ASM INTERNATIONAL

DRIVE INNOVATION • DELIVER EXCELLENCE

ANNUAL REPORT 2019

ACCELERATING GROWTH **ACROSS MULTIPLE DIMENSIONS**

TABLE OF CONTENTS

ABOUT

With semiconductor chips sitting at the heart of almost every electronic device we use today, our customers continue to focus on building faster, cheaper and increasingly powerful chips.

REALIZING DEMAND

The technology we develop is the first step in making it all possible, as our R&D investment in new materials, new products and new processes means we can help our customers develop their technology roadmap, and further extend Moore's Law.

FUELING RESULTS

In 2019, we continued to further enhance our leading platforms and to grow the pipeline of new ALD applications. One example is the launch of the XP8 QCM tool for high-productivity PEALD applications, which adds substantial value to semiconductor fabs by reducing the cost per wafer for each processing step used in the tools. Together with our other products and services, this contributed to a highly successful year, which included:

› Net sales of €1,284 million;
› Bookings of €1,329 million;
› Operating result of €379 million;
› Free cash flow of €366 million.

Charles D. (Chuck) del Prado
Chairman of the Management Board, President and Chief Executive Officer

MESSAGE FROM THE CEO

2019 has been a highly successful year for ASMI. We increased our sales by 57%, including proceeds from the settlement with Kokusai Electric Corporation (KEC). Excluding these proceeds sales increased by 37%, strongly outperforming the wafer fab equipment (WFE) market.

Our growth was driven by solid spending in the logic/foundry segment on the most advanced nodes. We delivered record high financial results and we booked meaningful progress in our Corporate Responsibility programs. We took further steps towards our strategic targets to expand our served available markets (SAM), supported by new customer engagements and a number of important product introductions. We continue to make significant investments in the growth of our company while, at the same time, delivering on our commitment to use excess cash for the benefit of our shareholders. Supported by a record high backlog ASMI is well positioned for a healthy performance in 2020. On behalf of the Board I would like to thank our employees whose continued dedication and hard work made possible ASMI's outstanding results in 2019.

WFE MARKET IN 2019 WAS DOWN A HIGH SINGLE-DIGIT PERCENTAGE COMPARED TO 2018

Our industry went through a correction in 2019. Worldwide semiconductor industry sales decreased by about 12%. An important reason was the decrease in the memory end-markets, but growth slowed also in other parts of the semiconductor market due to uncertainties related to the economic outlook and trade frictions. This trend was exacerbated by temporary inventory corrections such as in the datacenter part of the market.

Against this backdrop WFE spending dropped by a high single digit percentage. This was the balance of a substantial weakening in memory spending and a solid increase in spending in the logic/foundry sector. In the memory segment, customers are currently digesting the substantial investments they made over the last few years and are focused on rebalancing supply and demand in their markets. This was reflected by significant cuts in equipment spending, both in the DRAM and NAND segments.

"OUR SHARE OF WALLET IN THE MOST ADVANCED LOGIC/FOUNDRY NODES SIGNIFICANTLY INCREASED."

Logic/foundry spending was solid throughout the year, driven by spending on the most advanced nodes. In the advanced logic sector, investments in the 10nm node increased strongly on top of continued 14nm capacity additions earlier in the year. Foundry spending on the 5nm node also increased strongly, with ongoing demand for 7nm capacity.

ASMI STRONGLY OUTPERFORMED IN 2019

With sales growth of 33% in constant currencies and excluding the settlements, ASMI strongly outperformed the WFE market in 2019. We benefited from our leading position in logic/foundry. Our non-memory sales, of which logic and foundry are the largest parts, accounted again for more than half of our total sales in 2019. The leading logic and foundry customers increased their capital expenditures as they stepped up their investments in the volume ramp of the newest technology nodes. Compared to the previous logic/foundry nodes, our share of wallet increased in a meaningful way as we are engaged in a substantially higher number of applications. This had already started to drive our sales in the second half of 2018, and the trend further strengthened in 2019.

