenue are due to updated estimates for system volume, discounts and credits included in our volume purchase agreements.

Remaining performance obligations

Our customers generally commit to purchase systems, service, or field options through separate sales orders and service contracts. Typically the terms and conditions of these sales orders come from volume purchase agreements with our customers which can cover up to 5 years. The revenues for each committed performance obligation are estimated based on the terms and conditions agreed through the volume purchase agreements.

When revenues will be recognized is mainly dependent on when systems are shipped or installed, as well as when service projects and field upgrades are performed and completed. All of which is estimated based on contract terms and communication with our customers, including the customer facility readiness to take delivery of our goods or services. The volume purchase agreements may be subject to modifications, impacting the amount and timing of revenue recognition for the anticipated revenues.

As of December 31, 2020 the remaining performance obligations amount to €15.1 billion (December 31, 2019: €13.2 billion). We estimate 76% (December 31, 2019: 55%) of these anticipated revenues are expected to be recognized during the next 12 months. The remaining anticipated revenues mainly include orders related to EUV system sales and our next-generation EUV platform, High-NA, which are planned to be shipped in 2022 or later.

4. Segment disclosure

ASML has one reportable segment, for the development, production, marketing, sales, upgrading and servicing of advanced semiconductor equipment systems, consisting of lithography, metrology and inspection systems. Its operating results are regularly reviewed by the Chief Operating Decision Maker in order 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 3 Revenue from contracts with customers.

Net system sales for new and used systems were as follows:

Year ended December 31 (€, in millions)	2018	2019	2020
New systems	8,115.6	8,807.1	10,160.8
Used systems	143.5	189.1	155.8
Net system sales	8,259.1	8,996.2	10,316.6

For geographical reporting, total net sales are attributed to the geographic location in which the customers' facilities are located. Total non-current assets are attributed to the geographic location in which these assets are located and exclude deferred tax assets, financial instruments, post-employment benefit assets and rights arising under insurance contracts.

Total net sales and non-current assets by geographic region were as follows:

Year ended December 31 (€, in millions)	Total net sales	Non-current assets
2020		
Japan	542.8	12.6
Korea	4,151.6	59.5
Singapore	84.9	3.5
Taiwan	4,731.3	188.4
China	2,324.4	26.8
Rest of Asia	1.6	0.8
Netherlands	1.6	6,521.0
EMEA	483.3	982.8
United States	1,657.0	3,899.1
Total	13,978.5	11,694.5
2019		
Japan	463.2	10.3
Korea	2,202.1	41.1
Singapore	120.0	2.1
Taiwan	5,357.0	156.1
China	1,377.7	34.0
Rest of Asia	2.6	1.9
Netherlands	2.6	6,043.1
EMEA	314.6	772.4
United States	1,980.2	3,839.1
Total	11,820.0	10,900.1
2018		
Japan	567.6	12.1
Korea	3,725.1	45.9
Singapore	222.5	1.2
Taiwan	1,989.5	2,755.0
China	1,842.8	24.2
Rest of Asia	1.9	6.4
Netherlands	1.2	2,887.6
EMEA	631.7	921.7
United States	1,961.7	3,842.5
Total	10,944.0	10,496.6

In 2019 and 2020, 3 customers exceed more than 10% of total net sales, in 2020 totaling €9,946.5 million, or 71.2%, of total net sales (2019: €8,018.1 million, or 67.8%). In 2018, 4 customers exceed more than 10% of total net sales, totaling €7,931.4 million, or 72.5%. Our three largest customers (based on total net sales) accounted for €2,757.0 million, or 80.1%, of accounts receivable and finance receivables at December 31, 2020, compared with €2,191.8 million, or 77.2%, at December 31, 2019.

Substantially all of our sales were export sales in 2020, 2019 and 2018.

The increase in total net sales of €2,158.5 million, or 18.3%, to €13,978.5 million in 2020 from €11,820.0 million in 2019 (2018: €10,944.0 million) is driven by higher volumes in EUV, higher average selling prices in EUV for the NXE:3400C relative to the NXE:3400B and growth in our service and field options business. The Logic sector continued to be strong in 2020, and was the largest consumer of our most advanced EUV systems as well. Memory demand picked up in 2020 after a decline in 2019 South Korea saw the largest geographic sales growth in support of expanding capacity in Foundry and DRAM production lines.

In Q4 2020, 2 systems have been moved into storage on our premises after completion, through a long-term storage arrangement with a customer. For both systems we have recognized revenue as a bill-and-hold transaction since control has transferred to the customer.

The increase in non-current assets in EMEA is mainly a result of the acquisition of Berliner Glas in 2020 of €125.1 million relating to Property, plant and equipment, net. The additions in 2020 in the Netherlands relates mainly to construction of ASML's logistics facility, High-NA factory and office space at our headquarters in Veldhoven, in order to support our continued growth.

Segment performance is also evaluated by our Chief Operating Decision Maker based on US GAAP for total assets. The table below presents the measurements and the reconciliation to total assets in the Consolidated Statement of Financial Position:

Year ended December 31 (€, in millions)	2019	2020
Total assets based on US GAAP	22,629.6	27,267.4
Development expenditures (Note A)	1,424.5	1,613.9
Income taxes (Note B)	(19.0)	(14.6)
Total assets based on EU-IFRS	24,035.1	28,866.7

The above differences between US GAAP and EU-IFRS relate to the following:

Note A - Development Expenditures

Under EU-IFRS, we apply IAS 38, "Intangible Assets". In accordance with IAS 38, we capitalize certain development expenditures that are amortized over the expected useful life of the related product generally ranging between one and five years.

Under US GAAP, we apply ASC 730, "Research and Development". In accordance with ASC 730, we charge costs relating to research and development to operating expense as incurred.

Note B - Income Taxes

Contrary to US GAAP, under EU-IFRS, the prepaid taxes under US GAAP are calculated based on the tax rate applicable in the seller's rather than the purchaser's tax jurisdiction. Under US GAAP, the elimination of unrealized net income from intercompany transactions relating to inventory that are eliminated in consolidation give rise to a temporary difference for which prepaid taxes must be recognized in consolidation.

5. 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 of 3 months or less at the date of acquisition.

Investments with original maturities to the entity holding the investments longer than 3 months and 1 year or less at the date of acquisition are presented as short-term investments. Other than temporary fair value changes in these investments are recognized in the Consolidated Statement of Profit or Loss 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)	2019	2020
Deposits with financial institutions, governments and government related bodies	434.8	1,545.3
Investments in money market funds	2,139.7	3,841.9
Bank accounts	957.8	662.2
Cash and cash equivalents	3,532.3	6,049.4
Deposits with financial institutions, governments and government related bodies	1,185.8	1,302.2
Short-term investments	1,185.8	1,302.2

The cash and cash equivalents and short term investments increased €2.6 billion mainly driven by an increase in Net income, an increase in down payments from customers and proceeds from the issuance of notes.

The deposits with financial institutions, governments and government related bodies and investments in money market funds have an investment grade credit rating. Our cash and cash equivalents are predominantly denominated in euros and partly in US dollars.

As of December 31, 2020, no restrictions on usage of cash and cash equivalents exist (2019: no restrictions). The carrying amount of these assets approximates their fair value.

6. 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 substantially all risks and rewards over the receivable.

Accounts receivable consist of the following:

Year ended December 31 (€ in millions)	2019	2020
Accounts receivable, gross	1,791.9	1,313.1
Allowance for credit losses	(5.1)	(2.8)
Accounts receivable, net	1,786.8	1,310.3

The decrease in accounts receivable as of December 31, 2020 compared to December 31, 2019 is due to an increase in factoring of our accounts receivable, partly offset by an increase in our sales.

In 2020, receivables have been sold through factoring arrangements for cash totaling €2.2 billion (2019: €1.3 billion). The amounts consist of €1.4 billion (2019: €0.6 billion) regular trade receivables and €0.8 billion (2019: €0.7 billion) absolute, unconditional, irrevocable accounts receivable for down payments on systems to be shipped in 2021. The total amount sold has been derecognized since the asset is isolated from the seller, substantially all risks and rewards over the receivable are transferred to the buyer and there are no restrictions on the buyer related to the factored items. The fair value of the receivables sold was substantially the same as their carrying value. The transfer is treated as an operating cash flow within the Consolidated Statements of Cash Flows.

Accounts receivable are impaired and provided for on an individual basis. As of December 31, 2020, accounts receivable of €277.8 million (2019: €187.5 million) were past due but not impaired. These balances are still considered to be recoverable because they relate to customers for whom there is no recent history of default and there has not been a significant change in credit quality. The table below shows the aging analysis of the accounts receivable that are up to three months past due and over three months past due. Accounts receivable are past due when the payment term has expired.

As of December 31 (€, in millions)	2019	2020
Up to three months past due	125.6	131.3
Over three months past due	67.0	149.3
Total past due	192.6	280.6

The average days outstanding decreased to 34 days in 2020 from 55 days in 2019.

In 2020 and 2019, we did not record any expected credit losses for accounts receivable on system sales.

7. Finance receivables, net

Accounting Policy

Finance receivables consist of receivables in relation to finance 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, 2020 and 2019:

Year ended December 31 (€, in millions)	2019	2020
Finance receivables, gross	994.4	2,122.5
Unearned interest	(8.8)	(11.5)
Finance receivables, net	985.6	2,111.0
Current portion of finance receivables, gross	568.4	1,716.1
Current portion of unearned interest	(3.9)	(5.6)
Non-current portion of finance receivables, net	421.1	400.5

The increase in finance receivables as of December 31, 2020 compared to December 31, 2019 is the result of providing additional systems with a free-use period, to support the capacity ramp-up of high-end systems which are part of the early-insertion lifecycle of the technology. Additionally, we delivered some of our newest DUV systems to customers with the right to use and evaluate the new technology during a free-use period, and it is expected they will be purchased at the end of the free-use period.

Gross profit recognized at the commencement date of the lease for our finance leases amounts to €830.2 million during 2020 (2019: €343.9 million; 2018: €446.5 million). Interest income for our finance leases in 2020 amounts to €6.2 million (2019: €4.7 million; 2018: €4.9 million).

As of December 31, 2019 and 2020, the minimum lease payments and present value of minimum lease payments is:

Year ended December 31 (€, in millions)	Minimum lease payments		Present value of minimum lease payments	
	2019	2020	2019	2020
Not later than one year	568.4	1,716.1	564.5	1,710.5
Later than one year and not later than five years	426.0	406.4	421.1	400.5
Total	994.4	2,122.5	985.6	2,111.0
Less: unearned interest	(8.8)	(11.5)	n/a	n/a
Present value of minimum lease payments receivable	985.6	2,111.0	985.6	2,111.0

In 2020 and 2019 we did not record any expected credit losses from finance receivables. As of December 31, 2020, the finance receivables were neither past due nor impaired.

8. 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 costs should be capitalized into inventory based on the normal capacity of our manufacturing and assembly facilities. If the usage of our facilities is below the established normal capacity, a portion of our fixed overhead costs are not capitalized into inventory but instead are expensed in 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)	2019	2020
Raw materials	2,026.3	2,073.4
Work-in-process	1,505.9	1,805.0
Finished products	771.3	1,164.2
Inventories, gross	4,303.5	5,042.6
Allowance for obsolescence	(494.3)	(473.2)
Inventories, net	3,809.2	4,569.4

The increase in inventory in 2020 compared to 2019 is driven by the increased demand from customers, higher costs of our latest technologies and growing install base.

A summary of activity in the inventory reserves is as follows:

Year ended December 31 (€, in millions)	2019	2020
Balance at beginning of year	(441.3)	(494.3)
Addition for the year	(221.5)	(192.4)
Effect of changes in exchange rates	(0.5)	0.8
Utilization of the provision	169.0	212.7
Balance at end of year	(494.3)	(473.2)

The additions for 2020 and 2019 are recorded in Cost of sales, while 2018 is split between Cost of sales of €207.9 million and Research and Development costs of €10.3 million. The additions for the year mainly relate to inventory items which became obsolete due to technological developments and design changes.

The cost of inventories recognized in cost of sales in 2020 amounted to €5,403.3 million (2019: €4,930.0 million; 2018: €4,505.4 million).

9. Other assets

Other current and non-current assets consist of the following:

Year ended December 31 (€, in millions)	2019	2020
Advance payments to Carl Zeiss SMT GmbH	215.2	265.8
Prepaid expenses	213.3	115.9
VAT receivable	89.5	125.6
Other assets	131.1	92.6
Other current assets	649.1	599.9
Advance payments to Carl Zeiss SMT GmbH	585.3	668.0
Prepaid expenses	4.1	55.2
Compensation plan assets	55.1	67.0
Non-current accounts receivable	67.8	22.6
Other assets	15.1	14.9
Other non-current assets	727.4	827.7

ASML makes non-interest bearing advance payments to support our investment in associates 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. The increase in this balance is due to the support provided under the High-NA agreement.

Prepaid expenses mainly include and the contract balance related to the joint development program with imec of €53.8 million as of December 31, 2020 (2019: €88.8 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.

The carrying amount of the non-current and current other assets approximates the fair value.

10. Investments in associates

Accounting Policy

Equity investments which we are able to exercise significant influence but do not control, are accounted for using the equity method and presented on our Consolidated Statement of Financial Position within Investments in associates. The difference between the cost of our investment and our proportionate share of 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 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 16.2 years and is amortized using a straight-line method. In-process R&D is initially capitalized at fair value as an intangible asset not yet ready for use and is assessed for impairment thereafter. 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 Statement of Profit or Loss 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 Investments in associates are adjusted for our proportionate share of the profit or loss and other comprehensive income of the investee, recognized on a one-quarter time lag and presented within Profit from investments in associates. Our proportionate share of 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 Investments in associates, which is presented as an operating cash flow based on the nature of the distributions.

Investments in associates consists of a 24.9 percent 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.

For the year ended December 31, 2020, we recorded a profit related to investments of €88.6 million (2019: €18.2 million) in the Consolidated Statement of Profit or Loss. This profit includes the following components:

- Profit of €111.4 million (2019: €82.8 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 (2019: €26.7 million)
- Cost (benefit) due to intercompany profit elimination of €(3.9) million (2019: €13.7 million)
- Cost due to dividend forfeiture of €0.0 million (2019: €24.2 million)

In 2020 we received a dividend of €128.1 million (2019: €99.9 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.

The summarized financial information of Carl Zeiss SMT Holding GmbH & Co. KG excluding basis difference adjustments, before accounting policy alignment, and using the one-quarter time lag is as follows:

Year ended December 31 (€, in millions)	2019	2020
Summarized Statement of Financial Position:		
Total non-current assets	636.4	691.6
Total current assets	1,620.2	1,545.5
Total non-current liabilities	434.3	464.0
Total current liabilities	1,752.6	1,676.7
Summarized Statement of Profit or Loss and Comprehensive Income:		
Total net sales	1,630.4	1,813.9
Net income	543.4	550.4
Other comprehensive income	(88.2)	(6.1)
Total comprehensive income	455.2	544.3

The reconciliation of our proportionate share of Carl Zeiss SMT Holding GmbH & Co. KG's net income and the profit related to investments in associates as reported in our Consolidated Statement of Profit or Loss is as follows:

Year ended December 31 (€, in millions)	2019	2020
Net income	543.4	550.4
ASML's share of net income	135.3	137.0
Accounting policy alignment	(52.5)	(25.6)
Basis difference adjustments	(26.7)	(26.7)
Dividend forfeiture	(24.2)	—
Intercompany profit elimination	(13.7)	3.9
ASML profit related to investments in associates	18.2	88.6

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 CGUs for the purpose of impairment testing. The allocation is made to those CGUs 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. If the recoverable amount of the CGU is less than the carrying amount of the unit, the impairment loss is allocated first to reduce the carrying amount of any goodwill allocated to the unit and then to the other assets of the unit pro-rata on the basis of the carrying amount of each asset in the unit. An impairment loss recognized for goodwill is not reversed in a subsequent period.

Goodwill mainly results from the acquisitions of Cymer and HMI. The balance as of December 31, 2020 is €4,650.6 million (2019: €4,562.7 million). The increase of €87.9 million is the result of the acquisition of Berliner Glas on October 30, 2020. For details of the Berliner Glas business combination see: Note 2 Business Combinations.

We have identified two CGUs, CGU ASML and CGU Cymer Light Sources. As of December 31, 2020 the goodwill allocated to CGU ASML amounts to €4,192.7 million (2019: €4,104.8 million) and CGU Cymer Light Sources amounts to €457.9 million (2019: €457.9 million). Goodwill related to the Berliner Glas acquisition is allocated to the ASML CGU.

The recoverable amounts of the CGUs are based on value in use calculations consistently with prior reporting periods. The value in use calculations were performed by discounting the pre-tax future cash flows generated from the continuing use of the CGUs. Cash flows beyond the forecasted period of five years have been extrapolated using a 0% growth rate. These estimates are consistent with the plans and estimated costs we use to manage our underlying business.

The pre-tax WACC used to determine the expected discounted future cash flows is 9.5% for CGU ASML and 9.5% for CGU Cymer Light Sources.

Based on our assessment during the annual goodwill impairment test, we believe it is more likely than not that the recoverable amounts of the CGUs exceed their carrying amounts, and therefore goodwill was not impaired as of December 31, 2020.

12. Intangible assets, net

Accounting Policy

Intangible assets include internally-generated intangible assets, 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 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
Development expenditures	1 - 5 years
Intellectual property	3 - 10 years
Developed technology	6 - 15 years
Customer relationships	8 - 18 years
Other	2 - 10 years

Internally-generated intangible assets - development expenditures

Expenditures on research activities are recognized as costs in the period in which they are incurred. EU-IFRS requires capitalization of development expenditures provided if, and only if, certain criteria can be demonstrated.

An internally-generated intangible asset arising from our development is recognized only if we can demonstrate all of the following conditions:

- The technical feasibility of completing the intangible asset so that it will be available for use or sale
- The intention to complete the intangible asset and use or sell it
- The ability to use or sell the intangible asset
- The probability that the asset created will generate future economic benefits
- The availability of adequate technical, financial and other resources to complete the development and to use or sell the intangible asset
- The ability to measure reliably the expenditure attributable to the intangible asset during its development

For certain development programs, it was not possible to separate development activities from research activities (approximately €122.7 million and €114.4 million for 2020 and 2019, respectively). Consequently, we are not able to reliably determine the amount of development expenditures incurred and therefore no amounts were capitalized for these programs.

As of December 31, 2020 intangible assets consist mainly of development expenditures, brands, intellectual property, developed technology, customer relationships obtained from the acquisitions of HMI (2016) and Cymer (2013):

€, in millions	Development expenditures	Brands	Intellectual property	Developed technology	Customer relationships	Other	Total
Cost							
Balance at January 1, 2019	2,385.8	39.2	68.9	1,199.9	228.6	66.2	3,988.6
Additions	305.6	—	73.7	—	—	42.1	421.4
Disposals	—	—	—	—	—	(0.2)	(0.2)
Effect of changes in exchange rates	0.4	(0.3)	(0.2)	0.2	—	2.4	2.5
Balance at December 31, 2019	2,691.8	38.9	142.4	1,200.1	228.6	110.5	4,412.3
Acquisitions through business combinations	—	—	—	30.0	—	2.3	32.3
Additions	620.9	—	2.5	—	—	33.4	656.8
Disposals	(41.3)	—	—	—	—	(0.2)	(41.5)
Effect of changes in exchange rates	(3.0)	—	(0.1)	—	—	(0.1)	(3.2)
Balance at December 31, 2020	3,268.4	38.9	144.8	1,230.1	228.6	145.9	5,056.7
Accumulated amortization							
Balance at January 1, 2019	897.1	7.4	62.8	346.5	70.5	11.6	1,395.9
Amortization	379.7	1.9	7.8	82.0	12.7	11.0	495.1
Disposals	—	—	—	—	—	(0.2)	(0.2)
Effect of changes in exchange rates	—	(0.1)	—	0.1	—	2.1	2.1
Balance at December 31, 2019	1,276.8	9.2	70.6	428.6	83.2	24.5	1,892.9
Amortization	427.7	1.9	8.2	82.1	12.7	18.6	551.2
Disposals	(40.4)	—	—	—	—	(0.2)	(40.6)
Effect of changes in exchange rates	(0.5)	—	—	—	—	—	(0.5)
Balance at December 31, 2020	1,663.6	11.1	78.8	510.7	95.9	42.9	2,403.0
Carrying amount							
December 31, 2019	1,415.0	29.7	71.8	771.5	145.4	86.0	2,519.4
December 31, 2020	1,604.8	27.8	66.0	719.4	132.7	103.0	2,653.7

Development expenditures for both 2020 and 2019 were primarily focused on programs supporting our Holistic Lithography solutions in EUV, DUV immersion, and Applications. In 2020, these activities mainly related to the development of High-NA, our next generation 0.55NA, ArF dry NXT:1470, immersion NXT:2050i, and NXE:3600D systems and further development of Yieldstar and process window control solutions.

Of our Intangible assets at December 31, 2020, €1,707.8 million have been generated internally (December 31, 2019: €1,501.0 million). These intangibles are included in Development Expenditures and Other.

During 2020, we recorded amortization charges of €551.2 million (2019: €495.1 million; 2018: €414.5 million) which were recorded in cost of sales for €529.5 million (2019: €477.1 million; 2018: €408.0 million), in R&D costs for €12.0 million (2019: €7.5 million; 2018: €1.3 million) and in SG&A costs for €9.7 million (2019: €10.5 million and 2018: €5.2 million).

As of December 31, 2020, the other intangible assets not yet available for use as included in the development expenditures amount to €520.6 million (2019: €333.1 million) and are allocated to CGU ASML for €502.1 million and to CGU Cymer Light Sources for €18.5 million. This increase is mainly due to High NA investments shifting into the development phase in 2020, while the majority of the expenditures on the R&D projects for High NA in 2019 were not yet eligible for capitalization.

As of December 31, 2020, the intangible assets not yet available for use as included in Other amount to €24.8 million (2019: €14.9 million) and are allocated to CGU ASML.

During 2020 we recorded no impairment charges (2019: €0.0 million; 2018: €0.0 million).

As of December 31, 2020, the estimated amortization expenses for intangible assets for the next 5 years and thereafter:

€, in millions	Amount
2021	520.3
2022	401.8
2023	326.5
2024	337.0
2025	279.8
Thereafter	788.3
Amortization expenses	2,653.7

13. Property, plant and equipment, net

Accounting Policy

Property, plant and equipment are 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 Statement of Profit or Loss 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

Property, plant and equipment consist of the following:

€ in millions	Land and buildings	Machinery and equipment	Leasehold improvements	Furniture, fixtures and other	Total
Cost					
Balance at January 1, 2019	1,709.8	1,305.1	275.2	416.2	3,706.3
Additions	321.0	261.1	26.7	64.6	673.4
Disposals	(0.3)	(17.5)	(1.4)	(103.4)	(122.6)
Net non-cash movements to/from Inventories	—	33.9	—	—	33.9
Effect of changes in exchange rates	6.0	5.2	0.5	0.3	12.0
Balance at December 31, 2019	2,036.5	1,587.8	301.0	377.7	4,303.0
Acquisitions through business combinations	49.1	65.7	—	10.3	125.1
Additions	359.3	263.0	45.7	43.4	711.4
Disposals	(0.4)	(53.6)	(5.2)	(9.0)	(68.2)
Net non-cash movements to/from Inventories	—	(23.9)	—	—	(23.9)
Effect of changes in exchange rates	(12.3)	(10.1)	(1.2)	(1.8)	(25.4)
Balance at December 31, 2020	2,432.2	1,828.9	340.3	420.6	5,022.0
Accumulated depreciation and impairment					
Balance at January 1, 2019	646.0	892.0	260.9	317.9	2,116.8
Depreciation	98.5	166.7	21.3	38.8	325.3
Impairment charges	—	4.7	—	—	4.7
Disposals	(0.2)	(14.8)	(1.2)	(103.3)	(119.5)
Net non-cash movements to/from Inventories	—	(28.7)	—	—	(28.7)
Effect of changes in exchange rates	2.0	2.8	0.3	—	5.1
Balance at December 31, 2019	746.3	1,022.7	281.3	253.4	2,303.7
Depreciation	102.0	186.2	21.4	42.1	351.7
Impairment charges	—	2.7	—	—	2.7
Disposals	(0.1)	(51.6)	(4.7)	(9.0)	(65.4)
Net non-cash movements to/from Inventories	—	(29.9)	—	—	(29.9)
Effect of changes in exchange rates	(5.6)	(3.9)	(0.7)	(0.9)	(11.1)
Balance at December 31, 2020	842.6	1,126.2	297.3	285.6	2,551.7
Carrying amount					
December 31, 2019	1,290.2	565.1	19.7	124.3	1,999.3
December 31, 2020	1,589.6	702.7	43.0	135.0	2,470.3

As of December 31, 2020, the carrying amount includes assets under construction for Land and buildings of €526.3 million (2019: €286.6 million), Machinery and equipment of €113.4 million (2019: €85.4 million), Leasehold improvements of €32.6 million (2019: €4.5 million) and Furniture, fixtures and other of €4.1 million (2019: €7.8 million).