In terms of industry segments, sales for the full-year were led by foundry. Our sales increased strongly, driven by investments throughout the year in the most advanced foundry nodes, especially the 5nm node, combined with our share of wallet gains at this node. The second-largest industry segment was logic. Following an already strong increase in 2018, sales in this segment grew again by a substantial double digit percentage in 2019. In memory – the third-largest segment – our sales were relatively flat in 2019, compared to the double digit decline in the broader memory market. Our sales in memory benefited from customer-specific projects, such as in the DRAM segment. The analog segment, which is smaller than the other segments, showed a decent double digit sales increase for the full year. As expected, this was the balance of a strong first half of 2019 and a weaker second half. In this segment we serve a broad base of customers across the globe for products such as power devices and IoT-related semiconductors.

Our equipment sales grew by 44%. By product lines, sales in the full-year were led by strong double digit growth in our ALD product line, which increased to a new record high. ALD continued to represent more than half of our equipment revenue in 2019. Sales of our combined other product lines also increased by a robust double digit percentage to a new record high in 2019, led by growth in our Epi business. Driven by our expanding installed-base spares & service sales increased by a solid 15% and represented 19% of total sales in 2019.

FINANCIAL PERFORMANCE

Our sales increased with 57% to a level of €1,284 million. During the year we resolved all pending litigation with Kokusai Electric Corporation (KEC). As part of these settlement agreements, KEC paid in total US$176 million, or €159 million, to ASMI. Excluding these proceeds, sales increased by 37% in 2019 to €1,125 million, a new record high for our company.

Gross margin increased from 40.9% to 42.6% in 2019. While we incurred extra costs related to new growth initiatives and product introductions, this was more than offset by better margins on the newly introduced products which improved as compared to 2018. With operating expenses under control operating profit increased 77%. Results from investments excluding amortization of intangible assets – reflecting our share of ASMPT's net profits – decreased by 70% to €18 million.

Free cash flow in 2019 strongly increased to €206 million on the back of improved profitability and a reduction in working capital. ASMI's financial position continues to be solid. The cash balances increased from €286 million to €498 million. As well as strong free cash flow, the cash position was positively impacted by the settlement proceeds, and partly offset by €200 million that we used for dividends and share buybacks in 2019.

In February 2020 we completed the €100 million share buyback program that started in November 2019, and announced the authorization of a new €100 million share buyback. Also in February, we announced a proposed full year dividend over 2019 of €3.00 per share, including the interim dividend of €1.00 per share paid November 2019. The full year dividend consists of a regular dividend of €1.50 per share, up 50% from the dividend paid over 2018, and an extraordinary dividend of €1.50 per share. The extra-ordinary dividend and the new share buyback program reflect our continued commitment to use excess cash for the benefit of our shareholders.

PROGRESSING WELL AGAINST STRATEGIC TARGETS

2019 was also a year of progress in a number of important strategic areas. ALD continues to be a strong long-term driver for ASMI. As conventional deposition runs out of steam for many challenging process steps, the importance of ALD increases as a key enabling technology supporting customers transitioning to smaller geometries, new complex 3D device structures and new materials. We remain confident that, over time, the single-wafer ALD market will grow as a percentage of the total deposition market.

An important pillar of our growth strategy is to increase our addressable market within the single-wafer ALD space. To this end we continue to commit significant resources in further enhancing our leading platforms and to grow the pipeline of new ALD applications. In 2019, we announced the launch of the XP8 QCM tool for high-productivity PEALD applications. This newest addition to our portfolio of leading ALD platforms allows for the integration of up to four modules, each containing four process reactors on a single platform. This launch followed on the introduction of Synergis in 2018. These two new platforms will enable a meaningful expansion of our SAM. Demand for both new platforms has been strong and they were a meaningful driver of our ALD tool sales in 2019.

"ASMI HAS NEVER BEEN STRONGER THAN IT IS TODAY."

In logic/foundry we have strongly expanded our position in the most advanced nodes. The number of ALD layers has substantially increased in the logic 10nm and foundry 5nm nodes. This drove solid share of wallet gains and substantial sales increases for ASMI in 2019. We are now working with our customers on the next nodes, where we expect again a further increase in the number of ALD layers and applications.

In memory, despite the market downturn, our sales were about flat last year. In DRAM, we benefited from a number of specific customer projects where we have strengthened our position. In DRAM, we also won tool selections in the area of non-patterning ALD applications. We expect these tool selections to start contributing in 2020. In 3D-NAND we supplied multiple systems as part of a customer selection that we won early in 2019. We made important progress in developing additional ALD applications with our customers for the next higher stack device generations. We expect the number of single-wafer ALD applications – and ASMI's participation in this segment – to further increase.

Next to ALD, we remain focused on expanding our SAM in our other product lines, especially in Epi. With again strong double digit growth in 2019, Epi has become our second-largest product line. Demand for our Intrepid Epi tool continued to be strong, driven by our expanded position at the leading foundry 5nm node.

The prospects for long-term structural growth in the epitaxy market are healthy as next-generation devices in the logic/foundry market are expected to require a rising number of Epi steps. We booked further progress in R&D customer engagements last year and we continue to aim for further increases in our Epi share over time. An important step was the introduction of the Previum in July 2019. Previum is an integrated Epi pre-clean module integrated as a module in our Intrepid Epi product. Pre-clean steps can be critical to enable high-quality Epi film growth in advanced devices at 5nm and smaller.

In vertical furnaces and PECVD we continued to expand our niche positions by investing in selected growth opportunities. An example in 2019 was the launch of our new A400 DUO vertical furnace tool for growing 200mm applications such as in IoT.

OPERATIONAL EXCELLENCE

In Safety, we achieved the lowest injury rates in the recorded history of the company. Our total work-related injury rate improved a further 24% from 2018, and our recordable injury rate improved 6%. Our year-on-year focused safety risk reduction efforts provide the structural foundation for these and further gains. In Product Safety, we continue to make significant progress embedding Safety-by-Design into our product development DNA. And as part of our Corporate Responsibility focus, we continue to make solid progress towards our environmental targets, most notably through significant reductions in our global water consumption. In January 2020, we took the next logical step in our long-standing commitment to the tenets of the Responsible Business Alliance (RBA) by becoming a member. Beyond this progress, we remain intensely and relentlessly focused on further improvement towards our vision of ZERO HARM!.

In 2019, we opened our new facility in Dongtan, South Korea, further strengthening our R&D position, manufacturing capacity, and support performance for our key customers in South Korea. We are also completing construction of a new manufacturing center in Singapore which is expected to be completed end of Q2 2020 and will substantially increase our manufacturing capacity. Through our multi-year Business Enterprise Systems Transformation (BEST) program, we completed the first phase go-live of our leading-edge global product development environment, and made considerable progress in other key areas of this roadmap. We also strengthened our supply chain performance by further developing and institutionalizing statistical methods with our key suppliers. Combined with continued structural improvements in many areas of the company, these steps further improve our capabilities and performance for our customers, and position us well for the next stages of our development.

Our progress in operational excellence is increasingly recognized by our customers. Last December, we received, for the fourth time, an Excellent Performance Award from TSMC. And for 2019, we received notable awards from other key customers. We are very honored to receive such prestigious awards which continue to validate our progress.

"ASMI STRONGLY OUTPERFORMED THE WFE MARKET IN 2019."

WELL POSITIONED FOR CONTINUED HEALTHY PERFORMANCE

We have started 2020 with a record high order backlog. Supported by continued strength in the logic/foundry segments we expect further growth in our sales in the first half of 2020, based on the guidance that we provided with our fourth quarter results. Looking at 2020 as a whole, WFE spending is expected to be up a high single digit percentage, with upside to double digits depending on the strength and timing of memory spending recovery. Our customers are investing in advanced-node capacity to enable the faster and more powerful chips that will be required for the new end-market products to be introduced in 2020 and beyond in areas such as 5G, high performance computing and data centers, and which are all expected to be important growth markets for the coming years. Supply demand conditions in the memory sector have further improved in recent months illustrated by decreasing levels of inventory at certain customers and a recovery in memory prices. 3D-NAND spending is expected to recover first followed by DRAM. The exact timing and magnitude of the recovery in memory spending is however not yet clear.