As of December 31, 2020, the carrying amount of land amounts to €102.4 million (2019: €105.7 million).

The additions in 2020 in Land and buildings, as well as Furniture, fixtures and other, relates to construction of ASML's logistics facility, High-NA factory and office space at our headquarters in Veldhoven, in order to support our continued growth.

The additions in 2020 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 Consolidated Statement of Profit or Loss includes the following depreciation charges:

Year ended December 31 (€ in millions)	2018	2019	2020
Cost of Sales	191.6	196.1	205.9
R&D Costs	105.9	117.2	119.9
SG&A	17.9	12.0	25.9
Total Depreciation	315.4	325.3	351.7

14. Right-of-use assets and lease liabilities

Accounting Policy

We determine if an arrangement is a lease at inception. Leases are included in Right-of-use ("ROU") assets, accrued & other current liabilities, and accrued & other non-current liabilities in our consolidated statement of financial position. We have one immaterial lease which the associated lease liability is included in the current portion of long-term debt, and Long-term debt in our consolidated statement of financial position as this is consistent with how management views this lease.

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 lease terms may include options to extend or terminate the lease when it is reasonably certain that we will exercise that option. Lease expense for lease payments is 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 stand-alone prices of lease components included in the lease contracts.

Right-of-use assets consist of the following leases:

Year ended December 31 (€ in millions)	2019	2020
Properties	269.1	288.9
Cars	11.9	7.6
Equipment	26.4	34.1
Warehouses	8.7	11.0
Other	7.8	3.3
Right-of-use assets	323.9	344.9

ASML owns the majority of real estate we utilize for manufacturing, supply chain management and general administration at our headquarter in Veldhoven, in the Netherlands. At our other locations, worldwide much of the properties we occupy are leased and therefore comprise the largest amount of our right-of-use assets. Additionally, we lease warehouse space at locations world-wide and cars for use by our employees.

The Right-of-use assets from finance leases mainly consist of facilities and tooling related to our High-NA agreement with Carl Zeiss SMT, for which the funds are prepaid by ASML. As capital expenditures under this arrangement are placed into service, we derecognized our prepaid asset and recognized a ROU Asset under a finance lease arrangement.

Lease liabilities are split between current and non-current:

Year ended December 31 (€ in millions)	2019	2020
Current	55.6	51.2
Non-current	163.3	137.9
Lease liabilities	218.9	189.1

For the year ended December 31, 2020, Lease Liabilities under an operating lease arrangement decreased by €29.8 million, mainly due to scheduled lease payments, partly offset by new lease contracts.

The Consolidated Statement of Profit or Loss include the following depreciation charges relating to these leases:

Year ended December 31 (€ in millions)	2018	2019	2020
Properties	40.2	51.0	51.7
Cars	7.4	8.1	5.5
Equipment	—	4.5	7.0
Warehouses	7.1	4.5	6.6
Other	12.4	12.4	5.9
Depreciation charge right-of-use assets	67.1	80.5	76.7

The total cash flows relating to the lease liabilities are as follows:

Year ended December 31 (€ in millions)	2018	2019	2020
Total Cash Flows	67.1	76.0	61.7

The weighted average remaining lease term and weighted average discount rate related to the leases are as follows:

Year ended December 31 (€ in millions)	2018	2019	2020
Weighted average remaining lease term (months)	60	118	147
Weighted average discount rate (%)	2.1%	2.1%	1.3%

15. Accrued and other liabilities

Accrued and other liabilities consist of the following:

Year ended December 31 (€ in millions)	2019	2020
Costs to be paid	252.1	233.9
Personnel related items	654.6	757.4
Lease liabilities ¹	209.4	176.3
Provisions	30.7	84.8
Standard warranty reserve	128.4	119.1
Other	1.8	12.0
Accrued and other liabilities	1,277.0	1,383.5
Less: non-current portion of accrued and other liabilities	241.0	257.5
Current portion of accrued and other liabilities	1,036.0	1,126.0

1. For further details on operating lease liabilities see Note 14 Right-of-use assets and lease liabilities.

Costs to be paid as of December 31, 2020 include accrued costs for unbilled services provided by suppliers including contracted labor, outsourced services and consultancy.

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 due to an increase in the annual short-term incentive bonus plan accrual based on company performance, as well as the result of the growth of our business, which resulted in an increase in the number of our employees.

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 2020 and 2019 are as follows:

Year ended December 31 (€ in millions)	2019	2020
Balance at beginning of year	59.8	128.4
Additions for the year	118.5	137.1
Utilization of the reserve	(50.0)	(145.9)
Effect of exchange rates	0.1	(0.5)
Balance at end of year	128.4	119.1

16. Long-term debt, finance income and finance 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 the “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)	2019	2020
€500 million 0.625% senior notes issued July 2016 and principal due July 7th 2022 interest annually payable on July 7th, carrying amount	499.5	501.5
€750 million 3.375% senior notes issued September 2013 and principal due September 19th 2023 interest annually payable on September 19th, carrying amount	813.3	802.1
€1,000 million 1.375% senior notes issued July 2016 and principal due July 7th 2026 interest annually payable on July 7th, carrying amount	1,007.0	1,028.0
€750 million 1.625% senior notes issued November 2016 and principal due May 28th 2027 interest annually payable on May 28th, carrying amount	778.3	795.4
€750 million 0.250% senior notes issued February 2020 and principal due February 25th 2030 interest annually payable on February 25th, carrying amount	—	740.7
€750 million 0.625% senior notes Issued May 2020 and principal due May 7th 2029 interest annually payable on May 7th, carrying amount	—	746.8
Debt acquired through the Berliner Glas business combination	—	55.5
Other	10.2	8.2
Long-term debt	3,108.3	4,678.2
Less: current portion of long-term debt	—	15.4
Non-current portion of long-term debt	3,108.3	4,662.8

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 Eurobonds and other borrowing arrangements excluding interest expense as of December 31, 2020:

€, in millions	Amount
2021	15.4
2022	512.0
2023	761.1
2024	7.4
2025	2.7
Thereafter	3,265.0
Long-term debt	4,563.6
Less: current portion of long-term debt	15.4
Non-current portion of long-term debt	4,548.2

For the year 2021, the obligations relate to lease payments and Berliner Glas loan repayments. The years thereafter mainly relate to repayments of principals under our Eurobonds.

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)	2019	2020
Amortized cost amount	2,983.2	4,474.1
Fair value interest rate swaps ¹	114.9	140.4
Carrying amount	3,098.1	4,614.5

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 Statement of Financial Position under derivative financial instruments and the carrying amount of the Eurobonds is adjusted for these fair value changes. In February and May of 2020 we issued new Eurobonds with fixed interest coupons. We did not enter into additional interest rate swaps in connection with these bonds.

The following table summarizes the estimated fair value of our Eurobonds:

Year ended December 31 (€, in millions)	2019	2020
Principal amount	3,000.0	4,500.0
Carrying amount	3,098.1	4,614.5
Fair value ¹	3,247.7	4,798.8

1. Source: Bloomberg Finance LP.

The fair value of our Eurobonds is estimated based on quoted market prices as of December 31, 2020. 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.

The following table summarizes changes in liabilities arising from financing activities, including both changes arising from cash flows and non-cash changes:

€, in millions	Long term debt	Lease liability	Total
Balance at January 1, 2019	3,017.4	9.1	3,026.5
Cash flows	—	(2.8)	(2.8)
Non-cash changes:			
Fair value adjustments	77.4	—	77.4
Other	3.3	3.9	7.2
Balance at December 31, 2019	3,098.1	10.2	3,108.3
Cash flows	1,486.3	(2.8)	1,483.5
Non-cash changes:			
Fair value adjustments	25.6	—	25.6
Debt acquired through the Berliner Glas business combination	50.7	4.8	55.5
Other	4.7	0.6	5.3
Balance at December 31, 2020	4,665.4	12.8	4,678.2

Lines of credit

We maintain an available committed credit facility, with a group of banks, of €700.0 million as of December 31, 2020 and as of December 31, 2019. No amounts were outstanding under the committed credit facility at the end of 2020 and 2019. This facility of €700.0 million was renegotiated on July 3, 2019, with an original maturity date of July 3, 2024. The facility includes options for extension by two 1-year extension options. This extends the maturity to potentially 2026, if agreed by both ASML and the lenders. In June 2020 the first 1-year extension option was exercised extending the maturity date of the facility from July 2024 to July 2025. Outstanding amounts under this credit facility will bear interest at EURIBOR plus a margin that 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 January 1, 2019, ASML entered into 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.

Debt acquired through the Berliner Glas business combination

The loans of Berliner Glas are comprised of a mortgage loan of €25.0 million with an annual interest rate of 0.5% repayable in 2034, revolving credit facilities at various financial institutions of €25.7 million with annual interest rates varying between 0.8% and 1.2% that are repayable annually through 2024, as well as financial lease liabilities totaling €4.8 million.

Finance costs

Finance costs are €43.3 million (2019: €36.6 million and 2018: €41.8 million). The expenses mainly relate to interest expense on our Eurobonds, interest rate swaps and hedges, and amortized financing costs.

17. Commitments and contingencies

Commitments

We have various contractual obligations, some of which are required to be recorded as liabilities in our Financial Statements, including long- and short-term debt and lease commitments. Other contractual obligations, namely purchase obligations, are generally not required to be recognized as liabilities but are required to be disclosed.

Our contractual obligations as of December 31, 2020 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	4,874.5	76.4	572.9	818.9	39.9	35.2	3,331.2
Lease Obligations ²	176.3	46.5	37.1	24.5	15.0	12.1	41.1
Purchase Obligations	5,243.1	4,247.3	624.0	231.3	67.6	37.9	35.0
Carl Zeiss SMT GmbH High-NA Funding ³	319.9	229.7	90.2	—	—	—	—
Total Contractual Obligations	10,613.8	4,599.9	1,324.2	1,074.7	122.5	85.2	3,407.3

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, interest and other costs.

2. For further details see Note 14 Right-of-use assets and lease liabilities.

3. For further details see Note 26 Related party transactions.

We have purchase obligations towards suppliers in the ordinary course of business which mainly relates 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, 2020 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 cyclically and technological developments inherent in the industry in which we operate.

Contingencies

ASML is subject to proceedings, litigation and other actual or potential claims. In addition, 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.

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, 2020, management has determined that ASML does not have any material contingency which is considered probable or reasonably probable for each year presented in our Consolidated Statement of Financial Position.

18. Personnel expenses and employee information

Personnel expenses for all payroll employees were as follows:

Year ended December 31 (€, in millions)	2018	2019	2020
Wages and salaries	1,777.9	2,124.4	2,519.6
Social security expenses	146.3	181.9	208.1
Pension and retirement expenses	122.0	152.5	182.6
Share-based payments	46.3	74.6	53.9
Personnel expenses	2,092.5	2,533.4	2,964.2

The average number of payroll employees in FTEs was:

Average number of payroll employees in FTEs	2018	2019	2020
Netherlands	8,597	11,376	12,812
Worldwide	18,204	22,192	24,727

The continued increase in payroll employees in 2020 is to support the growth of our business and due to the acquisition of Berliner Glas. As a result of the acquisition of Berliner Glas, around 1,600 employees joined ASML as of October 30, 2020. None of these employees work in the Netherlands. The personnel expenses in 2020 do not include any expenses of Berliner Glas, since ASML consolidates Berliner Glas using a one-quarter lag.

The total number of payroll and temporary employees as of December 31 in FTEs per sector was:

Year ended December 31 (in FTE)	2018	2019	2020
Customer Support	5,674	5,953	6,429
Manufacturing and Supply Chain Management	5,779	5,933	7,680
Strategic Supply Management	267	326	346
General & Administrative	1,701	1,898	2,061
Sales and Mature Products and Services	559	624	744
Research & Development	9,267	10,166	10,813
Total	23,247	24,900	28,073
Less: Temporary employees	3,203	1,681	1,459
Payroll employees	20,044	23,219	26,614

Bonus plans

We have annual performance related short-term incentive (STI) bonus plans for our employees. Under these plans, the payout depends on company and / or individual performance. This STI bonus (excluding the Board of Management) can range between 0% and 117.0% of the employees' annual base salary, depending on their job grade and the type of STI plan. The STI for 2020 is accrued for as part of Accrued and other liabilities in the Consolidated Statement of Financial Position and will be paid in the first quarter of 2021.

Short-term incentive bonus expenses for the Board of Management and other employees were as follows:

Year ended December 31 (€, in millions)	2018	2019	2020
Board of Management	4.5	5.1	5.4
Other employees	233.7	269.1	402.5
Total bonus expenses	238.2	274.2	407.9

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, 2020, 2019 and 2018 were:

Year ended December 31 (€, in millions)	2018	2019	2020
Pension plan based on multi-employer union plan	74.0	96.6	126.8
Pension plans based on defined contribution	48.0	55.9	55.8
Pension and retirement expenses	122.0	152.5	182.6

In accordance with the collective bargaining agreements effective for the industry in which we operate, which has no expiration date, there are 13,816 eligible employees in the Netherlands 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 and covers approximately 1,400 companies and approximately 168,000 contributing members. Every company participating in the PME 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 2020 the contribution percentage was 22.7% (2019: 22.7%). For 2020, our contribution to this multi-employer union plan (including the premiums paid by employees), was 14.0% (2019: 11.7%) of the total contribution to the plan. For 2021, we expect to contribute around €190.0 million to this multi-employer union 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 percentage is calculated by dividing the funds capital by the total sum of pension liabilities and is based on actual market interest rates. The coverage ratio as per December 31, 2020 is 97.2% (December 31, 2019: 98.7%) and is below the legally required minimum coverage ratio of 104.0%. While the current coverage ratio is below the legally required minimum, PME has made use of a temporary ministerial exemption regulation in 2020 due to the current economic environment, which exempts PME from the requirement to reduce the pension payouts in 2021.

Additionally, PME has initiated a recovery plan to increase the coverage ratio to its legally required minimum level. Based on this plan it is estimated that the coverage ratio will increase to the legally required minimum coverage ratio as of 2028, which is within the legally required maximum recovery period of ten years. ASML has no obligation to pay off any deficits the pension fund may incur, nor do we have any claim to any potential surpluses.

We also participate in several other defined contribution pension plans (outside the Netherlands), with our expenses for these plans equaling the employer contributions made in the relevant period.

As part of the acquisition of Berliner Glas, we assumed a pension plan in Switzerland that is classified as a defined benefit pension plan as a result of a requirement to provide additional funding in case of a shortfall, while surpluses can only become due to beneficiaries. The plan is funded in line with the statutory requirements. The current level of funding is sufficient with a coverage ratio of 106. Furthermore, the pension fund is allowed to take measures to limited the deficit before additional funding is required by the participating companies. As of December 31, 2020 the plan assets are estimated at €74.7 million and the pension obligation at €89.5 million, resulting in a net pension liability of €14.8 million recorded under non-current Accrued and other liabilities.

Deferred compensation plans

We have a non-qualified deferred compensation plan for our US employees that allows a select group of management or highly compensated employees 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 2020, 2019 and 2018. As of December 31, 2020, our liability under deferred compensation plans was €68.3 million (2019: €56.6 million). The related compensation plan assets are €67.0 million (2019: €55.1 million).

20. Share-based payments

ASML provides compensation to its employees through different type of share plans. These plans can be categorized as follows:

- Share based compensation plans (Long term incentive and Employee Umbrella Share Plan)
- Employee purchase plan (Cash reservation for acquisition of undefined number of shares based on an undefined share price at acquisition date)
- Option plans (Option to buy a predetermined amount of shares against a predetermined exercise price)

Share based compensation plans

Accounting Policy

As part of our long-term incentive (LTI) bonus, employees can be granted either a service or performance share based-payment plan including services. For service plans shares are granted at grant date and after having been in service for a set period (typically 3 years), the participant is awarded these shares at the vesting date. For performance plans, 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.

Long-term incentive plans

The table below shows the performance criteria and the corresponding weight for the 2020 LTI performance plans.

LTI performance plan criteria	Market / Non-Market element	Weight
Total Shareholder Return	Market	30%
ROAIC	Non-Market	40%
Technology Leadership Index	Non-Market	20%
Sustainability	Non-Market	10%
Total		100%

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 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 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.

Employee Umbrella Share Plan

The Employee Umbrella Share Plan, effective as of January 1, 2014 covers all employees. The main purpose of the grants of Equity Incentives under the 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 3-year vesting period and are subject to the above mentioned performance or service criteria.

The assumptions for the calculation of the fair value of shares for share based compensation plans, which include a market based performance element, are set out in the following table:

Year ended December 31	2018	2019	2020
Share price in € at grant date	166.9	199.5	270.7
Expected volatility ASML	26.1%	29.8%	28.9 %
Expected volatility PHLX index	21.3%	24.8%	24.7 %
Vesting period	2.9 years	2.5 years	2.9 years
Dividend yield	0.8%	1.1%	0.9 %
Risk free interest rate (Eurozone)	(0.4)%	(0.8)%	(0.6)%
Risk free interest rate (US)	2.2%	1.8%	1.5 %

Expenses for share based compensation plans were as follows:

Year ended December 31 (€, in millions)	2018	2019	2020
Total compensation expenses incurred for share based remuneration (including share-based compensation to the BoM)	46.3	74.6	53.9
The income tax benefit (excluding excess income tax benefits) recognized related to the recognized share-based compensation costs in the US	5.6	5.9	6.6
Total compensation expenses to be incurred for share based remuneration (including share-based compensation to the BoM) in future periods	94.2	95.8	85.9
Weighted average period in which compensation expenses (including share-based compensation to the BoM) are expected to be recognized	1.7 years	1.6 years	1.6 years

Details with respect to shares granted and vested during the year are set out in the following table:

Year ended December 31	EUR-denominated			USD-denominated		
	2018	2019	2020	2018	2019	2020
Total fair value at vesting date of shares vested during the year (in millions)	46.4	58.7	124.9	61.6	54.9	133.9
Weighted average fair value of shares granted	161.63	190.33	297.05	187.98	206.90	302.75

A summary of the status of conditionally outstanding shares as of December 31, 2020, and changes during the year ended December 31, 2020, 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, 2020	682,029	157.48	578,499	179.22
Granted	210,029	297.05	181,221	302.75
Vested	(314,221)	173.80	(274,637)	186.08
Forfeited	(22,743)	147.94	(40,329)	179.82
Conditional shares outstanding at December 31, 2020	555,094	201.44	444,754	225.26

Employee purchase plan

Every quarter, we offer our worldwide payroll employees the opportunity to buy our shares against fair value using their net salary. The Board of Management is excluded from participation in this plan. The fair value for shares is based on the closing price of our shares listed at Euronext Amsterdam on grant date. The maximum net 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% cash bonus on the initial participation amount.

Option plans

The grant-date fair value of stock options is estimated using a Black-Scholes option valuation model. This Black-Scholes model requires 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 bond 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. As of 2017 we no longer grant options to our employees and all options issued are vested. Issuance of shares upon exercising the stock options are deducted from the treasury shares. The purchase of shares against the exercise price is settled with the employees involved through deductions on their salary.

Details with respect to stock options are set out in the following table:

Year ended December 31	EUR-denominated			USD-denominated		
	2018	2019	2020	2018	2019	2020
Weighted average share price at the exercise date of stock options	169.68	201.52	302.20	201.01	225.70	355.44
Aggregate intrinsic value of stock options exercised (in millions)	13.6	4.3	4.8	7.6	2.3	3.7
Weighted average remaining contractual term of currently exercisable options (in years)	4.76	4.16	3.55	5.20	4.40	3.66
Aggregate intrinsic value of exercisable stock options (in millions)	8.9	17.7	22.4	5.2	11.8	16.9
Aggregate intrinsic value of outstanding stock options (in millions)	9.0	17.7	22.4	5.2	11.8	16.9

The number and weighted average exercise prices of stock options as of December 31, 2020, 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, 2020	88,740	64.80	55,549	83.71
Granted	—	—	—	—
Exercised	(19,071)	48.35	(13,165)	74.05
Forfeited	(200)	26.07	—	—
Expired	(929)	23.37	(129)	32.74
Outstanding, December 31, 2020	68,540	70.02	42,255	86.87
Exercisable, December 31, 2020	68,540	70.02	42,255	86.87

Details with respect to the stock options outstanding as of December 31, 2020 are set out in the following table:

Range of exercise prices (€)	EUR-denominated		Range of exercise prices (USD)	USD-denominated	
	Number of outstanding options	Weighted average remaining contractual life of outstanding (years)		Number of outstanding options	Weighted average remaining contractual life of outstanding (years)
25 - 40	5,611	0.73	25 - 40	2,136	0.42
40 - 50	6,857	1.80	40 - 50	562	0.84
50 - 60	6,082	2.97	50 - 60	2,698	1.67
60 - 70	13,483	2.93	60 - 70	423	2.06
70 - 80	11,951	4.37	70 - 80	856	2.30
80 - 90	12,035	4.85	80 - 90	9,690	3.87
90 - 100	12,521	4.68	90 - 100	18,228	3.97
100 - 110	—	0	100 - 110	7,662	4.72
Total	68,540	3.55	Total	42,255	3.66

21. Income taxes

Accounting Policy

Income taxes represent the sum of the current tax position and deferred tax.

The current tax position is based on taxable base for the year. Taxable base differs from results as reported in the Consolidated Statement of Profit or Loss because it excludes items of income or charges that are taxable or deductible in prior or later years, for example timing differences between taxable base and financial results, and it further excludes items that are never taxable or deductible, for example permanent differences between taxable base and financial results. Our tax position is calculated using tax rates that have been enacted or substantively enacted at the Consolidated Statement of Financial Position date.

Deferred tax is recognized on differences between the carrying amounts of assets and liabilities in the Consolidated Financial Statements and the corresponding tax base used in the computation of taxable profit. Deferred tax liabilities are recognized for all taxable temporary differences and deferred tax assets are recognized to the extent that it is probable that taxable profits will be available against which deductible temporary differences can be utilized. Such assets and liabilities are not recognized if the temporary difference arises from goodwill or from the initial recognition (other than in a business combination) of other assets and liabilities in a transaction that affects neither the taxable profit nor the accounting profit.

The carrying amount of deferred tax assets is reviewed at each Consolidated Statement of Financial Position date and reduced to the extent that it is no longer probable that sufficient taxable profits will be available to allow all or part of the asset to be recovered.

Deferred tax assets and liabilities are measured at the tax rates that are expected to apply in the period in which the liability is settled or the asset realized, based on tax rates (and tax laws) that have been enacted or substantively enacted by the Consolidated Statement of Financial Position date. The measurement of deferred tax liabilities and assets reflects the tax consequences that would follow from the manner in which we expect, at the reporting date, to recover or settle the carrying amount of our assets and liabilities.

Deferred tax assets and liabilities are offset on the Consolidated Statement of Financial Position when there is a legally enforceable right to set off tax assets against tax liabilities and when they relate to income taxes levied by the same taxation authority and we intend to settle our tax assets and liabilities on a net basis.

We recognize a liability for tax positions subject to uncertainty over income tax treatment when it is probable that an outflow of economic resources will occur. Measurement of the liability for tax positions subject to uncertainty over income tax treatment is based on either the most likely amount method or the expected value method based on ASML's best estimate of the underlying risk.

The Consolidated Statement of Profit or Loss effect of interest and penalties relating to liabilities for tax positions subject to uncertainty over income tax treatment are presented based on their nature, as part of interest charges and as part of SG&A costs, respectively.

Current and deferred tax are recognized as an expense or income in the Consolidated Statement of Profit or Loss, except when they relate to items credited or debited directly to OCI or directly to equity, in which case the tax is also recognized directly in equity, or where they arise from the initial accounting for a business combination. In the case of a business combination, the tax effect is taken into account in calculating goodwill or in determining the excess of our interest in the net fair value of the acquired entity's identifiable assets and liabilities incurred or assumed over the cost of the business combination.

The calculation of our tax liabilities involves uncertainties in the application of complex tax laws. Our estimate for the potential outcome of any uncertain tax position is highly judgmental. However, we believe that we have adequately provided for tax positions subject to uncertainty over income tax treatment. Settlement of these uncertainties in a manner inconsistent with our expectations could have a material impact on our results of operations, financial condition and cash flows. We recognize a liability for tax positions subject to uncertainty over income tax treatment when it is probable that an outflow of economic resources will occur. Measurement of the liability for tax positions subject to uncertainty over income tax treatment is based on management's best estimate of the amount of tax benefit that will be lost.

The components of income tax expense are as follows:

Year ended December 31 (€, in millions)	2018	2019	2020
Current tax	(655.8)	(472.2)	(786.8)
Deferred tax	320.1	343.4	186.1
Income tax expense	(335.7)	(128.8)	(600.7)

The Dutch statutory tax rate was 25.0% in 2020, 2019 and 2018. Tax amounts in other jurisdictions are calculated at the rates prevailing in the relevant jurisdictions.

The reconciliation of income tax expense is as follows:

Year ended December 31 (€, in millions)	2018	% ¹	2019	% ¹	2020	% ¹
Income before income taxes	2,855.0	100.0%	2,691.7	100.0%	4,208.9	100.0%
Income tax expense based on ASML's domestic rate	(713.7)	25.0%	(672.9)	25.0%	(1,052.2)	25.0%
Effects of tax rates in foreign jurisdictions	15.4	(0.5)%	4.9	(0.2)%	1.0	—%
Adjustments in respect of tax exempt income	6.2	(0.2)%	7.2	(0.3)%	0.2	—%
Adjustments in respect of tax incentives	301.6	(10.6)%	342.5	(12.7)%	530.0	(12.6)%
Adjustments in respect of prior years' current taxes	(1.2)	—%	46.7	(1.7)%	(39.3)	0.9%
Adjustments in respect of prior years' deferred taxes	3.3	(0.1)%	9.8	(0.4)%	27.0	(0.6)%
Movements in the liability for uncertain tax positions	(57.2)	2.0%	(8.4)	0.3%	(38.6)	0.9%
Tax effects in respect to HMI restructuring	115.3	(4.0)%	89.8	(3.3)%	—	—%
Change in valuation allowance	(28.5)	1.0%	7.6	(0.3)%	(56.9)	1.4%
Investments in associates	(14.5)	0.5%	(19.7)	0.7%	(20.9)	0.5%
Effect of change in tax rates	—	—%	—	—%	(8.4)	0.2%
Other (credits) and non-taxable items	37.6	(1.3)%	63.7	(2.4)%	57.4	(1.4)%
Income tax expense	(335.7)	11.8%	(128.8)	4.8%	(600.7)	14.3%

1. As a percentage of income before income taxes.

The effective tax rate increased to 14.3% of income before income taxes in 2020, compared to 4.8% in 2019. The lower rate for 2019 was a result of discrete tax benefits relating to restructuring of our HMI group companies and US Tax Reform regulations.

The individual line items can further be explained as follows:

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 permanent differences between taxable base and financial results and no Dutch tax incentives are applied.

Effects of tax rates in foreign jurisdictions

A portion of our results is realized in countries other than the Netherlands where different tax rates are applicable. The effect can differ from year to year depending on the profit before tax in 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 reduced as of 2020. With regard to previous years the higher effect in 2019 compared to 2018 was caused by a small increasing level of income reported at the level of ASML Hong Kong.

Adjustments in respect of tax incentives

Adjustments in respect of tax incentives mainly relates to a reduced tax rate as a result of application of the Dutch Innovation Box. The Innovation box 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 7.0% (rate for 2020; in 2021 effective innovation box tax rate will increase to 9%). The innovation box benefit is determined according to Dutch laws and published tax policy, the application of which has been confirmed in an agreement among ASML and the Dutch tax authorities, which agreement applies for the years 2017 through 2023 assuming facts and circumstances do not change.

Furthermore this category includes the benefit of US Tax Reform through the Foreign Derived Intangible Income (FDII) deduction 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 qualifying income.

The higher effect in 2020 compared to 2019 is mainly caused by an increase in innovation box benefit resulting from an increased level in income before tax.

Adjustments in respect of prior years' current taxes

The movements in 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, which to a certain extent are offset with corresponding adjustments in prior years' deferred taxes (movement in temporary differences).

The impact in 2019 is mainly due to an increase in the FDII deduction as taken into account in our 2018 tax filing in the US.

Adjustments in respect of prior years' deferred taxes

The movements in the adjustments in respect of prior years' deferred taxes for 2020 and 2018 relate to differences between the initially estimated income taxes and final corporate income tax returns filed. For 2019 the movement was mainly driven by the capitalization of R&D expenses for tax purposes in the US, which was mirrored by an adjustment in prior years' current taxes.

Movements in the liability for unrecognized tax benefits

In 2020, similar to prior years 2019 and 2018, the effective tax rate was impacted by movements in the liability for uncertain tax positions. The movement for 2020 is mainly driven by the finalization of a tax audit at the level of our South Korean group companies - reference is made to the 'liabilities for unrecognized tax benefits' paragraph below.

Tax effects in respect to HMI restructuring

The 2019 and 2018 tax effects are driven by an internal restructuring of our HMI group companies. As a result of this internal restructuring the deferred tax liabilities on intangible assets that were initially included in the business combination accounting for HMI have been released during 2018. Furthermore a deferred tax asset has been recognized in 2019 for book to tax differences on intangible fixed assets transferred as part of the internal restructuring. For 2020 this restructuring has no additional impact on the effective tax rate.

Change in valuation allowance

The higher effect in 2020 as compared to prior years is to the main extent caused by the recognition of R&D and withholding tax credits at the level of our group companies in the Netherlands and the US as of which it is considered not probable that these can be realized in future years.

Investments in associates

This line includes the income tax expense relating to our investment in Carl Zeiss SMT Holding GmbH & Co. KG. The higher effect in 2020 compared to 2019 is mainly caused by an increase of the profit before tax of the equity investment.

Effect of change in tax rates

The impact on the effective tax rate in 2020 is in essence driven by the enacted increase of the Dutch innovation box rate to 9% as of 2021 as well as reversal of the initial enacted reduction of the general Dutch corporate income tax rate (from 21.7% back to 25%), which rate changes both have impact on the valuation of deferred taxes at the level of the Dutch group companies.

Additionally it includes a small impact of a change in blended tax rate of one of our HMI group companies in the US.

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 interest expense and non-deductible meals and entertainment expenses, as well as the impact of various tax credits on our income tax expense.

US Tax Reform

The 2018, 2019 and 2020 year-end tax positions calculated also reflect the regulations of US Tax Reform, thereby taking into account the guidance issued by the US government. Hereby the position has been taken not to apply the most recent guidance relating to the final FDII regulations issued in 2020 retrospectively, but only as of 2021 onwards, which is permitted under the aforementioned regulations. In regard to GILTI and BEAT, the decision has been taken to treat this as a period permanent item.

Liability for uncertain tax positions and deferred taxes

The liability for uncertain tax positions (including accrued interest and penalties) and total deferred tax position recorded on the Consolidated Statement of Financial Position is as follows:

Year ended December 31 (€, in millions)	2019	2020
Liability for uncertain tax positions	(232.5)	(203.4)
Deferred tax assets	573.4	807.4
Deferred tax liabilities	(122.7)	(198.5)
Deferred and other tax assets (liabilities)	218.2	405.5

Liability for uncertain tax positions

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 IAS 12 / IFRIC 23, 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 IAS 12 / IFRIC 23, as of December 31, 2020, the liability for uncertain tax positions amounts to €203.4 million (2019: €232.5 million) which is classified as Deferred and other tax liabilities. If recognized, these unrecognized tax benefits would affect our effective tax rate for approximately equal amounts.

Expected interest and penalties related to income tax liabilities have been accrued for and are included in the liability for uncertain tax positions and in the income tax expense. Accrued interest and penalties in 2020 amount to a benefit of €(14.2) million (2019: 6.4 million expense; 2018: €32.6 million expense).

A reconciliation of the beginning and ending balance of the liability for uncertain tax positions (excluding interest and penalties) is as follows:

Year ended December 31 (€, in millions)	2019	2020
Balance, January	(140.4)	(153.5)
Opening balance adjustment	(9.6)	–
Gross presentation for different tax jurisdictions	–	(27.3)
Gross increases – tax positions in prior period	(18.9)	(66.3)
Gross decreases – tax positions in prior period	2.3	0.5
Gross increases – tax positions in current period	(16.2)	(19.3)
Acquisitions through business combinations	–	–
Settlements	–	106.6
Lapse of statute of limitations	28.7	14.6
Effect of changes in exchange rates	0.6	6.2
Total liability for uncertain tax positions	(153.5)	(138.5)
Balance of accrued interest and penalties	(79.0)	(64.9)
Total liabilities for uncertain tax positions including interest and penalties	(232.5)	(203.4)

We conclude our allowances for tax contingencies to be appropriate. Based on the information currently available, we estimate that the liability for uncertain tax positions will decrease by €28.9 million (excluding interest and penalties) within the next 12 months, mainly as a result of expiration of statute of limitations.

Gross increases of tax positions in prior period and Settlements are in essence mainly relating to finalization of a tax audit at the level of our South Korean group companies.

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	2016-2020
US	2016-2020
Taiwan	2016-2020
South Korea	2016-2020
China	2011-2020

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.

Deferred taxes

The composition of total deferred tax assets and liabilities reconciled to the classification in the Consolidated Statement of Financial Position is:

Deferred taxes (€, in millions)	January 1, 2020	Acquisitions through business combinations	Consolidated Statement of Profit or Loss	Equity	Effect of changes in exchange rates	December 31, 2020
Deferred tax assets:						
Unrealized profits resulting from intercompany transactions	241.4	—	12.0	—	(2.3)	251.1
Capitalized R&D expenditures	67.4	—	107.9	—	(22.4)	152.9
R&D & other credit carry forwards	60.8	—	63.7	—	(7.3)	117.2
Inventories	49.3	—	(9.0)	—	(3.1)	37.2
Deferred revenue	56.8	—	70.8	—	(2.4)	125.2
Accrued and other liabilities	73.4	3.8	15.9	—	(5.3)	87.8
Installation and warranty reserve	12.3	—	5.4	—	(1.3)	16.4
Tax effect carry-forward losses	12.5	—	15.3	—	(0.7)	27.1
Property, plant and equipment	32.8	0.8	(7.0)	—	0.3	26.9
Lease liabilities	8.1	—	(1.6)	—	—	6.5
Intangible fixed assets	129.8	—	13.7	—	—	143.5
Share-based payments	16.6	—	(6.2)	9.0	0.2	19.6
Other temporary differences	20.3	—	1.8	0.6	0.5	23.2
Total deferred tax assets, gross	781.5	4.6	282.7	9.6	(43.8)	1,034.6
Unrecognized tax assets ¹	(73.6)	—	(56.9)	—	8.0	(122.5)
Total deferred tax assets, net	707.9	4.6	225.8	9.6	(35.8)	912.1
Deferred tax liabilities:						
Capitalized R&D expenditures	(111.9)	—	(42.4)	—	—	(154.3)
Intangible fixed assets	(104.2)	(8.9)	11.0	—	8.2	(93.9)
Goodwill	(6.6)	—	(9.0)	—	—	(15.6)
Right-of-use assets	(8.1)	—	1.6	—	—	(6.5)
Property, plant and equipment	(15.3)	(1.9)	10.9	—	0.9	(5.4)
Deferred revenue	(13.1)	—	(5.1)	—	—	(18.2)
Borrowing costs long-term debt	(1.5)	—	(0.1)	—	—	(1.6)
Other temporary differences	3.5	(5.7)	(6.6)	—	1.1	(7.7)
Total deferred tax liabilities	(257.2)	(16.5)	(39.7)	—	10.2	(303.2)
Net deferred tax assets (liabilities)	450.7	(11.9)	186.1	9.6	(25.6)	608.9
Classified as:						
Deferred tax assets - non-current	573.4	—	—	—	—	807.4
Deferred tax liabilities - non-current	(122.7)	—	—	—	—	(198.5)
Net deferred tax assets (liabilities)	450.7	—	—	—	—	608.9

1. Unrecognized tax assets disclosed above relate to R&D and other credits and Tax effect carry-forward losses that may not be realized.

Deferred taxes (€, in millions)	January 1, 2019	Other	Consolidated Statement of Profit or Loss	Equity	Effect of changes in exchange rates	December 31, 2019
Deferred tax assets:						
Unrealized profits resulting from intercompany transactions	131.9	—	110.0	—	(0.5)	241.4
Capitalized R&D expenditures	—	(128.3)	191.8	—	3.9	67.4
R&D & other credit carry forwards	70.6	—	(11.2)	—	1.4	60.8
Inventories	52.9	—	(0.2)	—	(3.4)	49.3
Deferred revenue	150.3	—	(92.4)	—	(1.1)	56.8
Accrued and other liabilities	40.5	—	31.4	—	1.5	73.4
Installation and warranty reserve	13.3	—	(1.3)	—	0.3	12.3
Tax effect carry-forward losses	8.5	—	3.4	—	0.6	12.5
Property, plant and equipment	19.4	—	9.0	—	4.4	32.8
Lease liabilities	—	—	8.1	—	—	8.1
Intangible fixed assets	51.7	—	78.1	—	—	129.8
Restructuring and impairment	(3.0)	—	3.0	—	—	—
Alternative minimum tax credits	4.5	—	(4.5)	—	—	—
Share-based payments	14.4	—	(4.9)	8.1	(1.0)	16.6
Other temporary differences	14.9	—	0.9	6.1	(1.6)	20.3
Total deferred tax assets, gross	569.9	—	321.2	14.2	4.5	781.5
Unrecognized tax assets ¹	(79.2)	—	7.6	—	(2.0)	(73.6)
Total deferred tax assets, net	490.7	—	328.8	14.2	2.5	707.9
Deferred tax liabilities:						
Capitalized R&D expenditures	(242.4)	128.3	1.6	—	0.6	(111.9)
Intangible fixed assets	(119.8)	—	17.9	—	(2.3)	(104.2)
Goodwill	—	—	(6.6)	—	—	(6.6)
Right-of-use assets	—	—	(8.1)	—	—	(8.1)
Property, plant and equipment	(25.7)	—	9.9	—	0.5	(15.3)
Deferred revenue	(0.1)	—	(13.0)	—	—	(13.1)
Borrowing costs long-term debt	(1.7)	—	0.2	—	—	(1.5)
Other temporary differences	(15.1)	7.4	12.7	—	(1.5)	3.5
Total deferred tax liabilities	(404.8)	7.4	14.6	—	(2.7)	(257.2)
Net deferred tax assets (liabilities)	85.9	7.4	343.4	14.2	(0.2)	450.7
Classified as:						
Deferred tax assets - non-current	365.9	—	—	—	—	573.4
Deferred tax liabilities - non-current	(280.0)	—	—	—	—	(122.7)
Net deferred tax assets (liabilities)	85.9	—	—	—	—	450.7

1. Unrecognized tax assets disclosed above relate to R&D and other credits and Tax effect carry-forward losses that may not be realized.

Tax effect carry-forward losses and Tax credits

The deferred tax assets from carry-forward losses and R&D & other credits recognized as per December 31, 2020 are almost fully reserved. R&D & other credits for the amount of €92.9 million have no expiration date. The remaining R&D & other credits of €24.3 million have an expiration date between 2021 and 2035. The carry-forward losses of €133.9 million have an expiration date between 2021 and 2030.

Unrecognized Deferred Tax Liability Related to Investments in Foreign Subsidiaries

In general, it is our practice and intention to reinvest the earnings of our non-Dutch subsidiaries in those operations and distribute only when necessary or opportune by law. The tax implications of distributions by such non-Dutch subsidiaries are dependent on local tax and accounting regulations applying at the moment of actual distribution. At balance sheet date, no deferred tax liability has been recognized in respect of undistributed profit reserves of the foreign subsidiaries. This as we are able to control the timing of reversal of the temporary differences. As per December 31, 2020 the aggregate amount of unrecognized temporary differences approximately amounts to €240.0 million.

22. Shareholders' equity

Share capital

ASML's authorized share capital amounts to €126.0 million and is divided into:

Type of shares	Amount of shares	Nominal value	Votes per share
Cumulative preference shares	700,000,000	€0.09 per share	9
Ordinary shares	699,999,000	€0.09 per share	9
Ordinary shares B	9,000	€0.01 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	2018	2019	2020
Issued ordinary shares with nominal value of €0.09	421,097,729	419,810,706	416,514,034
Issued ordinary treasury shares with nominal value of €0.09	10,368,038	5,848,998	2,983,454
Total issued ordinary shares with nominal value of €0.09	431,465,767	425,659,704	419,497,488

77,733,738 ordinary shares were held by 288 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.

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.

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 ordinary shares B and no cumulative preference shares have been issued.

There are no special voting rights on the issued shares in our share capital.

Certain voting restrictions apply in respect of ordinary shares issued in connection with the customer co-investment program, which ASML entered into in 2012 with three key customers – Intel, TSMC and Samsung – 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. The voting restrictions in respect of these ordinary shares are set out in the underlying agreement between ASML and the relevant customer.

There are currently no limitations, either under Dutch law or in ASML's Articles of Association, on the transfer of ordinary shares in the share capital of ASML. Pursuant to ASML's Articles of Association, the Supervisory Board's approval shall be required for every transfer of cumulative preference shares.

Issue and repurchase of (rights to) shares

Our Board of Management has the power to issue ordinary shares and cumulative preference shares insofar as it has been authorized to do so by the General Meeting. The Board of Management requires approval of the Supervisory Board for such an issue. The authorization by the General Meeting can only be granted for a certain period not exceeding five years and may be extended for no longer than five years on each occasion. If the General Meeting has not authorized the Board of Management to issue shares, the General Meeting will be authorized to issue shares on the Board of Management's proposal, provided that the Supervisory Board has approved such 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.

At our 2020 AGM, the Board of Management was authorized from April 22, 2020 through October 22, 2021, 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 22, 2020, plus an additional 5% of our issued share capital at April 22, 2020 that may be issued in connection with mergers, acquisitions and / or (strategic) alliances. Our shareholders also authorized the Board of Management through October 22, 2021, 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 10% of our issued share capital.

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 2020 AGM, the Board of Management was authorized, subject to Supervisory Board approval, to repurchase through October 22, 2021, up to a maximum of two times 10% of our issued share capital at April 22, 2020, 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 of the following members: Mr A.P.M. van der Poel, Mr S. Perrick, Mr A.H. Lundqvist and Mr. J. Streppel.

Other than the arrangements made with the Foundation as described above, ASML has not established any other anti-takeover devices.

Other reserves

ASML is a company incorporated under Dutch Law. In accordance with the Dutch Civil Code, other reserves consist of legal reserves that have to be established in certain circumstances. The legal reserves consist of the hedging reserve, the currency translation reserve and the reserve for capitalized development expenditures. Legal reserves are not available for distribution to our shareholders. If any legal reserve has a negative balance, distributions to our shareholders are restricted to the extent of the negative balance.

Changes in other reserves during 2020 and 2019 were as follows:

(€, in millions)	Hedging reserve	Currency translation reserve	Reserve for capitalized development expenditures	Proportionate share of OCI from associates	Total
Balance at January 1, 2019	8.5	109.9	1,488.7	(5.8)	1,601.3
Components of statement of comprehensive income:					
Share of OCI from associate	—	—	—	(19.8)	(19.8)
Foreign currency translation	—	20.3	—	—	20.3
Financial instruments, net of taxes:					
Gain (Loss) on derivative financial instruments	3.2	—	—	—	3.2
Transfers to net income	(10.7)	—	—	—	(10.7)
Development expenditures	—	—	(74.1)	—	(74.1)
Currency translation on development expenditures	—	(0.3)	0.3	—	—
Balance at December 31, 2019	1.0	129.9	1,414.9	(25.6)	1,520.2
Components of statement of comprehensive income:					
Share of OCI from associate	—	—	—	(1.3)	(1.3)
Foreign currency translation	—	(75.1)	—	—	(75.1)
Financial instruments, net of taxes:					
Gain (loss) on derivative financial instruments	(21.0)	—	—	—	(21.0)
Transfers to net income	(2.3)	—	—	—	(2.3)
Development expenditures	—	—	192.5	—	192.5
Currency translation on development expenditures	—	2.6	(2.6)	—	—
Balance at December 31, 2020	(22.3)	57.4	1,604.8	(26.9)	1,613.0

Exchange rate differences relating to the translation from our foreign subsidiaries into euro are recognized in the currency translation reserve. Gains and losses on hedging instruments that are designated as hedges of net investments in foreign operations are included in the currency translation reserve.

Hedging reserve represents hedging gains and losses on the effective portion of cash flow hedges.

Appropriation and determination of net income

Dividends may be payable out of net income or retained earnings shown in the Company Financial Statements as adopted by our General Meeting, after payment first of (accumulated) dividends on any outstanding cumulative preference shares. At its discretion, however, subject to statutory provisions, the Board of Management may, with the prior approval of the Supervisory Board, distribute one or more interim dividends on the ordinary shares before the Financial Statements for any financial year have been adopted by the General Meeting. The Board of Management, with the approval of the Supervisory Board, may decide that all or part of our net income should be retained and not be made available for distribution to shareholders, except for dividends on the cumulative preference shares. Those net incomes that are not retained may be distributed to shareholders pursuant to a shareholders' resolution, provided that the distribution does not reduce equity below the amount of reserves required by Dutch law. Existing reserves that are distributable in accordance with Dutch law may be made available to the General Meeting for distribution upon a proposal by the Board of Management, subject to prior approval of the Supervisory Board. As regards cash payments, the rights to dividends and distributions shall lapse if such dividends or distributions are not claimed within five years following the day after the date on which they were made available.

ASML aims to distribute a dividend that will be growing over time, paid semi-annually. 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 2020 of €2.75 per ordinary share. Recognizing the interim dividend of €1.20 per ordinary share paid in November 2020, this leads to a final dividend proposal to the General Meeting of €1.55 per ordinary share. This is a 15% increase compared to the 2019 total dividend of €2.40 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.

The amount of net income that is not distributed as dividend will be appropriated to our retained earnings.

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 January 22, 2020 we announced a new three year share buyback program, to be executed within the 2020-2022 time frame pursuant to which ASML expects to purchase shares up to €6 billion, which includes a total of up to 0.4 million shares to cover employee share plans. ASML intends to cancel the remainder of the shares repurchased.

This program was temporarily paused in the first quarter of 2020 in order to address the uncertainty related to COVID-19, and subsequently resumed in the fourth quarter of 2020. In 2020 we repurchased 3,908,429 shares (2019: 1,948,808 shares) for a total consideration of 1,207.5 million (2019: €410 million) and cancelled 6,162,395 shares, of which 4,255,817 shares were repurchased under the 2018-2019 program (2019: 5,806,366 shares canceled).

The remainder of the shares bought back under the 2020-2022 program is intended to be canceled, with the exception of up to 0.4 million shares, which will be used to cover employee share plans. 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 2020:

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 23 - 31, 2020	371,468	264.49	371,468	5,901.8
February 1 - 29, 2020	1,071,844	275.41	1,443,312	5,606.5
March 1 - 31, 2020	463,235	246.12	1,906,547	5,492.5
April 1 - 30, 2020	—	—	1,906,547	5,492.5
May 1 - 31, 2020	—	—	1,906,547	5,492.5
June 1 - 30, 2020	—	—	1,906,547	5,492.5
July 1 - 31, 2020	—	—	1,906,547	5,492.5
August 1 - 31, 2020	—	—	1,906,547	5,492.5
September 1 - 30, 2020	—	—	1,906,547	5,492.5
October 1 - 31, 2020	578,776	320.19	2,485,323	5,307.2
November 1 - 30, 2020	800,405	347.77	3,285,728	5,028.9
December 1 - 18, 2020	622,701	379.51	3,908,429	4,792.5
Total	3,908,429	308.94		

23. Net income per ordinary share

Basic net income per ordinary share is calculated by dividing net income by the weighted average number of ordinary shares outstanding for that period.

The dilutive effect is calculated using the treasury stock method by dividing net income by the weighted average number of ordinary shares outstanding for that period plus shares applicable to options and conditional shares (Dilutive potential ordinary shares). The calculation of diluted net income per ordinary share does not assume exercise of options when exercise would be anti-dilutive. Excluded from the diluted weighted average number of shares outstanding calculation are cumulative preference shares contingently issuable to the preference share foundation, since they represent a different class of stock than the ordinary shares.

The basic and diluted net income per ordinary share has been calculated as follows:

Year ended December 31 (€, in millions, except per share data)	2018	2019	2020
Net income	2,525.5	2,581.1	3,696.8
Weighted average number of shares outstanding	424.9	420.8	418.3
Basic net income per ordinary share	5.94	6.13	8.84
Weighted average number of shares outstanding	424.9	420.8	418.3
Plus shares applicable to options and conditional shares	1.5	0.9	0.8
Diluted weighted average number of shares	426.4	421.6	419.1
Diluted net income per ordinary share	5.92	6.12	8.82

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.

Carl Zeiss SMT GmbH, in which ASML owns an indirect interest of 24.9%, 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.

In 2020, 28.2% of our cost of system sales was purchased from Carl Zeiss SMT GmbH (2019: 28.3%; 2018: 28.3%).

Our relationship with Carl Zeiss AG is structured as a strategic alliance pursuant to several agreements executed in 1997 and subsequent years. These agreements define a framework in all areas of our business relationship. The partnership between ASML and Carl Zeiss AG is run under the principle of 'two companies, one business' and is focused on continuous improvement of operational excellence. Pursuant to these agreements, ASML and Carl Zeiss AG have agreed to continue their strategic alliance until either party provides at least three years notice of its intent to terminate.

A constraint in the production could result in limited availability of Optical Columns. During 2020, our production was not limited by the deliveries from Carl Zeiss SMT GmbH.

For further information on the relationship between ASML and Carl Zeiss SMT GmbH, see Note 10 Investments in associates and Note 26 Related party transactions.

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 financial stability with a target to keep our Cash & cash equivalents, together with Short-term investments, above a minimum range of €2.0 to €2.5 billion
- 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 semi-annually, 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

We are exposed to currency risks. 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 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. In general, our customers run their businesses in US dollars and therefore a weakening of the US dollar against the euro might impact the ability or desire of our customers to purchase our products at quoted prices.

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)	2019		2020	
	Impact on net income	Impact on equity	Impact on net income	Impact on equity
US dollar	(11.5)	30.2	(4.3)	34.4
Japanese yen	4.2	(0.9)	(13.4)	—
Taiwanese dollar	(6.2)	—	1.3	—
Other currencies	(4.0)	—	(3.9)	—
Total	(17.5)	29.3	(20.3)	34.4

It is our policy to limit the effects of currency exchange rate fluctuations on our Consolidated Statement of Profit or Loss. The impact on net income reflects our net exposure to currencies other than the euro at year-end 2020. The negative effect on net income as presented in the table above for 2020 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 transactions are recognized in equity. The US dollar effect on equity in 2020 compared with 2019 is the result of an increase in outstanding purchase hedges and increase in outstanding sales hedges.

For a 10.0% weakening of the foreign currencies against the euro, there would be approximately an equal but opposite effect on net income and equity.

Foreign currency risk policy

It is our policy to hedge material transaction exposures, such as forecasted sales and purchase transactions. We hedge these exposures through the use of forward foreign exchange contracts.

Foreign exchange contracts

The notional principal amounts of the outstanding forward foreign exchange contracts in the main currencies US dollar, Japanese yen and Taiwanese dollar at December 31, 2020 are USD 0.4 billion, JPY 15.5 billion and TWD 0.5 billion (2019: USD 0.2 billion, JPY 8.6 billion and TWD 3.8 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 Statement of Profit or Loss in the period during which the hedged forecasted transactions affect the Consolidated Statement of Profit or Loss.

In 2020, we recognized a net amount of €2.3 million gain (2019: €10.7 million gain; 2018: €11.8 million loss) in the Consolidated Statement of Profit or Loss resulting from effective cash flow hedges for forecasted sales and purchase transactions that occurred in the year. Furthermore, we recognized a net amount of €28.2 million gain in the Consolidated Statement of Profit or Loss resulting from derivative financial instruments measured at fair value through profit or loss (2019: €12.0 million loss; 2018: €24.2 million gain), which is almost fully offset by the revaluation of the hedged monetary items.

As of December 31, 2020, accumulated OCI includes €26.1 million representing the total anticipated loss to be charged to cost of sales (2019: gain €2.1 million and 2018: gain €10.9 million) (net of taxes: 2020: loss €22.7 million; 2019: gain €1.8 million; 2018: gain €9.7 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. As of December 31, 2020, accumulated OCI includes gain €0.4 million (2019: loss €1.2 million; 2018: loss €1.4 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 2020, 2019 and 2018, 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 Statement of Financial Position 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 percentage point 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)	2019		2020	
	Impact on net income	Impact on equity	Impact on net income	Impact on equity
Effect of a 1.0% point increase in interest rates	17.2	—	43.5	—

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.

For a 1.0 percentage point 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, 2020 was €3.0 billion (2019: €3.0 billion) During 2020, 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 Statement of Profit or Loss in the same period as the changes in the fair value of the interest rate swaps. In February and May 2020 we issued new Eurobonds with fixed interest coupons. We did not enter into interest rate swaps in connection with these bonds.

Credit risk management

Financial instruments that potentially subject us to significant concentration of credit risk consist principally of Cash and cash equivalents, Short-term investments, Derivative financial instruments used for hedging activities, Accounts receivable and Finance receivables and prepayments to suppliers.

Cash and cash equivalents, Short-term investments and Derivative financial instruments contain an element of risk of the counterparties being unable to meet their obligations. Our risk management program focuses appropriately on the current environment of uncertainty in the financial markets. We invest our Cash and cash equivalents and Short-term investments in short-term deposits with financial institutions that have investment grade credit ratings and in government and or government related bodies that have investment grade credit ratings and in money market and other investment funds that invest in high-rated debt securities. To mitigate the risk that our counterparties in hedging transactions are unable to meet their obligations, we enter into transactions with a limited number of major financial institutions that have investment grade credit ratings and closely monitor their creditworthiness. 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 a target to keep our Cash & cash equivalents, together with Short-term investments, above a minimum range of €2.0 billion to €2.5 billion. 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 on-going 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 repayments.

Our liquidity analysis of derivative financial instruments is as follows:

	Total	< 1 year	1-3 years	3-5 years	After 5 years
Cash outflows					
Currency contracts	788.0	788.0	—	—	—
Interest rate swaps	91.5	19.8	32.1	26.1	13.5
Cash inflows					
Currency contracts	771.3	771.3	—	—	—
Interest rate swaps	250.0	54.4	105.6	51.9	38.1

For interest rate swaps included in above table the amounts disclosed have been determined by reference to the projected interest rates as illustrated by the yield curves as at December 31, 2020. For more information on our contractual obligations, including the liquidity analysis in relation to our borrowings, see Note 17 Commitments and contingencies. Additionally, other financial liabilities (including trade payables) are expected to be settled within one year.

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 historical financing policy in relation to our capital structure.

Our current credit rating from Moody's is A3 (stable) and from Fitch is A- (stable), which is consistent with the credit ratings as of December 31, 2019.

Financial instruments

Accounting Policy - Derivative financial instruments and hedging activities

Financial assets

There are three principal classification categories for financial assets: measured at amortized cost, FVOCI and FVTPL. The classification of financial asset is generally based on the business model in which a financial asset is managed and its contractual cash flow characteristics. Hybrid financial instruments (derivatives embedded contracts where the host is a financial asset) are assessed as a whole for classification.

Financial assets at amortized cost

Financial assets at amortized cost are non-derivative financial assets with fixed or determinable payments that are not quoted in an active market. They are included in current assets, except for maturities greater than 12 months after the Consolidated Statement of Financial Position date. These are classified as non-current assets. Our Financial assets at amortized comprise of accounts receivable, finance receivables, cash and cash equivalents (excluding investments in money market funds, which are classified as financial assets at fair value through profit and loss) and other non-current and current assets in the Consolidated Statement of Financial Position.

Financial assets at amortized cost are initially measured at fair value and subsequently at amortized cost using the effective interest rate method.

We assess at each Consolidated Statement of Financial Position date whether there is objective evidence that a financial asset or a group of financial assets is impaired.

Impairment of financial assets

Financial assets, other than those at fair value through profit or loss, are assessed using an 'expected credit loss' (ECL) model each Consolidated Statement of Financial Position date. In accordance with the model we allocate a probability of loss to each financial asset, based on data that is determined to be predictive of the risk of loss and applying experienced credit judgment. These probabilities of default are defined using quantitative factors that are indicative of the risk of default and are aligned to information from Bloomberg L.P.

Impairment on cash and cash equivalents, short term investments and finance receivables have been measured on the 12-month expected loss basis and reflects the short maturities of the exposures. We consider our cash and cash equivalents, short term investments and finance receivables to have a low credit risk based on the external credit ratings of the counterparties. Impairment on trade receivables have been measured on the lifetime expected loss basis.

Financial liabilities and equity instruments issued by ASML

Financial liabilities and equity instruments issued by ASML are classified according to the substance of the contractual arrangements entered into and the definitions of a financial liability and an equity instrument.

Financial liabilities are either classified as financial liabilities at fair value through profit or loss or other financial liabilities. An equity instrument is any contract that evidences a residual interest in the assets of ASML after deducting all of its liabilities. Equity instruments issued by ASML are recorded at fair value, net of direct issue costs.

Financial liabilities at fair value through profit or loss are stated at fair value with any resultant gain or loss recognized in the Consolidated Statement of Profit or Loss.

Other financial liabilities (including loans, borrowings and trade and other payables) are subsequently measured at amortized cost using the effective interest rate method.

The fair value of these financial instruments is:

Year ended December 31, 2020 (€, in millions)	Financial assets at fair value through profit or loss	Financial assets at amortized cost	Total
Assets as per statement of financial position date			
Derivative financial instruments	162.8	—	162.8
Contract assets	—	119.2	119.2
Accounts receivable	—	1,310.3	1,310.3
Finance receivables	—	2,111.0	2,111.0
Other non-current and current assets	—	1,427.6	1,427.6
Short-term investments	1,302.2	—	1,302.2
Cash and cash equivalents	3,841.9	2,207.5	6,049.4
Total	5,306.9	7,175.6	12,482.5

Year ended December 31, 2020 (€, in millions)	Financial liabilities at fair value through profit or loss	Other financial liabilities	Total
Liabilities as per statement of financial position date			
Long-term debt ¹	—	4,678.2	4,678.2
Derivative financial instruments	20.0	—	20.0
Accrued and other liabilities	—	1,383.5	1,383.5
Accounts payable	—	1,378.3	1,378.3
Total	20.0	7,440.0	7,460.0

1. Long-term debt includes our Eurobonds. Because the Eurobonds serve as hedged item in a fair value hedge relationship, the carrying amount is adjusted for fair value changes as a result of changes in market interest rates. See Note 16 Long-term debt, interest and other costs.

Year ended December 31, 2019 (€, in millions)	Financial assets at fair value through profit or loss	Financial assets at amortized cost	Total
Assets as per statement of financial position date			
Derivative financial instruments	137.5	—	137.5
Contract assets	—	231.0	231.0
Accounts receivable	—	1,786.8	1,786.8
Finance receivables	—	985.6	985.6
Other non-current and current assets	—	467.2	467.2
Short-term investments	1,185.8	—	1,185.8
Cash and cash equivalents	2,139.7	1,392.6	3,532.3
Total	3,463.0	4,863.2	8,326.2

Year ended December 31, 2019 (€, in millions)	Financial liabilities at fair value through profit or loss	Other financial liabilities	Total
Liabilities as per statement of financial position date			
Long-term debt ¹	—	3,108.4	3,108.4
Derivative financial instruments	3.9	—	3.9
Accrued and other liabilities	—	719.0	719.0
Accounts payable	—	1,062.2	1,062.2
Total	3.9	4,889.6	4,893.5

1. Long-term debt includes our Eurobonds. Because the Eurobonds serve as hedged item in a fair value hedge relationship, the carrying amount is adjusted for fair value changes as a result of changes in market interest rates. See Note 16 Long-term debt, interest and other costs.

The carrying amounts of the accounts receivable, finance receivables and other assets approximate their fair value.

The amounts reflected above represent our maximum exposure to credit risk for financial assets.

We measure all derivative financial instruments based on fair values derived from level 2 input criteria. We adopt hedge accounting for hedges that are highly effective in offsetting the identified hedged risks taking into account required effectiveness criteria.

Derivatives are initially recognized at fair value on the date a derivative contract is entered into and subsequently remeasured. The method of recognizing the resulting gain or loss depends on whether the derivative is designated as a hedging instrument, and if so, the nature of the item being hedged. We designate derivatives as one of the following:

- A hedge of an exposure relating to changes in the fair value of a recognized asset or liability, that is attributable to a particular risk (fair value hedge).
- A hedge of an exposure relating to the variability in the cash flows of a recognized asset or liability, or of a forecasted transaction, that is attributable to a particular risk (cash flow hedge).
- A hedge of the foreign currency exposure relating to a net investment in a foreign operation (net investment hedge).

We assess at the inception of the transaction the relationship between hedging instruments and hedged items, as well as our risk management objectives and strategy for undertaking various hedging transactions. We also assess, both at hedge inception and on an ongoing basis, whether derivatives that are used in hedging transactions are highly effective in offsetting changes in fair values or cash flows of hedged items. The cash flows resulting from the derivative financial instruments are classified in the Consolidated Statements of Cash Flows according to the nature of the hedged item.

Fair value hedge

Changes in the fair value of a derivative financial instrument, that is designated and qualified as a fair value hedge, along with the gain or loss on the hedged asset or liability that is attributable to the hedged risk, are recorded in the Consolidated Statement of Profit or Loss. We designate foreign currency hedging instruments as a hedge of the fair value of a recognized asset or liability in non-functional currencies.

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 Statement of Profit or Loss 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 Statement of Profit or Loss as finance costs or finance income.

Cash flow hedge

When a derivative is designated as a cash flow hedging instrument, the effective portion of changes in the fair value of the derivative is recognized in OCI and accumulated in the hedging reserve. The effective portion of changes in the fair value of the derivative that is recognized in OCI is limited to the cumulative change in fair value of the hedged item, determined on a present value basis, from inception of the hedge. Any ineffective portion of changes in the fair value of the derivative is recognized immediately in profit or loss.

When the hedged forecast transaction subsequently results in the recognition of a non-financial item such as inventory, the amount accumulated in the hedging reserve and the cost of hedging reserve is included directly in the initial cost of the non-financial item when it is recognized.

For all other hedged forecast transactions, the amount accumulated in the hedging reserve and the cost of hedging reserve is reclassified to profit and loss in the same period or periods during which the hedged expected future cash flows affect profit and loss.

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)	2019		2020	
	Notional amount	Fair Value	Notional amount	Fair Value
Forward foreign exchange contracts	142.6	(0.7)	182.0	(17.6)
Interest rate swaps	3,000.0	134.3	3,000.0	160.4

The following table summarizes our derivative financial instruments per category:

Year ended December 31 (€, in millions)	2019		2020	
	Assets	Liabilities	Assets	Liabilities
Interest rate swaps — fair value hedges	134.3	—	160.4	—
Forward foreign exchange contracts — cash flow hedges	2.4	0.6	0.9	15.1
Forward foreign exchange contracts — no hedge accounting	0.8	3.3	1.5	4.9
Total	137.5	3.9	162.8	20.0
Less non-current portion:				
Interest rate swaps — fair value hedges	103.0	—	123.8	—
Total non-current portion	103.0	—	123.8	—
Total current portion	34.5	3.9	39.0	20.0

The fair value part of a hedging derivative financial instrument that has a remaining term of 12 months or less after Statement of Financial Position 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 Statement of Financial Position date, it is classified as non-current asset or liability.

Fair value measurements

Fair value is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. The fair value measurement hierarchy prioritizes the inputs to valuation techniques used to measure fair value as follows:

- Level 1: Valuations based on inputs such as quoted prices for identical assets or liabilities in active markets that the entity has the ability to access.
- Level 2: Valuations based on inputs other than level 1 inputs such as quoted prices for similar assets or liabilities, quoted prices in markets that are not active, or other inputs that are observable or can be corroborated by observable data for substantially the full term of the assets or liabilities.
- Level 3: Valuations based on inputs that are supported by little or no market activity and that are significant to the fair value of the assets or liabilities.

The fair value hierarchy gives the highest priority to quoted prices (unadjusted) in active markets for identical assets or liabilities (Level 1) and the lowest priority to unobservable inputs (Level 3). A financial instrument's fair value classification is based on the lowest level of any input that is significant in the fair value measurement hierarchy.

Financial assets and financial liabilities measured at fair value on a recurring basis

Investments in money market funds (included in our Cash and cash equivalents) have fair value measurements which are all based on quoted prices for identical assets or liabilities.

Our Short-term investments consist of deposits with original maturities to the entity holding the investments longer than 3 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.

Our Eurobonds 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. The fair values of these interest rate swaps are recorded on the Consolidated Statement of Financial Position 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, 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, 2020 (€, in millions)	Level 1	Level 2	Level 3	Total
Assets measured at fair value				
Derivative financial instruments	—	162.8	—	162.8
Money market funds	3,841.9	—	—	3,841.9
Short-term investments	—	1,302.2	—	1,302.2
Total	3,841.9	1,465.0	—	5,306.9
Liabilities measured at fair value				
Derivative financial instruments	—	20.0	—	20.0
Assets and Liabilities for which fair values are disclosed				
Long-term debt ¹	4,798.8	—	—	4,798.8

1. Long-term debt relates to Eurobonds. See Note 16 Long-term debt, interest and other costs.

Year ended December 31, 2019 (€, in millions)	Level 1	Level 2	Level 3	Total
Assets measured at fair value				
Derivative financial instruments	—	137.5	—	137.5
Money market funds	2,139.7	—	—	2,139.7
Short-term investments	—	1,185.8	—	1,185.8
Total	2,139.7	1,323.3	—	3,463.0
Liabilities measured at fair value				
Derivative financial instruments	—	3.9	—	3.9
Assets and Liabilities for which fair values are disclosed				
Long-term debt ¹	3,247.7	—	—	3,247.7

1. Long-term debt relates to Eurobonds. See Note 16 Long-term debt, interest and other costs.

There were no transfers between levels during the years ended December 31, 2020 and December 31, 2019.

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, 2020.

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 shorter than one year. No held to maturity securities were sold before expiration date.

Assets and liabilities measured at fair value on a non-recurring basis

In 2019 and 2020, 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 2019 and 2020. For fair value measurements in relation to the acquisition of Berliner Glas, we refer to Note 2 Business Combinations.

26. Related party transactions

We have a 24.9% interest in Carl Zeiss SMT Holding GmbH & Co. KG, 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.

On November 3, 2016 we agreed with Carl Zeiss SMT GmbH to support their R&D costs, capital expenditures and supply chain investments, in respect of High-NA, for an amount initially estimated at €760.0 million. The current estimate as of 2020 is €1,354.8 million (2019: €1,242.2 million). As of December 31, 2020 our estimated remaining commitment to Carl Zeiss SMT GmbH is €319.9 million (2019: €524.8 million).

The table below summarizes support provided to Carl Zeiss SMT GmbH, by type:

Year ended December 31 (€, in millions)	2018	2019	2020
Capital expenditures	191.8	184.1	203.7
R&D costs	74.8	94.2	96.1
Supply chain investments	8.5	4.5	17.7
Total support provided	275.1	282.8	317.5

ASML makes non-interest bearing advance payments to support our investment in associates 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. The increase in this balance is due to the support provided under the High-NA agreement.

In 2018, ASML and Carl Zeiss SMT GmbH entered into an agreement for ASML to support the development and integration of certain tooling to be used in future production of High-NA optical columns, for which Carl Zeiss SMT GmbH has agreed to reimburse all costs to ASML. Receivable amounts from Carl Zeiss SMT GmbH are presented within Other Assets.

The total purchases and outstanding balances with Carl Zeiss SMT Holding GmbH & Co. KG and its subsidiaries:

Year ended December 31 (€, in millions)	2018	2019	2020
Total purchases	1,401.0	1,502.3	1,623.9

Year ended December 31 (€, in millions)	2019	2020
Advance payments and High-NA capital expenditure support	814.5	986.6
Right-of-use assets - Finance	107.6	149.9
Accounts payable	127.4	110.9

For more details on our 24.9% interest in Carl Zeiss SMT Holding GmbH & Co. KG see Note 10 Investments in associates.

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 ordinary course (compensation) arrangements. 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, other than the virtual financing arrangement with respect to shares described under Note 19 Employee benefits. Furthermore, ASML has not granted any personal loans, guarantees, or the like to members of the Board of Management or Supervisory Board.

For further information in relation to key management personnel, comprising of our Board of Management members, see Note 28 Board of Management and Supervisory Board Remuneration.

27. Subsidiaries and Associates

Details of our main subsidiaries and associates at December 31, 2020 are as follows:

Legal Entity	Country of Incorporation
Main subsidiaries of ASML Holding N.V. ¹:	
ASML Belgium BV	Belgium (Turnhout)
SwissOptic (Wuhan) Co. Ltd.	China (Wuhan)
Berliner Glas Wuhan Trading Co. Ltd.	China (Wuhan)
Hermes Microvision Co., Ltd. (Beijing)	China (Beijing)
ASML (Shanghai) Electrical Equipment Co. Ltd.	China (Shanghai)
ASML (Shanghai) Lithography Facilities Science and Technology Co. Ltd.	China (Shanghai)
Cymer Semiconductor Equipment (Shanghai) Co. Ltd.	China (Shanghai)
Hermes Microvision (Shanghai) Co., Ltd	China (Shanghai)
Brion Technologies (Shenzhen) Co. Ltd.	China (Shenzhen)
ASML France S.a.r.l.	France (Bernin)
ASML Verwaltungs GmbH	Germany (Berlin)
Berliner Glas KGaA Herbert Kubatz GmbH & Co.	Germany (Berlin)
Berliner Glas KG Herbert Kubatz GmbH & Co. Schwaebisch Hall	Germany (Schwaebisch Hall)
Berliner Glas Beteiligungsgesellschaft mbH	Germany (Syrgenstein-Landshausen)
Berliner Glas Herbert Kubatz GmbH & Co. KG Syrgenstein	Germany (Syrgenstein-Landshausen)
ASML Germany GmbH	Germany (Dresden)
ASML Participations Germany GmbH	Germany (Dresden)
ASML Hong Kong Logistic Services Ltd.	Hong Kong SAR
ASML Hong Kong Ltd.	Hong Kong SAR
ASML Ireland Ltd.	Ireland (Dublin)
ASML Israel (2001) Ltd.	Israel (Ramat-Gan)
ASML Italy S.r.l.	Italy (Avezzano)
ASML Japan Co. Ltd.	Japan (Tokyo)
Cymer Japan, Inc.	Japan (Tokyo)
Hermes Microvision Japan Inc.	Japan (Tokyo)
ASML Korea Co. Ltd.	South Korea (Gyeonggi-Do)
Cymer Korea, Inc.	South Korea (Gyeonggi-Do)
Hermes Microvision Korea Inc.	South Korea (Gyeonggi-Do)
ASML Equipment Malaysia Sdn. Bhd.	Malaysia (Penang)
Cymer B.V.	Netherlands (Amsterdam)
ASML Netherlands B.V.	Netherlands (Veldhoven)
ASML Systems B.V.	Netherlands (Veldhoven)
ASML Trading B.V.	Netherlands (Veldhoven)
Hermes Microvision Incorporated B.V.	Netherlands (Veldhoven)
ASML Singapore Pte. Ltd.	Singapore
Cymer Singapore Pte Ltd.	Singapore
SwissOptic AG	Switzerland (Heerbrugg)
ASML Taiwan Ltd.	Taiwan (Hsinchu)
ASML Technology Taiwan Ltd.	Taiwan (Hsinchu)
Cymer Southeast Asia Ltd.	Taiwan (Hsinchu)
ASML (UK) Ltd.	UK (Edinburgh (Scotland))
Cymer, LLC.	US (Reno, Nevada)
Hermes Microvision, Inc	US (San Jose, California)
ASML Global, Inc.	US (Wilmington, Delaware)
ASML US, LLC	US (Wilmington, Delaware)
ASML US, LP	US (Wilmington, Delaware)
Main associates of ASML Holding N.V.:	
Carl Zeiss SMT Holding GmbH & Co. KG (24.9% direct interest)	Germany (Oberkochen)
Carl Zeiss SMT GmbH (24.9% indirect interest)	Germany (Oberkochen)

1. All of our subsidiaries are (directly or indirectly) wholly-owned.

28. Board of Management and Supervisory Board Remuneration

The remuneration of the members of the Board of Management based on incurred accounting expenses in 2020, 2019 and 2018 was as follows (amounts are in € thousands):

Board of Management	Financial Year	Base salary	Pension	Other benefits	Total fixed	% Fixed	STI	LTI	Total variable		Total Remuneration	Relative proportion fixed vs. variable
									% Variable			
P.T.F.M. Wennink	2020	1,020	216	57	1,293	28.3%	1,135	2,136	3,271	71.7%	4,564	0.40
	2019	1,000	207	53	1,260	28.9%	1,070	2,031	3,101	71.1%	4,361	0.41
	2018	978	203	53	1,234	35.9%	747	1,452	2,199	64.1%	3,433	0.56
M.A. van den Brink	2020	1,020	216	57	1,293	28.3%	1,135	2,136	3,271	71.7%	4,564	0.40
	2019	1,000	207	52	1,259	28.9%	1,070	2,031	3,101	71.1%	4,360	0.41
	2018	978	203	51	1,232	35.9%	747	1,452	2,199	64.1%	3,431	0.56
F.J. van Hout	2020	694	122	47	863	29.4%	773	1,302	2,075	70.6%	2,938	0.42
	2019	680	114	44	838	30.6%	728	1,172	1,900	69.4%	2,738	0.44
	2018	661	114	44	819	37.6%	505	853	1,358	62.4%	2,177	0.60
F.J.M. Schneider-Maunoury	2020	694	122	36	852	29.1%	773	1,302	2,075	70.9%	2,927	0.41
	2019	680	114	30	824	30.3%	728	1,172	1,900	69.7%	2,724	0.43
	2018	661	114	31	806	37.2%	505	858	1,363	62.8%	2,169	0.59
R.J.M. Dassen	2020	694	100	51	845	22.2%	773	2,186	2,959	77.8%	3,804	0.29
	2019	680	93	47	820	27.7%	728	1,408	2,136	72.3%	2,956	0.38
	2018	386	53	28	467	52.0%	295	135	430	47.9%	897	1.09
C.D. Fouquet	2020	694	83	51	828	27.8%	773	1,374	2,147	72.2%	2,975	0.39
	2019	680	74	47	801	36.4%	728	674	1,402	63.6%	2,203	0.57
	2018	496	45	32	573	50.9%	379	173	552	49.1%	1,125	1.04
Total Board of Management	2020	4,816	859	299	5,974	27.4%	5,362	10,436	15,798	72.6%	21,772	0.38
	2019	4,720	809	273	5,802	30.0%	5,052	8,487	13,539	70.0%	19,341	0.43
	2018	4,160	732	239	5,131	38.8%	3,178	4,923	8,101	61.2%	13,232	0.63

The remuneration reported as part of the LTI (share awards) is based on costs incurred under US GAAP and EU-IFRS. The costs of share awards are charged to the Consolidated Statements of Operations over the 3-year vesting period based on the number of awards expected to vest. For the first 2 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 amounts 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.

The LTI (share awards) remuneration reported for the year 2020 includes a release for the 2018 performance share plan based on the actual number of share awards vesting early 2021. The release is as follows: Mr. Wennink: €772,357; Mr. van den Brink: €772,357; Mr. van Hout: €443,710; Mr. Schneider-Maunoury: €443,840; Mr. Dassen: €281,317; Mr. Fouquet: €361,691.

The Supervisory Board applied an upward adjustment for the pay-out related to the ROAIC performance metric of the 2018-2020 LTI plan. This adjustment is made to correct for the effects of higher than anticipated investments in R&D and CAPEX since target setting. The increase in investments is mainly needed to meet customer development roadmaps for High-NA and as such supports long-term value creation of ASML and our stakeholders. The pay-out changed from 111.2% to 146.5%. The upward adjustments are as follows: Mr. Wennink: 2,307 shares for €369,050; Mr. van den Brink: 2,307 shares for €369,050; Mr. Van Hout: 1,326 shares for €212,017; Mr. Schneider-Maunoury: 1,326 shares for €212,087; Mr. Dassen: 773 shares for €140,560; Mr. Fouquet: 994 shares for €180,720. Amounts involved are based on the number of extra vested shares multiplied with the share price at grant date adjusted for the number of service days until vesting in 2021. The modified vesting conditions have been taken into account in the adjustment.

The net impact in the 2020 Consolidated Statement of Profit or Loss is a release of: Mr. Wennink: €403,307; Mr. Van den Brink: €403,307; Mr. Van Hout: €231,693; Mr. Schneider-Maunoury: €231,753; Mr. Dassen: €140,757; Mr. Fouquet: €180,971.

W.U. Nickl is no longer part of the Board of Management since he left the company in 2018.

Former Board of Management	Financial Year	Base salary	Pension	Other benefits	Total fixed	% Fixed	STI	LTI	Total variable		Total Remuneration	Relative proportion fixed vs. variable
									% Variable			
W.U. Nickl	2018	220	25	19	264	18.2%	168	1,020	1,188	81.8%	1,452	0.22

Share-based payments

Performance based share-based remuneration current members of the Board of Management

Board of Management	Grant date	Status	Full control	Market based element		Non-Market based element		Total target shares at grant date	Maximum shares (200%)	Vesting date	Number of shares at vesting date	Share price at vesting	End of lock-up date
				Number of shares at target	Fair value at grant date	Number of shares at target	Fair value at grant date						
P.T.F.M. Wennink	1/24/20	Conditional	No	1,387	286.9	3,235	263.7	4,622	9,245	1/1/23	n/a	n/a	1/1/25
	7/19/19	Conditional	No	2,217	245.4	5,173	194.4	7,390	14,780	1/1/22	n/a	n/a	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
	1/20/17	Unconditional	No	3,037	145.4	7,085	110.5	10,122	20,243	1/1/20	16,733	263.7	1/1/22
	1/22/16	Unconditional	No	n/a	n/a	8,290	83.6	8,290	16,579	1/22/19	12,435	141.4	1/22/21
M.A. van den Brink	1/24/20	Conditional	No	1,387	286.9	3,235	263.7	4,622	9,245	1/1/23	n/a	n/a	1/1/25
	7/19/19	Conditional	No	2,217	245.4	5,173	194.4	7,390	14,780	1/1/22	n/a	n/a	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
	1/20/17	Unconditional	No	3,037	145.4	7,085	110.5	10,122	20,243	1/1/20	16,733	263.7	1/1/22
	1/22/16	Unconditional	No	n/a	n/a	8,290	83.6	8,290	16,579	1/22/19	12,435	141.4	1/22/21
F.J. van Hout	1/24/20	Conditional	No	858	286.9	2,001	263.7	2,859	5,718	1/1/23	n/a	n/a	1/1/25
	7/19/19	Conditional	No	1,371	245.4	3,198	194.4	4,569	9,137	1/1/22	n/a	n/a	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
	1/20/17	Unconditional	No	1,745	145.4	4,070	110.5	5,815	11,629	1/1/20	9,613	263.7	1/1/22
	1/22/16	Unconditional	No	n/a	n/a	5,603	83.6	5,603	11,205	1/22/19	8,404	141.4	1/22/21
F.J.M. Schneider-Maunoury	1/24/20	Conditional	No	858	286.9	2,001	263.7	2,859	5,718	1/1/23	n/a	n/a	1/1/25
	7/19/19	Conditional	No	1,371	245.4	3,198	194.4	4,569	9,137	1/1/22	n/a	n/a	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
	1/20/17	Unconditional	No	1,745	145.4	4,070	110.5	5,815	11,629	1/1/20	9,613	263.7	1/1/22
	1/22/16	Unconditional	No	n/a	n/a	5,603	83.6	5,603	11,205	1/22/19	8,404	141.4	1/22/21
R.J.M. Dassen	1/24/20	Conditional	No	858	286.9	2,001	263.7	2,859	5,718	1/1/23	n/a	n/a	1/1/25
	7/19/19	Conditional	No	1,371	245.4	3,198	194.4	4,569	9,137	1/1/22	n/a	n/a	1/1/24
	1/25/19	Conditional	No	3,000	169.0	7,000	148.3	10,000	20,000	1/1/22	n/a	n/a	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	1/24/20	Conditional	No	858	286.9	2,001	263.7	2,859	5,718	1/1/23	n/a	n/a	1/1/25
	7/19/19	Conditional	No	1,371	245.4	3,198	194.4	4,569	9,137	1/1/22	n/a	n/a	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

W.U. Nickl is no longer part of the Board of Management since he left the company in 2018.

Former Board of Management	Grant date	Status	Full control	Market based element		Non-Market based element		Total target shares at grant date	Maximum shares (200%)	Vesting date	Number of shares at vesting date	Share price at 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						
W.U. Nickl	1/19/18	Unconditional	No	375	215.1	876	162.8	1,251	2,501	1/19/21	1,833	439.9	1/19/23
	1/20/17	Unconditional	No	1,745	145.4	4,070	110.5	5,815	11,629	1/1/20	9,613	263.7	1/1/22
	1/22/16	Unconditional	No	—	—	5,603	83.6	5,603	11,205	1/22/19	8,404	141.4	1/22/21

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 2020 and no variable remuneration has been clawed-back.

Remuneration Supervisory Board in 2020

Overview of the remuneration awarded to the Supervisory Board members over five years (amounts are in € thousands):

	Membership fees 2020	Committee fees 2020	Allowances 2020 ¹	Proportion fixed vs. variable 2020	Total remuneration 2020	Total remuneration 2019	Total remuneration 2018	Total remuneration 2017	Total remuneration 2016
G.J. Kleisterlee	110	45	2	100:0	157	154	138	135	113
D.A. Grose	80	30	7	100:0	117	133	115	113	105
T.L. Kelly	70	12	6	100:0	88	101	60	–	–
A.P. Aris	70	24	1	100:0	95	98	80	80	76
R.D. Schwalb	70	33	1	100:0	104	101	88	86	81
C.M.S. Smits Nusteling	70	24	1	100:0	95	91	80	79	75
J.M.C. Stork	70	24	6	100:0	100	118	100	100	94
D.W.A. East	48	10	1	100:0	59	–	–	–	–
D.M. Durcan	48	8	1	100:0	57	–	–	–	–
Total	636	210	26	100:0	872	796	661	593	544

1. Allowances consist of fixed expense allowances and allowances for intercontinental meetings.

No shares and options have 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.

Overview of the remuneration awarded to the former Supervisory members in 2020, 2019 and 2018 (amounts are in € thousands):

	Membership fees 2020	Committee fees 2020	Allowances 2020 ¹	Proportion fixed vs. variable 2020	Total remuneration 2020	Total remuneration 2019	Total remuneration 2018
P.F.M. van der Meer Mohr	–	–	–	–	–	–	27
W.H. Ziebart	22	8	–	100:0	30	101	82
Total	22	8	–	100:0	30	101	109

1. Allowances consist of fixed expense allowances and allowances for intercontinental meetings.

29. Principal accountant fees and services

KPMG has served as our independent auditor for the years ending December 31, 2020 and 2019. 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 2020 and 2019:

Year ended December 31	2019			2020		
	KPMG Accountants N.V.	KPMG Network	Total	KPMG Accountants N.V.	KPMG Network	Total
(€, in thousands)						
Audit fees	2,086	815	2,901	2,246	1,090	3,337
Audit-related fees	70	–	70	88	–	88
Tax fees	–	–	–	–	–	–
All other fees	9	–	9	37	–	37
Principal accountant fees	2,165	815	2,980	2,371	1,090	3,461

Audit fees and audit-related fees

Audit fees relate to the audit of the Financial Statements as set out in this Annual Report, certain procedures on our quarterly results, 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.

Other (non-audit) services relate to certain agreed-upon procedures on the targets achieved in order for the Remuneration Committee to assess compliance with the Remuneration Policy and agreed upon procedures for the US Advanced Pricing Agreement.

The Audit Committee pre-approved the external audit plan and audit fees for the years 2020 and 2019.

The Audit Committee monitors compliance with the Dutch, EU regulation and SEC rules on non-audit services provided by an independent auditor, which outlines strict separation of audit and advisory services for Dutch public interest entities.

30. Subsequent events

Subsequent events were evaluated up to February 10, 2021, which is the date the Financial Statements included in this Annual Report were approved. There are no events to report.

Veldhoven, the Netherlands

February 10, 2021

Prepared by

The Board of Management:

Peter T.F.M. Wennink

Martin A. van den Brink

Roger J.M. Dassen

Frits J. van Hout

Christophe D. Fouquet

Frédéric J.M. Schneider-Maunoury

Company financial statements

Company Balance Sheet

(Before appropriation of net income)

Year ended December 31 (€, in millions)	Notes	2019	2020
Fixed assets			
Financial Fixed Assets	6	14,734.1	18,793.2
Derivative financial instruments	11	103.0	123.8
Other fixed assets		3.0	1.6
Total fixed assets		14,840.1	18,918.6
Current assets			
Cash and cash equivalents		2,612.3	5,404.3
Short-term investments	5	1,177.2	1,290.9
Amounts due from subsidiaries	12	1,979.7	3,900.5
Current tax assets		67.7	51.7
Other current assets		2.1	0.4
Derivative financial instruments	11	34.2	45.3
Total current assets		5,873.2	10,693.1
Total assets		20,713.3	29,611.7
Shareholders' equity			
Issued and outstanding shares		38.2	37.6
Share premium		4,242.1	4,259.2
Treasury shares at cost		(1,019.6)	(863.2)
Retained earnings		6,514.9	6,557.5
Legal reserves		1,520.2	1,613.0
Net income		2,581.1	3,696.8
Total shareholders' equity	10	13,876.9	15,300.9
Non-current liabilities			
Long-term debt	7	3,098.1	4,614.4
Deferred and other tax liabilities	4	233.3	264.6
Accrued and other liabilities		1.2	—
Total non-current liabilities		3,332.6	4,879.0
Current liabilities			
Amounts due to subsidiaries	12	3,494.0	9,394.2
Accrued and other liabilities		6.5	32.7
Derivative financial instruments	11	3.3	4.9
Total current liabilities		3,503.8	9,431.8
Total equity and liabilities		20,713.3	29,611.7

Company Statement of Profit or Loss

Year ended December 31 (€, in millions)	Notes	2019	2020
Other income		0.6	(0.2)
Research and development costs	9	(1.4)	(1.5)
Selling, general and administrative costs	9	(18.2)	(20.3)
Operating income		(19.0)	(22.0)
Finance income	3	16.3	4.4
Finance costs	3	(51.5)	(23.4)
Income before income taxes		(54.2)	(41.0)
Income tax expense	4	21.0	37.2
Gain (loss) after taxes		(33.2)	(3.8)
Net income of subsidiaries	6	2,614.3	3,700.6
Net income		2,581.1	3,696.8

Notes to the Company Financial Statements

1. General Information

ASML Holding N.V. acts as a holding company within the group. The description of the activities and structure of the group, as included in the Notes to the Consolidated Financial Statements, also apply to the Company Financial Statements.

The Company Financial Statements have been prepared in accordance with Title 9, Book 2 of the Dutch Civil Code. For setting the principles for the recognition and measurement of assets and liabilities and determination of results for its Company Financial Statements, the Company makes use of the option provided in section 2:362(8) of the Dutch Civil Code. This means that the principles for the recognition and measurement of assets and liabilities and determination of the result (hereinafter referred to as principles for recognition and measurement) of the Company Financial Statements are the same as those applied for the consolidated EU-IFRS financial statements. These principles also include the classification and presentation of financial instruments, being equity instruments or financial liabilities. In case no other principles are mentioned, refer to the accounting principles as described in the consolidated financial statements. The Company Financial Statements should be read in conjunction with the consolidated financial statements.

ASML Holding N.V. forms a tax unity together with certain of its Dutch subsidiaries, for purposes of Dutch tax laws and are as such jointly and severally liable for the tax debts of the unity: The fiscal unity comprises of ASML Holding N.V., ASML Netherlands B.V., ASML Systems B.V, ASML Trading B.V. and Hermes Microvision Incorporated B.V.

2. Summary of significant accounting policies

The accounting policies used in the preparation of the Company Financial Statements are the same as those used in the preparation of the Consolidated Financial Statements (in accordance with article 362 sub 8 Part 9 of Book 2 of the Dutch Civil Code). See the Notes to the Consolidated Financial Statements. In addition to those accounting policies, the following accounting policy applies to the Company Financial Statements.

The accompanying Company Financial Statements are stated in millions of € unless otherwise indicated.

Investments in subsidiaries

Investments in subsidiaries are all entities in which the Company has directly or indirectly control. The Company controls an entity when it is exposed, or has rights, to variable returns from its involvement with the subsidiary and has the ability to affect those returns through its power over the subsidiary. Subsidiaries are recognized from the date on which control is obtained by the Company and derecognized from the date that control by the Company over the subsidiaries ceases. Until January 1, 2020, investment in subsidiaries are accounted for in the Company Financial Statements according to the net asset value. Alignment with international standards (IFRS) has led to a change in accounting policy. As per January 1, 2020, investments in subsidiaries are accounted for in the Company Financial Statements according to the equity method, with the principles for the recognition and measurement of assets and liabilities and determination of results as set out in the Notes to the Consolidated Financial Statements. The change in accounting policy did not have an impact on shareholders' equity, net income or the notes.

Net income of subsidiaries

Net income of subsidiaries consists of the share of the Company in the result of these investments in subsidiaries. Results on transactions involving the transfer of assets and liabilities between the Company and its' investments in subsidiaries and mutually between subsidiaries themselves, are eliminated to the extent that they can be considered as not realized.

3. Finance income and costs

Finance income of €4.4 million (2019: €16.3 million) mainly consists of net finance income on our intercompany current accounts with our subsidiaries.

Finance costs of €23.4 million (2019: €51.5 million) mainly consists of net finance costs on our Eurobonds and related interest swaps and amortized financing costs. For information regarding finance costs, see Consolidated Financial Statements - Notes to the Consolidated Financial Statements - Note 16 Long-term debt, interest and other costs.

4. Income taxes

The reconciliation of income tax expense is as follows:

Year ended December 31 (€ in millions)	2019	% ¹	2020	% ¹
Income (loss) before income taxes, including net income of subsidiaries	2,560.1	100.0%	3,659.6	100.0%
Income tax provision based on ASML's domestic rate	(640.0)	25.0%	(914.9)	25.0%
Adjustments in respect of tax exempt income	648.9	(25.3)%	925.0	(25.3)%
Adjustments in respect of prior years' current taxes	21.0	(0.8)%	9.6	(0.3)%
Adjustments in respect of prior years' deferred taxes	(4.5)	0.2%	(8.0)	0.2%
Movements in the liability for unrecognized tax benefits	(6.0)	0.2%	71.4	(2.0)%
Effect of change in tax rates	—	—%	(27.4)	0.7%
Other credits and non-taxable items	1.6	(0.1)%	(18.5)	0.5%
Income tax expense	21.0	(0.8)%	37.2	(1.0)%

1. As a percentage of income before income taxes, including net income of subsidiaries.

ASML Holding N.V. forms a tax unity together with certain of its Dutch subsidiaries and all deferred tax positions attributable to the fiscal unity are reported at the level of ASML Holding N.V. The deferred and other tax liabilities include net deferred tax liabilities of €176.6 million (2019: €118.8 million) which mainly consist of a deferred tax liability on capitalized R&D expenditures within the fiscal unity.

For information regarding the settlement of income taxes within the fiscal unity, see Note 8 Commitments and contingencies.

5. Short term investments

Investments with original maturities to the entity holding the investments longer than 3 months and 1 year or less at the date of acquisition are presented as short-term investments. Other than temporary fair value changes in these investments are recognized in the Statement of Profit or Loss. Short-term investments have insignificant interest rate risk.

See Consolidated Financial Statements - Notes to the Consolidated Financial Statements - Note 5 Cash and cash equivalents and short-term investments.

6. Financial fixed assets

Financial Fixed Assets relates to our investments in subsidiaries and loans to subsidiaries. Changes in investments in subsidiaries and loans to subsidiaries during 2020 and 2019 were as follows:

(in millions, €)	Investments	Loans	Total
Balance at January 1, 2019	15,271.9	11.9	15,283.8
Capital contributions / additions	462.7	14.5	477.2
Capital repayments / repayments of loans	(3,497.6)	(6.8)	(3,504.4)
Dividends received	(130.3)	—	(130.3)
Net income from subsidiaries	2,614.3	—	2,614.3
Effect of exchange rates	20.2	0.6	20.8
Derivative financial instruments	(7.5)	—	(7.5)
Proportionate share of other comprehensive income from associates	(19.8)	—	(19.8)
Balance at December 31, 2019	14,713.9	20.2	14,734.1
Capital contributions / additions	745.6	—	745.6
Capital repayments / repayments of loans	—	(1.8)	(1.8)
Dividends received	(283.7)	—	(283.7)
Net income from subsidiaries	3,700.6	—	3,700.6
Effect of exchange rates	(75.3)	(1.6)	(76.9)
Derivative financial instruments	(23.4)	—	(23.4)
Proportionate share of other comprehensive income from associates	(1.3)	—	(1.3)
Balance at December 31, 2020	18,776.4	16.8	18,793.2

A revolving credit facility agreement exists with one of the subsidiaries of ASML Holding N.V. The available credit facility amounts to USD 30 million as of December 31, 2020 and bears variable interest. An amount of USD 20.5 million (2019: USD 22.5 million) was outstanding under this credit facility at the end of 2020.

For a list of our main subsidiaries, see Consolidated Financial Statements - Notes to the Consolidated Financial Statements - Note 27 Subsidiaries and Associates.

7. Long-term debt

Long-term debt consists of our Eurobonds. See Consolidated Financial Statements - Notes to the Consolidated Financial Statements - Note 16 Long-term debt, interest and other costs.

8. Commitments and contingencies

ASML Holding N.V. has assumed joint and several liabilities in accordance with article 403 Part 9 of Book 2 of The Dutch Civil Code with respect to the following Dutch subsidiaries: ASML Netherlands B.V., Cymer B.V., ASML Trading B.V. and HMI B.V. Furthermore, ASML Holding N.V. has guaranteed all liabilities outstanding at December 31, 2020, until all are satisfied in full, in accordance with section 479C of the UK Companies Act 2006 with respect to its overseas subsidiary ASML (UK) Ltd (registered number SC176574) and accordingly, under section 479A of that Act ASML (UK) Ltd is exempt from the requirement to have its financial statements audited.

From time to time, we provide guarantees to third parties in connection with transactions entered into by our Dutch subsidiaries in the ordinary course of business.

ASML Holding N.V. forms a tax unity together with certain of its Dutch subsidiaries, for purposes of Dutch tax laws and are as such jointly and severally liable for the tax debts of the unity: The fiscal unity comprises as of December 31, 2020 of ASML Holding N.V., ASML Netherlands B.V., ASML Systems B.V., ASML Trading B.V. and Hermes Microvision Incorporated B.V. All tax positions attributable to the fiscal unity (current and deferred) are reported at the level of ASML Holding N.V., whereby income tax expense is allocated to the Dutch subsidiaries based on the individual profit before tax multiplied by the statutory tax rate. Within the fiscal unity, the tax positions are subsequently settled via the current account with the subsidiaries.

9. Personnel

The average number of employees employed by ASML Holding N.V. in 2020 was 6 (2019: 6), who are all based in the Netherlands. For information regarding the remuneration of the (former) members of the Board of Management and Supervisory Board see Consolidated Financial Statements - Notes to the Consolidated Financial Statements - Note 28 Board of Management and Supervisory Board Remuneration. Other benefits and expense reimbursement as disclosed in Consolidated Financial Statements - Notes to the Consolidated Financial Statements - Note 28 Board of Management and Supervisory Board Remuneration include social security costs for an amount of €53.4 thousand (2019: €36.8 thousand).

10. Shareholders' equity

Changes in equity during 2020 and 2019 were as follows (before appropriation of net income):

Year ended December 31 (€, in millions)	Notes ¹	Treasury			Retained Earnings	Legal Reserves ³	Net Income	Total
		Share Capital ²	Share Premium	Shares at Cost				
Balance at January 1, 2019		38.6	4,203.2	(1,621.8)	6,181.7	1,601.3	2,525.5	12,928.5
Prior year net income		—	—	—	2,525.5	—	(2,525.5)	—
Components of comprehensive income:								
Net income		—	—	—	—	—	2,581.1	2,581.1
Share of OCI from associate		—	—	—	—	(19.8)	—	(19.8)
Foreign currency translation		—	—	—	—	20.3	—	20.3
Gain (loss) on financial instruments ⁴	25	—	—	—	—	(7.5)	—	(7.5)
Total comprehensive income		—	—	—	—	(7.0)	2,581.1	2,574.1
Purchase of treasury shares		—	—	(410.0)	—	—	—	(410.0)
Cancellation of treasury shares		(0.5)	—	902.3	(901.8)	—	—	—
Share-based payments	20	—	82.8	—	—	—	—	82.8
Issuance of shares		0.1	(43.9)	109.9	(38.9)	—	—	27.2
Dividend paid		—	—	—	(1,325.7)	—	—	(1,325.7)
Development expenditures		—	—	—	74.1	(74.1)	—	—
Balance at December 31, 2019		38.2	4,242.1	(1,019.6)	6,514.9	1,520.2	2,581.1	13,876.9
Prior year net income		—	—	—	2,581.1	—	(2,581.1)	—
Components of comprehensive income:								
Net income		—	—	—	—	—	3,696.8	3,696.8
Share of OCI from associate		—	—	—	—	(1.3)	—	(1.3)
Foreign currency translation		—	—	—	—	(75.1)	—	(75.1)
Gain (loss) on financial instruments ⁴	25	—	—	—	—	(23.3)	—	(23.3)
Total comprehensive income		—	—	—	—	(99.7)	3,696.8	3,597.1
Purchase of treasury shares		—	—	(1,207.5)	—	—	—	(1,207.5)
Cancellation of treasury shares		(0.7)	—	1,262.3	(1,261.6)	—	—	—
Share-based payments	20	—	62.9	—	—	—	—	62.9
Issuance of shares		0.1	(45.8)	101.6	(18.0)	—	—	37.9
Dividend paid		—	—	—	(1,066.4)	—	—	(1,066.4)
Development expenditures		—	—	—	(192.5)	192.5	—	—
Balance at December 31, 2020		37.6	4,259.2	(863.2)	6,557.5	1,613.0	3,696.8	15,300.9

1. Note reference numbers included in the table above relate to the notes in the Consolidated Financial Statements.

2. As of December 31, 2020, the number of issued shares was 419,497,488. This includes the number of issued and outstanding shares of 416,514,034 and the number of treasury shares of 2,983,454. As of December 31, 2019, the number of issued shares was 425,659,704. This includes the number of issued and outstanding shares of 419,810,706 and the number of treasury shares of 5,848,998.

3. Legal reserves consist of reserves that have to be established in certain circumstances in accordance with the Dutch Civil Code. The legal reserves consist of other comprehensive income from associate, the hedging reserve, the currency translation reserve and the reserve for capitalized development expenditures made by our subsidiaries and are equal to the amounts as recorded in our Consolidated Financial Statements. See Consolidated Financial Statements - Notes to the Consolidated Financial Statements - Note 22 Shareholders' equity.

4. The gain/loss on financial instruments includes income taxes recognized directly in other comprehensive income for the amount of €(3.2) million (2019: €(1.0) million, 2018: €(1.4) million).

For further information related to Equity, see Consolidated Financial Statements - Notes to the Consolidated Financial Statements - Note 22 Shareholders' equity.

11. Derivative financial instruments

We use derivative financial instruments for the management of foreign currency risks and interest rate risks. See Consolidated Financial Statements - Notes to the Consolidated Financial Statements - Note 25 Financial risk management.

General

The Group has exposure to the following risks from its use of financial instruments:

- Credit risk;
- Liquidity risk; and
- Market risk (including foreign currency risk and interest rate risk).

In the Notes to the Consolidated Financial Statements information is included about the Group's exposure to each of the above risks, the Group's objectives, policies and processes for measuring and managing risk, and the Group's management of capital.

These risks, objectives, policies and processes for measuring and managing risk, and the management of capital apply also to the Company Financial Statements of ASML Holding N.V. Further quantitative disclosures are included below.

Fair value

The fair values of most of the financial instruments stated on the Company Balance Sheet, including loans to subsidiaries, accounts receivable, cash at bank and in hand and current liabilities, are close to their carrying amounts. For further information, please see Note 6 Financial fixed assets and Note 12 Amounts due from / due to subsidiaries.

The estimated fair value of the forward foreign exchange contracts and interest rate swaps at December 31, 2020 and 2019 are:

As of December 31 (€, in millions)	2019		2020	
	Assets	Liabilities	Assets	Liabilities
Interest rate swaps — fair value hedges	134.3	—	162.8	—
Forward foreign exchange contracts — no hedge accounting	2.9	3.3	6.3	4.9
Total	137.2	3.3	169.1	4.9
Less non-current portion:				
Interest rate swaps - fair value hedges	103.0	—	123.8	—
Total current portion	34.2	3.3	45.3	4.9

12. Amounts due from / due to subsidiaries

Interest on amounts due from subsidiaries is calculated based on monthly base rates plus a market-conform mark-up, interest on amounts due to subsidiaries is calculated based on monthly base rate, minus a small fee, with a minimum of 0%. All balances due from / due to subsidiaries are repayable on demand.

13. Principal accountant fees and services

For information regarding auditor's fees, see Consolidated Financial Statements - Notes to the Consolidated Financial Statements - Note 29 Principal accountant fees and services.

14. Subsequent events

Refer to Note 30. Subsequent events as included in the Notes to the Consolidated Financial Statements.

Veldhoven, the Netherlands

February 10, 2021

Prepared by

The Board of Management:

Peter T.F.M. Wennink

Martin A. van den Brink

Roger J.M. Dassen

Frits J. van Hout

Christophe D. Fouquet

Frédéric J.M. Schneider-Maunoury

Other information

Adoption of Financial Statements

The Board of Management will submit our Annual Report, together with an independent auditor's report in respect thereof, to the General Meeting of Shareholders for adoption.



Independent auditor's report

To: the General Meeting of Shareholders and the Supervisory Board of ASML Holding N.V.

Report on the audit of the financial statements 2020 included in the annual report

Our opinion

In our opinion:

- the accompanying consolidated financial statements give a true and fair view of the financial position of ASML Holding N.V. as at December 31, 2020 and of its result and its cash flows for the year then ended, in accordance with International Financial Reporting Standards as adopted by the European Union (EU-IFRS) and with Part 9 of Book 2 of the Dutch Civil Code;
- the accompanying company financial statements give a true and fair view of the financial position of ASML Holding N.V. as at December 31, 2020 and of its result for the year then ended in accordance with Part 9 of Book 2 of the Dutch Civil Code.

What we have audited

We have audited the financial statements 2020 of ASML Holding N.V. (the Company) based in Veldhoven. The financial statements include the consolidated financial statements and the company financial statements.

The consolidated financial statements comprise:

1. the consolidated statement of financial position as at December 31, 2020;
2. the following consolidated statements for 2020: profit or loss, comprehensive income, changes in equity and cash flows; and
3. the notes comprising a summary of the significant accounting policies and other explanatory information.

The company financial statements comprise:

1. the company balance sheet as December 31, 2020;
2. the company statement of profit or loss for 2020; and
3. the notes comprising a summary of the accounting policies and other explanatory information.

Basis for our opinion

We conducted our audit in accordance with Dutch law, including the Dutch Standards on Auditing. Our responsibilities under those standards are further described in the 'Our responsibilities for the audit of the financial statements' 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) and other relevant independence regulations in the Netherlands. Furthermore, we have complied with the 'Verordening gedrags- en beroepsregels accountants' (VGBA, Dutch Code of Ethics).

We believe the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Audit approach

Summary

Materiality

- Materiality of EUR 160 million
- 4.0% of income before income taxes of 2020 and 4.9% averaged over last three years

Group audit

- Coverage of 87% of total assets
- Coverage of 91% of total net sales

Key audit matter

- Complex revenue recognition relating to the identification of distinct performance obligations and allocation of the total contract consideration and revenue cut-off

Opinion

- Unqualified

Materiality

Based on our professional judgement we determined the materiality for the financial statements as a whole at EUR 160 million (2019: EUR 130 million). The benchmark used for determining materiality is income before income taxes (4.0%). To determine materiality, we have averaged income before income taxes over the last three years to reduce volatility. We consider income before income taxes as the most appropriate benchmark as the main stakeholders are primarily focused on income before income taxes. We have also taken into account misstatements and/or possible misstatements that in our opinion are material for the users of the financial statements for qualitative reasons.

We agreed with the Audit Committee of the Supervisory Board that misstatements in excess of EUR 8 million which are identified during the audit, would be reported to them, as well as smaller misstatements that in our view must be reported on qualitative grounds.

Scope of the group audit

ASML Holding N.V. is at the head of a group of components. The financial information of this group is included in the financial statements of ASML Holding N.V.

Given the high level of centralization of operations in the Netherlands, our audit approach mirrors this through a centralized approach. Except for the procedures (based on our instructions) performed by a non-KPMG auditor in relation to the equity interest in Carl Zeiss SMT Holding GmbH & Co. KG, all audit procedures are performed by us, acting as the principal auditor. We intended to visit the non-KPMG auditor to review selected component auditor documentation. Due to the Covid-19 travel restrictions, we have performed this review remotely. By performing the procedures mentioned above, we have been able to obtain sufficient and appropriate audit evidence about the group's financial information to provide an opinion about the consolidated financial statements.

The audit coverage, under full scope audit procedures, of total assets and total net sales is 87% and 91%, respectively. The residual portion of total assets and total net sales is covered by procedures performed at group level.

Our focus on the risk of fraud and non-compliance with laws and regulations

Our objectives

The objectives of our audit with respect to fraud and non-compliance with laws and regulations are:

With respect to fraud:

- to identify and assess the risks of material misstatement of the financial statements due to fraud;
- to obtain sufficient appropriate audit evidence regarding the assessed risks of material misstatement due to fraud, through designing and implementing appropriate audit responses; and to respond appropriately to fraud or suspected fraud identified during the audit;

With respect to non-compliance with laws and regulations:

- to identify and assess the risk of material misstatement of the financial statements due to non-compliance with laws and regulations; and
- to obtain a high (but not absolute) level of assurance that the financial statements, taken as a whole, are free from material misstatement, whether due to fraud or error when considering the applicable legal and regulatory framework.

The primary responsibility for the prevention and detection of fraud and non-compliance with laws and regulations lies with the Board of Management, with oversight by the Supervisory Board. We refer to chapter "How we manage risk" of the Annual Report where the Board of Management included its risk assessment and where the Supervisory Board reflects on this assessment.

Our risk assessment

As part of our process of identifying fraud risks, we evaluated fraud risk factors with respect to financial reporting fraud, misappropriation of assets, bribery and corruption and specifically for this year we also evaluated the impact of Covid-19 on the financial reporting and control environment. With our forensics specialists we have evaluated the fraud risk factors to consider whether those factors indicated a risk of material misstatement due to fraud.

In accordance with the auditing standards we evaluated the fraud risks that are relevant to our audit:

- revenue recognition, in relation to complex revenue recognition relating to the identification of distinct performance obligations and allocation of the total contract consideration and revenue cut-off
- management override of controls

In addition, we performed procedures to obtain an understanding of the legal and regulatory frameworks that are applicable to the Company. We inquired with Management and the Supervisory Board as to whether the entity is in compliance with such laws and regulations and inspected correspondence, if any, with relevant regulatory authorities.

The potential effect of the identified laws and regulations on the financial statements varies considerably.

Firstly, the Company is subject to laws and regulations that directly affect the financial statements, including taxation and financial reporting (including related Company legislation). We assessed the extent of compliance with these laws and regulations as part of our procedures on the related financial statement items and therefore no additional audit response is necessary.

Secondly, the Company is subject to many other laws and regulations where the consequences of non-compliance could have an indirect material effect on amounts recognized or disclosures provided in the financial statements, or both, for instance through the imposition of fines or litigation. We identified the following areas as those most likely to have such an indirect effect:

- Information protection legislation (reflecting the company's significant number of patents and research and development expenditures);
- Employment legislation (reflecting the company's significant and geographically diverse work force, including General Data Protection Regulation).

We communicated the identified risks of fraud and non-compliance with laws and regulations throughout our team and remained alert to any indications of fraud and non-compliance throughout the audit. This included communication from the group to the component audit team of relevant risks of fraud and non-compliance with laws and regulations identified at group level.

In our audit, we addressed the risk of management override of internal controls, including evaluating whether there was evidence of bias by management that may represent a risk of material misstatement due to fraud. We refer to the key audit matter, that is an example of our approach related to an area of higher risk due to accounting estimates where management makes significant judgements.

We communicated our risk assessment and audit response to the Board of Management and the Audit Committee of the Supervisory Board. Our audit procedures differ from a specific forensic fraud investigation, which investigation often has a more in-depth character.

Our response to the risks identified

We performed the following audit procedures (not limited) to respond to the assessed risks:

- We evaluated the design and the implementation and, where considered appropriate, tested the operating effectiveness of internal controls that mitigate fraud risks;
- We performed data analysis of high-risk journal entries and evaluated key estimates and judgements for bias by the Company, including retrospective reviews of prior year's estimates. Where we identified instances of unexpected journal entries or other risks through our data analytics, we performed additional audit procedures to address each identified risk. These procedures also included testing of transactions back to source information;
- Assessment of matters reported on the Company's incident register and whistleblowing, and complaints procedures with the entity and results of management's investigation of such matters, as well as discussions with Legal and Internal audit;
- With respect to the risk of fraud in revenue recognition we refer to the key audit matter;
- We incorporated elements of unpredictability in our audit;
- We considered the outcome of our other audit procedures and evaluated whether any findings or misstatements were indicative of fraud or non-compliance. If so, we re-evaluated our assessment of relevant risks and its resulting impact on our audit procedures;
- We obtained audit evidence regarding compliance with the provisions of those laws and regulations generally recognized to have a direct effect on the determination of material amounts and disclosures in the financial statements.

We do note that our audit is based on the procedures described in line with applicable auditing standards.

Our procedures to address identified risks related to non-compliance with laws and regulations did not result in a key audit matter.

We do note that our audit is not primarily designed to detect fraud and non-compliance with laws and regulations and that management is responsible for such internal control as management determines is necessary to enable the preparation of the financial statements that are free from material misstatement, whether due to errors or fraud, including compliance with laws and regulations.

The more distant non-compliance with indirect laws and regulations (irregularities) is from the events and transactions reflected in the financial statements, the less likely the inherently limited procedures required by auditing standards would identify it. In addition, as with any audit, there remained a higher risk of non-detection of irregularities, as these may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal controls.

Our key audit matter

Key audit matters are those matters that, in our professional judgment, were of most significance in our audit of the financial statements. We have communicated a key audit matter to the Supervisory Board. The key audit matter is not a comprehensive reflection of all matters discussed.

This matter was addressed in the context of our audit of the financial statements as a whole and in forming our opinion thereon, and we do not provide a separate opinion on this matter.

Complex revenue recognition relating to identification of distinct performance obligations and allocation of total contract consideration and revenue cut-off

Description

As disclosed in note 3 to the consolidated financial statements, net system sales was EUR 10,317 million for the 12 months ended December 31, 2020. Sales of systems are usually entered into with customers under Volume Purchase Agreements (VPA's). These VPA's usually 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 complex revenue recognition relating to the identification of performance obligations in the contracts 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 key audit matter since it is inherently judgmental and results in complex accounting. As a result, evaluating the Company's judgments regarding the identification of performance obligations, including 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.

In addition, given the high value of individual systems, we identified a risk that revenue related to system sales is not recognized when control is transferred to the customer, resulting in revenue not being recognized in the correct accounting period.

These risks inherently include the fraud risk that management deliberately overstates or understates revenue, as management may feel pressure to achieve planned results.

Our response

The following are the primary procedures we performed to address this key audit matter. We evaluated the design and tested the operating effectiveness of certain internal controls related to the key audit matter. This includes controls related to VPA contract assessment for the identification of performance obligations and the allocation of the total contract consideration to these performance obligations, the correct application of these on individual sales transactions, and transfer of control assessments for revenues recognized around accounting period end.

We evaluated the identification of performance obligations by inspecting a selection including significant VPAs and their supporting documentation. Furthermore, we evaluated a sample of individual sales transactions by inspecting their related supporting documentation, we performed sensitivity analysis to assess the estimated number of systems to be delivered, assessed changes in estimates throughout the year by inspecting related supporting documentation, and performed inquiries with different levels of the organization. In addition, we checked the accuracy of the Company's model used to allocate the contract consideration to the identified performance obligations.

Finally, we inspected a sample of individual sales transactions before and after year-end to assess whether revenue was recognized in the correct accounting period by, amongst others, inspection of sales contracts, inspection of client acceptance documents, inquiry with third parties and performance of stock counts. As a result of Covid-19 restriction, this year most inventory counts were performed through secure video connections instead of in person. For specific high value items and bill and hold's, in-person stock counts were performed at year-end.

Our observation

The results of our procedures relating to the accounting of revenue recognition for identified distinct performance obligations and allocation of total contract consideration in complex revenue contracts and revenue cut-off in relation to system revenues were satisfactory.

Report on the other information included in the annual report

In addition to the financial statements and our auditor's report thereon, the annual report contains other information.

Based on the following procedures performed, we conclude that the other information:

- is consistent with the financial statements and does not contain material misstatements, and
- contains the information as required by Part 9 of Book 2 of the Dutch Civil Code.

We have read the other information. Based on our knowledge and understanding obtained through our audit of the financial statements or otherwise, we have considered whether the other information contains material misstatements.

By performing these procedures, we comply with the requirements of Part 9 of Book 2 of the Dutch Civil Code and the Dutch Standard 720. The scope of the procedures performed is less than the scope of those performed in our audit of the financial statements.

Management of ASML Holding N.V. is responsible for the preparation of the other information, including the information as required by Part 9 of Book 2 of the Dutch Civil Code.

Report on other legal and regulatory requirements

Engagement

We were engaged by the General Meeting of Shareholders as auditor of ASML Holding N.V. on April 30, 2015, as of the audit for the year 2016 and have operated as auditor since that year.

No prohibited non-audit services

We have not provided prohibited non-audit services as referred to in Article 5(1) of the EU Regulation on specific requirements regarding statutory audits of public-interest entities.

Description of responsibilities regarding the financial statements

Responsibilities of management and the Supervisory Board for the financial statements

Management is responsible for the preparation and fair presentation of the financial statements in accordance with EU-IFRS and Part 9 of Book 2 of the Dutch Civil Code. Furthermore, management is responsible for such internal control as management determines is necessary to enable the preparation of the financial statements that are free from material misstatement, whether due to fraud or error.

As part of the preparation of the financial statements, management is responsible for assessing the Company's ability to continue as a going concern. Based on the financial reporting frameworks mentioned, management should prepare the financial statements using the going concern basis of accounting unless management either intends to liquidate the Company or to cease operations, or has no realistic alternative but to do so. Management should disclose events and circumstances that may cast significant doubt on the company's ability to continue as a going concern in the financial statements.

The Supervisory Board is responsible for overseeing the Company's financial reporting process.

Our responsibilities for the audit of the financial statements

Our objective is to plan and perform the audit engagement in a manner that allows us to obtain sufficient and appropriate audit evidence for our opinion.

Our audit has been performed with a high, but not absolute, level of assurance, which means we may not detect all material errors and fraud during our audit.

Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements. The materiality affects the nature, timing and extent of our audit procedures and the evaluation of the effect of identified misstatements on our opinion.

A further description of our responsibilities for the audit of the financial statements is included in the appendix of this auditor's report. This description forms part of our auditor's report.

Rotterdam, February 10, 2021

KPMG Accountants N.V.

J. van Delden RA

Appendix to Independent auditor's report

Description of our responsibilities for the audit of the financial statements

We have exercised professional judgement and have maintained professional scepticism throughout the audit, in accordance with Dutch Standards on Auditing, ethical requirements and independence requirements. Our audit included among others:

- identifying and assessing the risks of material misstatement of the financial statements, whether due to fraud or error, designing and performing audit procedures responsive to those risks, and obtaining audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than the risk resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control;
- obtaining an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control;
- evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by Management;
- concluding on the appropriateness of Management's use of the going concern basis of accounting, and based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on Company's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause a company to cease to continue as a going concern;
- evaluating the overall presentation, structure and content of the financial statements, including the disclosures; and
- evaluating whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation.

We are solely responsible for the opinion and therefore responsible to obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the group to express an opinion on the financial statements. In this respect we are also responsible for directing, supervising and performing the group audit.

We communicate with the Audit Committee of the Supervisory Board regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant findings in internal control that we identify during our audit. In this respect we also submit an additional report to the audit committee in accordance with Article 11 of the EU Regulation on specific requirements regarding statutory audits of public-interest entities. The information included in this additional report is consistent with our audit opinion in this auditor's report.

We provide the Audit Committee of the Supervisory Board with a statement that we have complied with relevant ethical requirements regarding independence, and to communicate with them all relationships and other matters that may reasonably be thought to bear on our independence, and where applicable, related safeguards.

From the matters communicated with the Audit Committee of the Supervisory Board, we determine the key audit matters: those matters that were of most significance in the audit of the financial statements. We describe these matters in our auditor's report unless law or regulation precludes public disclosure about the matter or when, in extremely rare circumstances, not communicating the matter is in the public interest.

Non-financial statements

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 (hereafter: the Non-financial Information) of the 'Annual Report 2020' of ASML Holding N.V. (hereafter: the Company) for the year ended December 31, 2020 in accordance with the International Financial Reporting Standards as adopted by the European Union (EU-IFRS) and with Article 362 of Part 9 of Book 2 of the Dutch Civil Code. A review is aimed at obtaining a limited level of assurance (hereafter: the Annual Report).

Based on the procedures performed nothing has come to our attention that causes us to believe that the non-financial information is not prepared, in all material respects, in accordance with the applicable criteria as described in the 'Applicable criteria' section of our report. The non-financial information consists of: 2020 at a glance (pages 4-8), Who we are and what we do (pages 9-25), What we achieved in 2020 (pages 26-72), How we manage risk (pages 87-89), Responsible business (pages 100-104) and the Non-financial statements (pages 224-249).

Basis for our conclusion

We have performed our review on the non-financial information in accordance with Dutch law, including Dutch Standard 3810N: "Assurance engagements relating to sustainability reports", which is a specified Dutch standard that is based on the International Standard on Assurance Engagements (ISAE) 3000A: "Assurance Engagements other than Audits or Reviews of Historical Financial Information (Attestation engagements)".

Our responsibilities under this standard are further described in the section 'Our responsibilities for the review of the nonfinancial information' below.

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) and other relevant independence regulations in the Netherlands. Furthermore, we have complied with the 'Verordening gedrags- en beroepsregels accountants' (VGBA, Dutch Code of Ethics).

We believe that the assurance evidence we have obtained is sufficient and appropriate to provide a basis for our conclusion.

Applicable Criteria

The non-financial information needs to be read and understood together with the reporting criteria. The Company 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 Sustainability Reporting 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 Annual Report 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 site level. Our selection of sites in scope of our review procedures is primarily based on the site's individual contribution to the consolidated information.

By performing our review procedures at site 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 of the Company is responsible for the preparation of the non-financial information in accordance with the applicable criteria as described in the

'Applicable 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 Annual Report and the reporting policy are summarized in section 'About the non-financial information' of the Annual Report.

Furthermore, the Board of Management is responsible for such internal control as it determines is necessary to enable the preparation of the non-financial information that is free from material misstatement, whether due to fraud or error.

The Board of Management is, amongst other things, responsible for overseeing the Company's reporting process.

Auditor's responsibilities

Our responsibility is to plan and perform our review in a manner that allows us to obtain sufficient and appropriate assurance evidence for our conclusion.

Procedures performed to obtain a limited level of assurance are aimed to determine the plausibility of information and vary in nature and timing, and are less in extent, compared to a reasonable assurance engagement. The level of assurance obtained in a limited assurance engagement is substantially lower than the assurance that would have been obtained had a reasonable assurance engagement been performed.

We apply the 'Nadere Voorschriften Kwaliteitssystemen' (NVKS, Regulations for Quality management systems) and accordingly maintain a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

We have exercised professional judgement and have maintained professional scepticism throughout the review, in accordance with the Dutch Standard 3810N, ethical requirements and independence requirements.

Our review included among others:

- Performing an analysis of the external environment and obtaining an understanding of relevant societal themes and issues, and the characteristics of the Company;
- Evaluating the appropriateness of the reporting criteria used, their consistent application and related disclosures in the Annual Report. 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, are most likely to occur, designing and performing assurance procedures responsive to these areas, and obtaining assurance information that is enough and appropriate to provide a basis for our conclusion. These procedures included, amongst others:
 - Interviewing management and relevant staff at corporate level 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 analytical reviews 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 Supervisory Board regarding, among other matters, the planned scope and timing of the review and significant findings that we identify during our review.

Rotterdam, February 10, 2021
KPMG Accountants N.V.
J. van Delden 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 by the comprehensive materiality assessment conducted in 2018. As part of the materiality assessment, we asked internal and external stakeholders to identify where in the value chain the theme has an impact (see table in section Non-financial statements - Materiality: assessing our impact, where we include the boundaries as required by the GRI Standards). For more information on the materiality assessment process, see Non-financial statements - Materiality: assessing our impact.

The materiality assessment was used as input for the new sustainability strategy setting for the period 2019-2025. New (key) performance indicators have been determined to report on our performance in the area of sustainability. No comparative results for 2018 are shown for new indicators not previously disclosed.

The Reporting scope table (see next page) 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. Our acquisition of Berliner Glas closed on October 30, and as a result the non-financial indicators reported do not include any impact from Berliner Glas.

This Annual Report generally covers the performance of ASML from January 1, 2020 to December 31, 2020. Please see Who we are and what we do - Our company for significant changes regarding the size, structure, or ownership of the organization or its supply chain.

The financial information in this report is derived from our Financial Statements that are in accordance with EU-IFRS, unless otherwise indicated. The reporting basis for the information in this report on our performance in the area of sustainability is prepared in accordance with the GRI Sustainability Reporting Standards and is presented in accordance with the 'core' option. Details of our compliance with the GRI standards (GRI content index) can be found in a separate Reporting Supplement available on the Website. We have also included disclosures required as part of the EU Directive on disclosure of non-financial information and diversity information. This disclosure was implemented in 2017 and is decreed as part of the Dutch Civil Code.

1. We publish two versions of the Annual Report: one version containing Financial Statements based on US GAAP and one version containing Financial Statements based on EU-IFRS.

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. Finance is also responsible for the reporting and planning process for the Annual Report.

Reporting indicators

The Consolidated Financial Statements included in this report are audited. Please see Consolidated Financial Statements - Report of Independent Registered Public Accounting Firm.

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.

Scope 3 emissions

One of our reporting indicators is scope 3 emissions. See What we achieved in 2020 - Climate and energy - Reviewing our value-chain carbon footprint

The emissions reported are in line with the Greenhouse Gas (GHG) Protocol and are calculated for nine categories, as described in the Scope 3 Accounting and Reporting Standard issued by GHG Protocol, which are deemed relevant to us and our value chain. The categories are: Cat.1 Purchased goods and services, Cat.2 Capital goods, Cat.3 Fuel- and energy- related activities, Cat.4 and Cat.9 Upstream / Downstream transportation & distribution, Cat.5 Waste generated in operations, Cat.6 Business travel, Cat.7 Employee commuting, Cat.11 Use of sold products, and Cat.12 End-of-life treatment of sold products. The remaining five categories are deemed irrelevant or immaterial to ASML and our value chain. Therefore we exclude these categories from our Scope 3 emissions assessment.

The applied emission factors used to calculate our value chain carbon footprint are from the latest DEFRA (UK Department for Environment, Food & Rural Affairs) 2020 emission factors.

Data reliability: The basis for the calculation method applied for scope 3, Cat.1 Purchased goods and services is based on spend. As a result, it relies on expenditure-based emission factors, which is an indirect measure of GHG intensity of goods and services. In addition, we have gathered actual emissions data from our suppliers for Cat.4 Upstream transportation & distribution and Cat.6 Business travel, which accounts for around 5% of total Scope 3 emissions.

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.

Non-financial (sub)chapter	Scope
Technology and innovation ecosystem	
Where we innovate	ASML worldwide
Collaborating with R&D partners	ASML worldwide excluding HMI
Product safety	ASML products
Supporting start-ups and scale-ups	ASML worldwide – NOTE: Scope of indicators is ASML Netherlands only
Customer intimacy	ASML worldwide
Operational excellence	ASML worldwide
Our people	
Employee engagement	ASML worldwide – NOTE: The indicator 'Absenteeism' is excluding Cymer and HMI. The scope for indicator Open positions filled by internal candidates (in %) excludes ASML US.
Strong employer branding	ASML worldwide
Promoting diversity and inclusion	ASML worldwide
Ensuring employee safety	ASML worldwide
Labor relations and fair remuneration	ASML worldwide
Community engagement	ASML worldwide – NOTE: The scope is ASML Netherlands for all, except for Time investment of volunteers (in hours) – Community Involvement and total costs of volunteering, which is ASML worldwide excluding HMI.
Our supply chain	
Our supply chain	ASML worldwide
Responsible Supply Chain	ASML worldwide excluding HMI
Circular procurement and conflict minerals	ASML worldwide
Circular economy	
Reduce waste	ASML main manufacturing locations : Veldhoven (the Netherlands), Linkou (Taiwan), Wilton and San Diego (US)
Accelerate re-use of parts and materials	ASML products
Lifetime Extension of Mature Products	ASML products
Climate and energy	
Climate change risk and opportunities	ASML worldwide
Energy efficiency of our products	ASML products
Greenhouse gas emissions from operations	ASML main manufacturing locations : Veldhoven (the Netherlands), Linkou (Taiwan), Wilton and San Diego (US)
Reviewing our value chain carbon footprint	ASML worldwide
Water management	ASML main manufacturing locations: Veldhoven (the Netherlands), Linkou (Taiwan), Wilton and San Diego (US) – except for Total Ultra-pure water consumption and Total water recycled and re-used, which is Veldhoven (the Netherlands) and Linkou (Taiwan) only.
Governance	
Responsible business	ASML worldwide
Financial performance	
Financial performance indicators	ASML worldwide

Scope changes

Compared to the 2020 Annual Report, the following scope changes have been made:

- Scholarships in previous years we only reported on the scholarships in the Netherlands but starting from 2020 the reporting scope will be worldwide.

Verification of this report

As requested by our Board of Management, our non-financial information has been independently reviewed. Our external auditor (KPMG) was asked to provide this assurance. For KPMG's assurance report, including details of the work they carried out, see Non-financial statements - Assurance Report of the Independent Auditor.

Non-financial indicators

The non-financial Key Performance Indicators (KPIs) are reported in the different chapters of our sustainability reporting within What we achieved in 2020. The other non-financial performance indicators (PIs) are reported in the tables below. No comparative results for 2018 are shown for new indicators not previously disclosed. Our acquisition of Berliner Glas closed on October 30, and as a result the non-financial indicators reported do not include any impact from Berliner Glas.

Technology and innovation ecosystem - Product safety

Description	2018	2019	2020	Comments
Percentage of product types shipped that have a SEMI S2 Safety Guidelines compliance report	100.0%	100.0%	100.0%	
Number of (significant) fines for non-compliance with product design related laws and regulations	0	0	0	
% RoHS compliant parts	91.6%	95.4%	96.0%	
% RoHS non-compliant parts	0.8%	0.4%	0.3%	
% RoHS unknown	7.6%	4.2%	3.7%	
Total	100.0%	100.0%	100.0%	

Our people - Workforce indicators

Number of FTEs (payroll and temporary)	Total ASML			Asia			Europe			US		
	2018	2019	2020	2018	2019	2020	2018	2019	2020	2018	2019	2020
Payroll employees (in FTE)	20,044	23,219	25,082	5,305	5,664	6,027	9,950	12,393	13,627	4,789	5,162	5,428
Female (in %)	16	16	17	16	16	17	16	16	17	16	17	17
Male (in %)	84	84	83	84	84	83	84	84	83	84	83	83
Temporary employees (in FTE)	3,203	1,681	1,399	85	68	30	2,752	1,339	1,087	366	274	282
Female (in %)	15	17	16	36	34	28	14	17	19	12	11	7
Male (in %)	85	83	84	64	66	72	86	83	81	88	89	93
Total	23,247	24,900	26,481	5,390	5,732	6,057	12,702	13,732	14,714	5,155	5,436	5,710

Number of FTEs (by age group)	Total ASML			Asia			Europe			US		
	2018	2019	2020	2018	2019	2020	2018	2019	2020	2018	2019	2020
< 30	4,820	4,894	4,798	1,670	1,628	1,518	2,346	2,378	2,381	804	888	899
30 - 50	14,338	15,606	16,848	3,556	3,902	4,300	8,197	8,924	9,615	2,584	2,780	2,933
> 50	3,730	4,130	4,556	164	201	238	2,159	2,430	2,718	1,408	1,499	1,600
Unknown ¹	359	270	279	—	1	1	—	—		359	269	278
Total	23,247	24,900	26,481	5,390	5,732	6,057	12,702	13,732	14,714	5,155	5,436	5,710

1. In the US, it is not mandatory to register the age for temporary employees.

Our people - Workforce indicators

Number of payroll FTEs (split in full-time and part-time)	Total ASML			Asia			Europe			US		
	2018	2019	2020	2018	2019	2020	2018	2019	2020	2018	2019	2020
Full-time payroll FTEs (by age group)												
< 30	3,737	4,397	4,351	1,635	1,612	1,512	1,300	1,898	1,941	802	887	898
30 - 50	11,831	13,567	14,938	3,506	3,856	4,280	5,747	6,937	7,730	2,578	2,774	2,928
> 50	3,193	3,674	4,028	159	193	232	1,634	1,988	2,207	1,400	1,493	1,589
Total	18,761	21,638	23,317	5,300	5,661	6,024	8,681	10,823	11,878	4,780	5,154	5,415
Full-time payroll FTEs (by gender)												
Female (in %)	14	15	15	16	16	17	13	14	14	16	17	17
Male (in %)	86	85	85	84	84	83	87	86	86	84	83	83
Part-time payroll FTEs (by age group)												
< 30	33	41	39	1	0	0	32	41	39	0	0	0
30 - 50	1,035	1,264	1,337	3	1	1	1,030	1,259	1,332	3	4	4
> 50	214	276	389	2	2	2	207	270	378	6	4	9
Unknown	1	—	—	—	—	—	—	—	—	—	—	—
Total	1,283	1,581	1,765	5	3	3	1,269	1,570	1,749	9	8	13
Part-time payroll FTEs (by gender)												
Female (in %)	37	37	37	10	17	—	37	37	37	54	62	46
Male (in %)	63	63	63	90	83	100	63	63	63	46	38	54

Our people - Workforce indicators

Number of new hires payroll employees (in FTEs)	Total ASML			Asia			Europe			US		
	2018	2019	2020	2018	2019	2020	2018	2019	2020	2018	2019	2020
Number of new hires	3,479	2,219	1,932	1,299	558	598	1,348	1,102	879	832	559	455
Rate of new hires (in %)	17	10	8	24	10	10	14	9	6	17	11	8
Gender												
Female	746	542	454	234	123	123	332	280	216	180	139	115
Male	2,733	1,677	1,478	1,065	435	475	1,016	822	663	652	420	340
Total	3,479	2,219	1,932	1,299	558	598	1,348	1,102	879	832	559	455
Age group												
< 30	1,666	923	854	783	318	338	522	380	329	361	225	187
30 - 50	1,636	1,136	947	508	233	253	750	643	491	378	260	203
> 50	177	160	131	8	7	7	76	79	59	93	74	65
Total	3,479	2,219	1,932	1,299	558	598	1,348	1,102	879	832	559	455

Our people - Workforce indicators

Employee attrition (in FTE)	Total ASML			Asia			Europe			US		
	2018	2019	2020	2018	2019	2020	2018	2019	2020	2018	2019	2020
Number of involuntary employee attrition	153	177	186	35	40	38	69	80	102	49	57	46
Number of voluntary employee attrition	679	761	723	232	198	201	176	257	239	271	306	283
Total	832	938	909	267	238	239	245	337	341	320	363	329
Gender												
Female	151	196	189	45	55	56	48	72	69	58	69	64
Male	681	742	720	222	183	183	197	265	272	262	294	265
Total	832	938	909	267	238	239	245	337	341	320	363	329
Age group												
< 30	183	219	218	104	78	73	29	61	67	50	80	78
30 - 50	478	519	479	149	144	149	158	198	179	171	177	151
> 50	171	200	212	14	16	17	58	78	95	99	106	100
Total	832	938	909	267	238	239	245	337	341	320	363	329

Our people - Employee engagement

Engagement score We@ASML by gender	2018	2019	2020	Comments
Female	—	75%	80%	
Male	—	77%	80%	

Our people - Employee engagement

Description	2018	2019	2020	Comments
Employee Attrition (in %)	4.7	4.3	3.8	
Attrition rate of high performers (in %)	2.2	2.4	1.7	A high performer is an employee with the merit classification 'exceptional' or 'exceeds expectations' from the annual employee performance evaluation
Promotion rate - Overall (in %)	14	14	13	
Promotion rate of high performers (in %)	40	38	37	
Absenteeism (in %)				
Asia ¹	0.3	0.4	0.5	
Europe	2.5	2.6	2.3	
US	1.5	1.6	1.3	

1. In some Asian countries sick leave is regarded as annual leave, hence illness-related absenteeism is recorded as 0%.

Our people - Employee engagement

Description	2018	2019	2020	Comments
Open positions filled by internal candidates (in %)	—	36	30	Worldwide average for Asia and Europe. US is excluded because the data is not yet available
Rotation ratio (in %)	—	18	20	
Human Capital Return On Investment (ROI) ¹	—	2.1	2.4	Represents the degree to which economic value is derived from profitability in relation to human capital costs
People Performance Management process completion (in %)	96	97	97	
Development Action Plan completion (in %)	81	76	77	
Scholarships				
Number of scholarships Netherlands	53	53	49	
Number of scholarships US	—	—	0	Delayed because of COVID-19, expected to start in 2021
Number of scholarships Taiwan	—	—	16	
Number of scholarships China	—	—	5	
Number of scholarships South Korea	—	—	3	

1. Human Capital Return on Investment is calculated as total net sales minus total operating expenses excluding total employee salaries & benefits, divided by total employee salaries & benefits.

Our people - Employee engagement

Description	2018	2019	2020	Comments
Total training expenses (in million €)	—	19	12	Out-of-pocket expenses for technical and non-product related classroom trainings as recorded in MyLearning (learning management system)
Average spent on training and development per FTE (€)	—	836	494	
Number of total training hours per FTE				Includes technical and non-product related training hours (including nomination courses)
Female	—	41	26	
Male	—	46	29	
Total	—	45	28	
Number of technical training hours per technical FTE ¹				
Female	44	35	22	
Male	30	41	27	
Total	31	40	26	
Number of non-product related training hours per FTE				Excluding nomination courses (leadership development programs)
Female	12	13	7	
Male	8	8	4	
Total	9	9	5	
Nomination courses: Leadership Development Programs				
Number of training hours	24,738	33,715	22,896	
Number of employees attending (unique)	331	387	216	

1. 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.

Our people - Diversity & inclusion

Description	Gender			Gender ratio		Age group			Comments
	Female	Male	Total	Female	Male	< 30	30 - 50	>50	
Male/female in managerial positions and in Supervisory Board (in headcount) ¹									
Supervisory Board	3	6	9	33%	67%			9	9
Board of Management	—	6	6	—%	100%	—	1	5	6
Senior Management	58	504	562	10%	90%	—	250	312	562
Middle Management	310	2,315	2,625	12%	88%	2	1,613	1,010	2,625
Junior Management	200	1,066	1,266	16%	84%	22	1,064	180	1,266
Other	3,878	17,167	21,045	18%	82%	4,385	13,657	3,003	21,045
Total	4,449	21,064	25,513	17%	83%	4,409	16,585	4,519	25,513
Male/female split by sector (in FTE)									
Customer Support	681	5,617	6,298	11%	89%				
Manufacturing and Supply Chain Management	1,295	5,325	6,620	20%	80%				
Research & Development	1,464	9,079	10,543	14%	86%				
General & Administrative	856	1,176	2,032	42%	58%				
Sales and Mature Product Services	100	542	642	16%	84%				
Strategic Supply Management	91	255	346	26%	74%				
Total	4,487	21,994	26,481	17%	83%				

1. Temporary employees are not included in the headcount numbers.

Our people - Diversity & inclusion

Description	2018	2019	2020	Comments
Workforce by gender male / female (in %)				
Female	16	16	17	
Male	84	84	83	
Total	100	100	100	
Number of nationalities working for ASML				
Asia	34	36	35	
Europe	105	103	103	
US	84	82	86	
Total	123	118	120	
Foreign nationals working for ASML (in %) ¹				
Asia	5	6	6	
Europe	29	31	32	
US	29	29	27	
Total	24	25	25	

1. Foreign nationals working for ASML (in%) is the percentage of payroll and temporary employees with another nationality than the country in which the employee is working.

Our people - Labor relations

Description	2018	2019	2020	Comments
Percentage of employees covered by collective bargaining agreements	48%	52%	53%	

Our people - Fair remuneration

Description	2018	2019	2020	Comments
Ratio of base salary of women to men ^{1,2}				
Senior Management ³	107%	103%	99%	Calculation method has been changed compared to 2019 see footnote 3
Middle Management ³	99%	99%	98%	
Non-management ³	100%	98%	98%	
Ratio of total cash of women to men ^{1,4}				
Senior Management ⁵	—	102%	99%	Total cash is base salary plus short-term incentive
Middle Management ⁵	98%	98%	98%	Total cash is base salary plus short-term incentive.
Non-Management ⁵	—	98%	97%	
Internal pay ratio (CEO versus employee remuneration)	32	41	40	For more information, see Leadership and governance - 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.
2. In 2020 the definition for the ratio of base salary women to men has changed and is calculated as: average weighted salary female/average weighted salary male * 100%. In 2018 and 2019 the ratio of the base salary women to men was calculated as: average salary per grade female/ average salary per grade male *100%.
3. The recalculated ratio of base salary of women to men for 2019 of senior management is 99%. The recalculation does not impact the 2019 PI for middle management and non-management.
4. In 2020 the definition for the ratio of total cash women to men has changed and is calculated as: average weighted salary including bonus female/average weighted salary including bonus male * 100%. In 2018 & 2019 the ratio of the base salary women to men was calculated as: average salary per grade including bonus female/ average salary per grade including bonus male *100%.
5. The recalculated ratio of total cash of women to men for 2019 PI of senior management is 96%. The recalculation does not impact the 2019 PI for middle management and non-management.

Our people - Community engagement

Description	2018	2019	2020	Comments
Number of students reached	11,694	8,998	13,378	
Time investment of volunteers (in hours) - Technology promotion and Campus promotion	5,257	5,445	2,936	
Time investment of volunteers (in hours) - Community Involvement	5,434	7,664	1,333	
Cash commitments - Charity (x €1,000)	700	705	701	
Cash commitments - Sponsorship (x €1,000)	784	3,416	3,076	
Total cost of volunteering (x €1,000)	—	772	271	

Our people - Employee safety

Description	2018	2019	2020	Comments
ASML recordable incident rate	0.24	0.28	0.18	
Number of recordable incidents	49	66	46	
Number of fatalities	0	0	0	
Number of recordable incidents by region:				
Asia	—	12	12	
Europe	—	26	19	
US	—	28	15	
Number of first-aid incidents per body part affected:				
Head	—	45	37	
Eyes	—	4	7	
Shoulder	—	4	4	
Chest	—	2	3	
Back	—	17	10	
Arm	—	19	12	
Hand	—	80	70	
Leg	—	29	19	
Foot	—	12	19	
Other	—	29	1	
Total	—	241	182	
Number of first-aid incidents per region:				
Asia	—	44	47	
Europe	—	143	80	
US	—	54	55	
Total	—	241	182	
Number of near misses by region:				A near miss is an unplanned event which did not result in injury, illness, or damage, but had the potential to do so
Asia	—	1,031	3,201	
Europe	—	1,498	1,221	
US	—	718	631	
Total	—	3,247	5,053	

Our supply chain - Responsible supply chain

Description	2018	2019	2020	Comments
RBA Code of Conduct compliance contract clause for LTSA suppliers (in %)	—	59%	67%	
Suppliers assessed on sustainability (in #) split by:				
Audits	2	12	—	
RBA Self-Assessment Questionnaire (SAQ)	—	29	59	
RBA self-assessment completed (in %) ¹	—	78%	88%	
Suppliers identified with overall risk level 'high' on all sustainability elements (in #)	—	0	0	The risk level is determined by means of the RBA SAQ and ASML assessment, applied to major product-related suppliers
High sustainability risks identified (in #) split by sustainability elements:				See comment above.
Ethics	—	3	1	
Labor	—	3	1	
Health and safety	—	0	0	
Environment	—	1	—	

1. This indicator measures whether improvement plans are closed before the due date agreed with the supplier. The improvement plans are initiated in prior or current reporting period(s) based on RBA SAQs or Audits.

Our supply chain - Supply chain

Description	2018	2019	2020	Comments
Total number of suppliers	5,000	5,003	4,749	
Number of suppliers, split by region:				
Asia	1,400	1,356	1,313	
EMEA (excl. Netherlands)	700	700	684	
Netherlands	1,500	1,620	1,477	
North America	1,400	1,327	1,275	
Total	5,000	5,003	4,749	
Number of suppliers, split by:				
Product-related	—	790	779	
Non-product related	—	4,213	3,970	
Total	0	5,003	4,749	Only Tier 1 suppliers
Number of suppliers, split by:				
Critical	—	221	222	Critical suppliers are Tier 1 suppliers of strategic importance
Non-critical	—	4,782	4,527	
Total	0	5,003	4,749	
Number of critical suppliers, split by:				
Product-related	—	198	188	
Non-product related	—	23	34	
Total	0	221	222	
Number of suppliers in scope for risk management	—	212	235	This includes 13 critical N-Tier suppliers
Total sourcing spend (in million €)	—	6,683	7,645	
Sourcing spend per supplier group (in %)				
Product-related	—	66%	68%	
Non-product related	—	34%	32%	
Proportion of spending on local suppliers (in %) ¹				
Veldhoven	44%	46%	47%	A relatively large amount of the total supplier spend for Veldhoven relates to Carl Zeiss (non-local)
Linkou	51%	46%	48%	
San Diego	93%	89%	94%	
Wilton	64%	66%	71%	

1. 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 in Wilton, both in the United States.

Circular economy - Waste management

Description	2018	2019	2020	Comments
Total waste generated (in 1,000 kg)				
Waste from operations	—	4,927	5,026	
Construction waste ¹	—	608	231	
Total	5,292	5,535	5,257	
Total hazardous waste (in 1,000 kg) ²				
Recycling	—	336	349	
Recovery, including energy recovery	—	9	9	
Incineration (mass burn)	—	15	13	
Landfill	—	2	1	
Total	347	362	372	
Total non-hazardous waste (in 1,000 kg) ²				
Recycling	—	3,618	3,911	
Recovery, including energy recovery	—	567	411	
Incineration (mass burn)	—	37	3	
Landfill	—	343	329	
Total	4,945	4,565	4,654	
Total construction waste (in 1,000 kg) ^{1,2}				
Recycling	—	578	206	
Recovery, including energy recovery	—	20	20	
Landfill	—	10	5	
Total	—	608	231	
Total waste disposed (% of total waste from operations)				
Incineration without energy recovery	—	1%	—%	
Landfill	—	7%	7%	
Total	—	8%	7%	
Used lithography systems sold	17	26	22	Lifetime extension of mature systems

1. In previous years, construction waste was reported as part of total non-hazardous waste. From 2019, construction waste is reported as a separate category, because this waste does not result from daily operations of ASML. Amounts of construction waste tend to fluctuate a lot over the years. Therefore this type of waste is excluded from the waste numbers that are used in the calculation of the other (key) performance indicators for waste reporting.

2. The waste disposal methods are determined by information provided by the waste disposal contractor.

Climate and energy - Energy efficiency of products

Description	2018	2019	2020			Comments
System energy efficiency NXT						No new NXT systems were introduced in 2018 or 2019, therefore
System	—	—	XT:1460K	NXT:1470	NXT:2050i	there are no measurements in these years
Throughput	—	—	209	277	295	
Measured energy efficiency (kWh / wafer pass) ¹	—	—	0.27	0.38	0.45	

1. System energy efficiency is measured according to the SEMI S23 standard, and scaled to 100% availability of our systems.

Climate and energy - Energy

Description	2018	2019	2020	Comments
Energy consumption (in TJ)	1,355	1,367	1,412	
Energy savings worldwide through projects (in TJ) ¹	77	80	114	
Electricity purchased per location (in TJ)				
Veldhoven	712	751	802	
Wilton	102	102	114	
Linkou	37	36	35	
San Diego	177	162	167	
Total	1,028	1,051	1,118	
Fossil fuels consumed from non-renewable sources (in TJ) ²				Fossil fuels consumed consists of only natural gas
Veldhoven	—	159	141	
Wilton	—	111	112	
Linkou	—	0	0	
San Diego	—	46	40	
Total	—	316	293	
Fossil fuels consumed from renewable sources (in TJ)	—	0	0	

1. In 2016 we started a master-plan period with a target to achieve 111 TJ energy savings by the end of 2020. The savings reported are cumulated compared to base year 2015. 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.

2. The sources of the conversion factors used are the Dutch Emissions Authority and the US Energy Information Administration.

Climate and energy - CO₂ emissions

Description	2018	2019	2020	Comments
Emission intensity ¹	—	0.01	0.61	Per 2020, scope 3 is included in the calculation
Type of Energy Attribute Certificates (in TJ)				
Guarantee of Origins (GOs)	—	751	802	
Renewable Energy Certificates (RECs)	—	264	281	
I-RECs	—	—	35	
Total	—	1,015	1,118	
Type of Energy Attribute Certificates (in kton)				
Guarantee of Origins (GOs)	—	116	110	
Renewable Energy Certificates (RECs)	—	21	21	
I-RECs	—	—	9	
Total	—	137	140	
Number of significant fines and non-monetary sanctions	—	—	1	There was one fine for HMI Beijing due to fact that they did not have an environmental permit
The monetary value of significant fines for non-compliance with environmental laws and regulations (in thousand €)	—	—	70	

1. In 2020 the definition for emission intensity has changed and is calculated as scope 1,2 and 3 emissions (in kt) divided by total revenue (in millions). The recalculated number for 2019 amounts to 0.56. In 2019 the emission intensity was calculated as gross scope 1 and scope 2 emissions (in kt) divided by total revenue (in millions).

Climate and energy - Water management

Description	2018	2019	2020	Comments
Water consumption (in 1,000 m³)				
Veldhoven	—	628	658	
San Diego	—	90	80	
Wilton	—	90	94	
Linkou	—	30	28	
Total	895	838	860	Municipal water supply
Total Ultrapure water consumption (in 1,000 m ³) ¹	—	115	127	Only Veldhoven and Linkou are in scope for this indicator
Total water recycled and reused (in %) ¹	—	2.4%	1.8%	Only Veldhoven and Linkou are in scope for this indicator
Water intensity ²	—	71	62	

1. Veldhoven and Linkou are in scope for this indicator. San Diego and Wilton are excluded from the scope because the data to report on the indicator is not yet available.

2. Water intensity is calculated as total water consumption (in m³) divided by total revenue (in millions).

Responsible business - Business ethics

Description	2018	2019	2020	Comments
Total number of Speak Up messages	266	255	229	
Anti-corruption & bribery Speak Up messages ¹	33	16	19	
Human rights Speak Up messages	63	58	69	
% Completion of Code of Conduct online training	—	86%	88%	

1. None of the Speak Up messages led to any indication of violation of anti-corruption laws.

Materiality: assessing our impact

Dialogue and knowledge-sharing are important in an innovation-driven industry. To this end, we continually and openly communicate with our main stakeholder groups through various channels and at different levels in our organization. Our stakeholders are parties affected by our activities or those who have a direct interest in or who can influence our company's long-term business success.

Our materiality process

We develop our materiality assessment framework according to the GRI Standards, which includes principles of stakeholder engagement and identification, analysis and prioritization. We conduct our materiality assessment through a three-step approach.

Step 1: Identification of relevant aspects

We update a shortlist of relevant topics annually. These are based on an analysis of stakeholder feedback, continuous stakeholder engagement, risks and opportunities, and a review of relevant industry and global trends. Topics include those important to our stakeholders in their decision-making, and, for ASML, those that can have an environmental, social or economic impact, in the organization, value chain or society.

Input

International standards and legislation: GRI, ISO 26000, TCFD, the EU Non-financial Reporting Directive, among others.

Industry and media analysis: RBA, industry development reports, benchmarking sustainability performance from our peers in the DJSI, among others.

ESG analysts' questionnaires/assessments: DJSI, Sustainalytics, ISS ESG rating, CDP, MSCI ESG Index, FTSE4Good, among others.

Stakeholder engagement: feedback from regular and occasional stakeholder communication, ESG conferences and networks. *Read more in: Stakeholder engagement*

Step 2: Analysis and prioritization

We follow GRI Standards guidelines to rate how important topics are based on the level of stakeholder concern, and the significance of our environmental, social and economic impact resulting from our business and operations.

Output

We narrow the longlist of topics down to a shortlist of those relevant to us. The impact of these topics is gauged using available data, feedback from continuous stakeholder engagement, discussions with senior management and Board of Management members, business owners, and other relevant internal stakeholders (such as subject-matter experts). The Board of Management validates and approves assessment results. We identified the environmental, social, and governance topics that have the greatest impact on our business, and are of the greatest concern to stakeholders in our value chain. *Read more in: How we create value.*

Step 3: Confirmation and implementation

The results of the materiality assessment are used to shape our strategy. The results also define the content of this Annual Report, in line with the GRI principles for defining report content.

Strategy and reporting structure

In our latest assessment, conducted in 2018 for the sustainability strategy 2019-2025, we identified 10 material themes for sustainability, summarized in the materiality table. These are the themes most relevant to our stakeholders in their decision-making, and in areas where ASML has or could have the highest impact. We also identified other factors we need to address as a company committed to conducting our business in an accountable and caring way. These include issues our stakeholders expect us to act on or issues we have an impact on. We have been categorized these under the 'Corporate citizenship' themes. *Read more in: Our strategy.*

We also support the 2030 ambition defined in the United Nations Sustainable Development Goals (SDGs) adopted by the United Nations. These goals aim to protect the planet and improve the lives of people everywhere. We have mapped out how our strategy and current efforts actively support these goals. The materiality table outlines the five most relevant SDGs we contribute to. The SDG 9 'Industry, Innovation and Infrastructure' goal is connected to the core of our company, as innovation is our lifeblood and the engine that drives our business. We also contribute towards the SDG 4 'Quality Education', SDG 8 'Decent Work and Economic Growth', SDG 12 'Responsible Production and Consumption' and SDG 13 'Climate Action' goals. We highlight our performance against these SDGs throughout this report.

Core material themes for sustainability reporting	Impact on value chain		
	Upstream	Our operations	Downstream
Innovation ecosystem <ul style="list-style-type: none"> To maintain our fast pace of innovation, collaboration with our partners in the value chain, such as suppliers, research institutes and our customer is key. While innovating for our holistic lithography solutions, we need to give back to society by nurturing young entrepreneurship in the high tech sector. 	●	●	●
People <ul style="list-style-type: none"> Employee engagement is critical to ASML's performance and our long-term success as a company. Employee engagement depends on a wide range of factors and activities, such as talent attraction and retention, the onboarding experience, leadership, learning and development, and diversity and inclusion. Highly skilled people with a technical background are scarce in the labor market and competition is growing. Employer branding is a vital strategy to make sure ASML attracts the best talent. 		●	
Responsible supply chain <ul style="list-style-type: none"> We are committed to the responsible sourcing of parts, components, and materials in our supply chain. We screen our supplier base on sustainability performance using the RBA standard (ethics, labor, health and safety, and environment) 	●	●	
Circular economy <ul style="list-style-type: none"> We are committed to the responsible use of (natural and other) resources and scarce materials. We limit our environmental impact by minimizing waste. We repurpose products, parts and materials across their lifespan by recycling and re-use. 	●	●	●
Climate and energy <ul style="list-style-type: none"> We are committed to decreasing our greenhouse gas (GHG) emissions and reducing our carbon footprint across our operations, as well as in our value chain. Scope 1, 2, 3 carbon footprint Energy consumption of our products 	●	●	●

Note: The table above refers to the topics in the field of sustainability. Along these topics, other topics such as technology, customer intimacy, operational excellence are key for the execution of our core business strategy. Corporate governance and financial performance are part of our annual reporting process.

Corporate citizenship themes	Impact on value chain		
	Supply chain	Our operations	Product use
Product safety	●	●	●
Fair remuneration		●	
Labor relations		●	
Human rights	●	●	
Employee safety	●	●	●
Community involvement		●	
Water management		●	●
Responsible business	●	●	●
Tax policy		●	
Enterprise Risk Management	●	●	●
Information / cybersecurity	●	●	●
Privacy protection	●	●	●

This report focuses, in a comprehensive manner, on the material themes that we disclose. However, as we also want to meet our stakeholders' expectations, we seek to address elements of particular interest to them in our corporate citizenship themes. This means we address themes in different levels of detail.

Managing sustainability

Our Board of Management approves and signs off our Sustainability Strategy. The most senior member of the organization directly responsible for sustainability matters is our Executive Vice President and Chief Strategy Officer, who is a member of the Board of Management. Each of the material and corporate citizenship themes is assigned to a senior manager, who is responsible for monitoring progress against agreed targets, and ensuring there are sufficient resources available to meet targets and objectives. In the event of insufficient progress, this is discussed at operational performance review meetings and raised with senior management during a review meeting or other relevant committee meetings. Our performance on sustainability areas, as outlined in the materiality table, is part of the long-term incentive plans of our Board of Management and senior management. We measure our overall sustainability performance by benchmarking our result from the annual comprehensive Dow Jones Sustainability Index (DJSI) – assessing more than 20 ESG topics – with the best of the semiconductor industry. Read more in: Remuneration Report.

Stakeholder engagement

We define stakeholders as those individuals or groups or organizations that can affect or can be affected by our business. We regard five stakeholder groups: shareholders, customers, suppliers (including contractors), employees and society (e.g. local community, governments and authorities, industry union, labor organizations, other associations, media and NGOs).

Continuous stakeholder engagement, in which we embrace open dialogue and knowledge-sharing, are important in an innovation-driven industry and helps us to identify the areas of improvement. We communicate with our stakeholders through various channels and at a variety of levels. The methods of engagement will vary depending on the stakeholders, the issues of concern and the purpose of engagement. The following table is an overview of our main stakeholder groups, the way we communicate with them and an overview of the topics most relevant to them.

Shareholders

Purpose: This group consist 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 communicates with them about our financial growth strategies and opportunities, financial performance and outlook, shareholder returns as well as our Sustainability Strategy.

Main communication channel and frequency	Main engagement topic	Themes in our materiality
<ul style="list-style-type: none"> Direct interaction with the Investor Relations department (e.g. calls, ESG performance surveys, email exchange, site visits - at ASML and/or at the investor) - [daily] AGM - [annually] Investor Day - [bi-annually] Company quarterly results presentation and press release - [quarterly] Various investor conferences and roadshows - [on occurrence] Various sustainability questionnaires, assessments and survey feedback - [on occurrence, the majority of these are annual recurring] 	<ul style="list-style-type: none"> Financial results Capital return Market outlook Products and end-market Customer adoption Geopolitics Business summary Company roadmap and product portfolio ESG targets: human capital development, carbon footprint, waste, recycling, energy consumption, social responsibility in supply chain Board diversity and remuneration 	<ul style="list-style-type: none"> Financial performance Technology and innovation ecosystem Customer intimacy Our people Our supply chain Circular economy Climate and energy How we manage risk Responsible business Governance

Customers

Purpose: We are a manufacturer of leading edge chipmaking equipment, we enable our customers to create the patterns that define the electronic circuits on a chip. Our customers are the world's leading microchip manufacturers, and our success is inextricably linked with theirs.

Main communication channel and frequency	Main engagement topic	Themes in our materiality
<ul style="list-style-type: none"> Customer feedback Survey - [bi-annually] Direct interaction via account teams and zone quality managers Voice of the customer sessions - [monthly] Technology Review Meetings (between our CTO, product managers, other executives and our major customers) - [bi-annually] Executive Review Meetings (between ASML executives and major customers) - [bi-annually] Different technology symposia and special events - [on occurrence] 	<ul style="list-style-type: none"> Products and technology Customer roadmap Innovation Customer support, cost of ownership and quality ESG targets: carbon footprint, energy consumption, social responsibility in supply chain (RBA) 	<ul style="list-style-type: none"> Technology and innovation ecosystem Customer intimacy Operational excellence Responsible supply chain Circular economy Climate and energy

Suppliers

Purpose: 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.

Main communication channel and frequency	Main engagement topic	Themes in our materiality
<ul style="list-style-type: none"> ASML's supplier day - [annually] Direct interaction via supplier account teams / procurement account managers - [daily] Supplier audits - [on occurrence] Site visit - [on occurrence] Newsletter - [monthly] RBA Self-assessment questionnaire - [annually] ASML Speak up service - [on occurrence] 	<ul style="list-style-type: none"> Products and technology QLTCS Supplier performance and risk management IP / information security Business continuity RBA compliance (ethics, labor practice, health and safety, and environment) Scare (natural) resources, 3TG, hazardous substances, etc. Circularity (re-use, recycling, refurb) Scope 3 carbon footprint 	<ul style="list-style-type: none"> Technology and innovation ecosystem Our supply chain Responsible supply chain Responsible business (including human rights) Circular economy Climate and energy

Employees

Purpose: 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 and familiarize themselves with our strategy and purpose and uphold our Code of Conduct principles. Employee engagement is 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.

Main communication channel and frequency	Main engagement topic	Themes in our materiality
<ul style="list-style-type: none"> Employee engagement survey - [annually] Training and development programs including employee evaluation/feedback - [on occurrence] ASML Speak up service - [on occurrence] Works Council - [quarterly] Employee networks, such as Young ASML, Women@ASML, Seniors@ASML, Pink ASML - [on occurrence] Internal communication and awareness (e.g. intranet, ethics program, department employee meeting, lunch with board members) - [daily] Onboarding program new employees - [on occurrence] All-employee meeting and Senior Management meetings - [annually] 	<ul style="list-style-type: none"> Training and development Code of Conduct/Ethics Strategy Diversity and inclusion Labor conditions Vitality Human rights Sustainability target and performance 	<ul style="list-style-type: none"> Technology and innovation ecosystem Our people (employee development, labor relations, fair remuneration) Responsible supply chain Circular economy Climate and energy Responsible business

Society

Purpose: 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 engage regularly with governments and (local) authorities, industry unions and associations, (local) community, universities, media and NGOs.

Main communication channel and frequency	Main engagement topic	Themes in our materiality
<p>Industry unions and associations</p> <ul style="list-style-type: none"> Member conferences and technical forums (e.g. RBA, SEMI, FME, VNO-NCW, SPIE, etc.) - [monthly/on occurrence] Member consultation on standards - [on occurrence] Brainport - [on occurrence] <p>Governments and authorities</p> <ul style="list-style-type: none"> Dialogue with tax authority - [monthly/on occurrence] Relevant EU round table discussions (semiconductor industry or innovation) - [on occurrence] Compliance reporting - [monthly/on occurrence] Proactive dialogue with government, authorities and municipalities - [on occurrence] <p>Community, universities, media, NGOs, other</p> <ul style="list-style-type: none"> www.asml.com - [daily] Community engagement program (STEM promotion at secondary schools and universities, cultural institutions, local community, etc) - [on occurrence] Young high tech community (HighTechXL, Make Next platform, Startup Alliance) - [daily/on occurrence] Company visit - [on occurrence] Press release, interviews, engagement calls/meetings, etc. - [on occurrence] 	<ul style="list-style-type: none"> Employee development Charity, sponsoring and donations Collaboration in innovation Strengthening innovation in the industry, society and where we operate Social and environmental responsibility Promote STEM education Local developments 	<ul style="list-style-type: none"> Technology and innovation ecosystem Customer intimacy Community engagement Responsible business (human rights, ethics, privacy, ABC policy, etc.) Our people (employee development, labor relations, fair remuneration) Climate and energy Circular economy How we manage risk

Other appendices

Appendix - Financial calendar and investor relations

Financial Calendar

April 21, 2021

Announcement of First Quarter results for 2021

April 29, 2021

Annual General Meeting

July 21, 2021

Announcement of Second Quarter results for 2021

October 20, 2021

Announcement of Third Quarter results for 2021

Fiscal Year

ASML's fiscal year ends on December 31, 2021

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 worldwide contact information

Corporate Headquarters

De Run 6501
5504 DR Veldhoven
The Netherlands

Mailing Address

P.O. Box 324
5500 AH Veldhoven
The Netherlands

United States Main Office

2650 W Geronimo Place
Chandler, AZ 85224
U.S.A.

Asia Main Office

Suites 3704-6, 37/F Tower Two, Times Square
1 Matheson Street
Causeway Bay, Hong Kong

Investor Relations

phone: +31 40 268 3938
email: investor.relations@asml.com

For additional contact information please visit www.asml.com.

Definitions

Name	Description
0-9	
3TG	Tin, tantalum, tungsten and gold
A	
ADAS	Advanced driver-assistance systems
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
ARCNL	Advanced Research Center for Nanolithography
ArF	Argon fluoride
ArFi	Argon fluoride immersion
ASC	Accounting Standards Codification
ASML	ASML Holding N.V. and / or any of its subsidiaries and / or any investments in associates
ASML Foundation	An independent charity with strong ties to ASML that supports educational initiative for disadvantaged 4-18 year olds in regions where ASML operates.
ASML Preference Shares Foundation	Stichting Preferente Aandelen ASML
ATAD	Anti-tax avoidance directives
B	
BAPA	Bilateral advance pricing agreements
BEAT	Base erosion anti-abuse tax
BEPS	Base erosion and profit shifting
BoM	Board of Management
BREEAM	Building Research Establishment Environmental Assessment Method
Brion	Brion Technologies, Inc.
C	
CAGR	Compound annual growth rate
Canon	Canon Kabushiki Kaisha
Canon Cross-License Agreement	A global patent cross-license agreement between ASML and Canon related to semiconductor lithography
Carl Zeiss SMT	Carl Zeiss SMT GmbH
CCIP	Customer Co-investment Program
CCPA	California Consumer Privacy Act (US)
CDP	The Carbon Disclosure Project
CEO	Chief Executive Officer
CFO	Chief Financial Officer
CGU	Cash-generating unit
CGU ASML	ASML excluding CGU Cymer Light Sources
Cleanroom	The central part of a wafer fab where wafers are processed, and the environment is minutely controlled to eliminate dust and other contaminants.
CMO	Chief Marketing Officer
CO2	Carbon dioxide
CMOS	Complementary metal oxide semiconductor
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

Name	Description
COVID-19	Coronavirus disease 2019
CR	Corporate responsibility
CRC	ASML's corporate risk committee
CRMC	Capital Research & Management Company
CTO	Chief Technology Officer
Cymer	Cymer Inc., Cymer LLC and its subsidiaries
D	
D&E	Development and engineering
DAP	Development Action Plan
Deloitte	Deloitte Accountants B.V.
D&I	Diversity and inclusion
DJSI	Dow Jones Sustainability Index
DRAM	Dynamic Random Access Memory
DUV	Deep ultraviolet
E	
EAISI	Eindhoven Artificial Intelligence Systems Institute
EHS	Environment, health and safety
EHS Competence Center	A group within ASML that defines EHS standards, gathers best practices and helps managers implement them
EMEA	Europe, the Middle East and Africa
EPS	Earnings per share
ERM	Enterprise risk management
eScan	ASML's e-beam wafer inspection system family for targeted in-line defect detection
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
EURIBOR	Euro Interbank Offered Rate
Eurobond	A bond denominated in Euros
Euroclear Nederland	The Dutch Central Securities Depository (Nederlands Centraal Instituut voor Giraal Effectenverkeer B.V.)
Euronext Amsterdam	Euronext Amsterdam N.V.
EUV lithography	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.
Exchange Act	US Securities Exchange Act of 1934
ExCom	Executive Committee
F	
Fab	Semiconductor fabrication plant
FAT	Factory acceptance test
FDII	Foreign-derived intangible income
Feature	The elements that make up the pattern for a given layer of a microchip.
Flash	A type of non-volatile memory used for storing and transferring information.
Foundry	A contract manufacturer of logic chips
FTEs	Full-time equivalents
FTSE4Good	Series of ethical investment stock market indices launched in 2001 by the FTSE Group
G	
GAAP	Generally accepted accounting principles
GDPR	General data protection regulation
GeSI	Global e-Sustainability Initiative
GHG	Greenhouse gas
GILTI	Global intangible low-tax income

Name	Description
GPU	Graphics processing unit
GRI	Global Reporting Initiative
GRI standards	GRI sustainability reporting standards
H	
H2	Hydrogen
HDD	Hard disk drive
High-NA	High numerical aperture – specifically a next-generation EUV lithography platform
HMI	The brand name for ASML's range of electron beam (e-beam) wafer inspection and metrology systems
Holistic lithography	The ability to optimize the entire microchip manufacturing process and enable affordable scaling in chip technology by integrating lithography systems with computational modeling and wafer metrology solutions (analyzing and controlling the manufacturing process in real time)
HTSC	High Tech Systems Center
I	
IC	Integrated circuit
IDM	Integrated device manufacturer
IFRS	International Financial Reporting Standards as adopted by the European Union
IIRC	International Integrated Reporting Council
i-line	Light with a wavelength of 365 nm, generated by mercury vapor lamps and used in some lithography systems
ILO	International Labor Organization
Imaging	The ability to transfer a pattern to the photoresist on to a wafer using light
imec	Interuniversitair Micro-Elektronica Centrum
Immersion lithography	A lithography technique that uses a pool of ultra-pure 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.
Installed Base Management	Net service and field option sales
Intel	Intel Corporation
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
IPR	Intellectual property rights
ISO	International Organization for Standardization
K	
KLA-Tencor	KLA-Tencor Corporation
KPI	Key performance indicator
KPMG	KPMG Accountants N.V.
KrF	Krypton fluoride
kWh	Kilowatt-hour
L	
LGBTI	Lesbian, gay, bisexual, transgender and intersex
LIBOR	London Interbank Offered Rate
Logic	Integrated devices such as microprocessors, microcontrollers and GPUs. Also refers to companies that manufacture such devices.
LTI	Long-term incentive
M	
MBA	Master of Business Administration
Memory	Microchips, such as NAND Flash and DRAM, that store information. Also refers to companies that manufacture such chips.
mm	Millimeter (one thousandth of a meter)
MPS	Mature Products and Services
MSCI	Morgan Stanley Capital International

Name	Description
N	
NA	Numerical aperture
NAND	A binary logical operator that gives an output when it receives one or no input; a composite of 'NOT AND'
NASDAQ	NASDAQ Stock Market LLC
NGO	Non-governmental organization
Nikon	Nikon Corporation
NL	The Netherlands
nm	Nanometer (one billionth of a meter)
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.
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.
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
Overlay	The layer-to-layer alignment of chip structures
P	
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)
PGP	Product generation process
PME	Bedrijfstakpensioenfonds Metalektro
Preference shares foundation	Stichting Preferente Aandelen ASML
Preference share option	An option to acquire cumulative preference shares in our capital
Q	
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
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	
Samsung	Samsung Electronics Corporation
SAQ	Self-assessment questionnaire

Name	Description
Sarbanes-Oxley Act	The Sarbanes-Oxley Act of 2002
SAT	Site acceptance test
SB	ASML's Supervisory Board
Scope 1 CO2 emissions	Direct carbon dioxide emissions from resources an organization owns or controls
Scope 2 CO2 emissions	Indirect carbon dioxide emissions due to the energy and organization consumes
Scope 3 CO2 emissions	All other indirect carbon dioxide emissions that occur in an organization's value chain
SDG	United Nations Sustainable Development Goals
SEC	The United States Securities and Exchange Commission
SEMI	Semiconductor Equipment and Materials International
SEMI S2	SEMI S2 – Safety Guideline, Environmental, Health, and Safety Guideline for Semiconductor Manufacturing Equipment, a set of performance-based EHS considerations for semiconductor manufacturing equipment
SEMI S23	SEMI S23 – Guide for Conservation of Energy, Utilities, and Materials Used by Semiconductor Manufacturing Equipment, guidelines for collecting, analyzing, and reporting energy-consuming semiconductor manufacturing equipment utility data
SG&A	Selling, general and administrative
Shrink	The process of developing smaller transistors for more advanced chips
SoC	System on a chip
SPE Shareholders	A syndicate of three banks for the purpose of leasing ASML's headquarters in Veldhoven
S&SC	Sourcing and supply chain
SSD	Solid-state drive
SSPS	Safety system performance specification
SSRA	Safety risk assessment
STEM	Science, technology, engineering and mathematics
STI	Short-term incentive
SWOT	Strengths, weaknesses, opportunities and threats
T	
TC	ASML's Technology Committee
TCFD	Task Force on Climate-related Financial Disclosures
TCJA	Tax Cuts and Jobs Act
TDC	Total direct compensation
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
Throughput	The number of wafers a system can process per hour
TJ	Terajoule (one trillion joules)
Transistor	A semiconductor device that is the fundamental building block of microchips
TSMC	Taiwan Semiconductor Manufacturing Company Ltd.
TSR	Total shareholder return
TWINSCAN	ASML's unique lithography system platform, with two complete wafer stages to allow one wafer to be mapped while another is being exposed - enabling higher accuracy and throughput.
U	
UNGP	United Nations guiding principles
US	United States
US GAAP	Generally accepted accounting principles in the United States of America
US ITC	United States International Trade Commission
V	
VAT	Value-added tax
VIE	Variable interest entity
VLSI	VLSI Research Inc.
VNO-NCW	The Confederation of Netherlands Industry and Employers
VP	Vice president

Name	Description
W	
WACC	Weighted average cost of capital
Wafer inspection	The process of locating and analyzing individual chip defects on a wafer
Wafer metrology	The process of measuring the quality of patterns on a wafer
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
Works Council	Works Council of ASML Netherlands B.V.
Y	
YieldStar	ASML's diffraction-based wafer metrology platform
Z	
Zeiss	Carl Zeiss AG