At the time of writing (February 2020) China and the rest of the world are making massive efforts to contain the COVID-19 outbreak. Our thoughts are with those affected by this human tragedy. The health and safety of our employees and partners is our top priority, and we are taking measures to minimize the health risks. Our exposure to China is still relatively limited, although it has been growing in recent years. So far, in February 2020, we have not yet seen a meaningful impact on our business, but we continue to closely monitor as the situation is still evolving and the implications of supply chain disruptions and travel restrictions are not yet clear for our broader industry and for our company.

ON A PERSONAL NOTE

As most of you know, this is my last Annual Report message to you as CEO of ASMI. As was announced in September, I will step down at the AGM in May 2020 after 12 years as CEO and 14 years within ASMI's Management Board. This was a tough decision for me but I am convinced it is the right one. I'm extremely proud of what we have achieved at ASMI as one team. In 2008, ASMI had its breakthrough in ALD with a leading customer having selected our tool for an innovative application. Since then we have strongly expanded our customer-base, with our enabling technologies supporting increasingly complex node transitions. Today, ASMI is a leader in the deposition market, serving all of the top capex spenders in our industry. At the same time, we have taken many steps to improve the efficiency and effectiveness of our operations. We stepped up our investment in operational excellence while staying true to our focus on innovation, and strengthened a culture in which safety, customer focus and respect are key values. Our successful expansion and enhanced operations have driven a strong improvement in our financial performance. This created substantial value for our stakeholders and provided our company with the financial strength for further investments in growth. It has been a tremendous honor to work with the talented and highly-motivated team at ASMI, and with our customers, shareholders, suppliers and other partners who have contributed to the successful development of our company and of our industry. ASMI has never been stronger than it is today. Looking at all the opportunities ahead, I am convinced our company is well positioned to continue its track record of healthy growth.

March 5, 2020

Charles D. (Chuck) del Prado
President and Chief Executive Officer

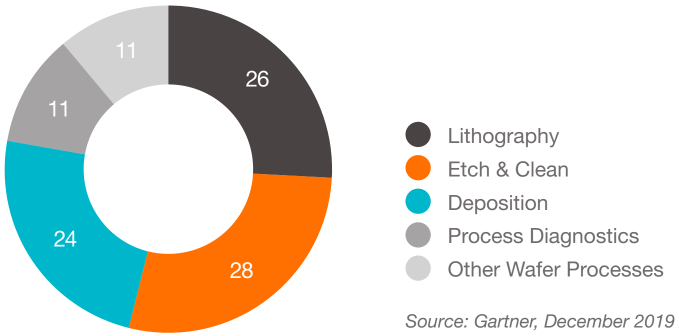
ASMI AT A GLANCE

ASM International N.V. (ASMI) is a leading supplier of semiconductor wafer processing equipment and process solutions. Our customers include all of the top semiconductor device manufacturers in the world. Semiconductor chips sit at the heart of almost every electronic device we use today.

WHAT WE DO

ASMI supplies wafer process equipment to the leading semiconductor manufacturers. The total market for wafer fab equipment (WFE) amounted to US$54 billion in 2019 (Gartner, December 2019). Within wafer processing equipment, the major segments include lithography, etch & clean, deposition, and process diagnostics. Our focus is on deposition equipment, which comprises about a quarter of WFE. We are a key player in the deposition equipment segments for atomic layer deposition (ALD) and epitaxy, and a focused niche player for PECVD and vertical furnaces.

WAFER FAB EQUIPMENT in %



Source: Gartner, December 2019

At ASMI we design, manufacture, sell and service our deposition tools to supply our customers advanced technologies for the production of semiconductor devices, or integrated circuits (ICs). Semiconductor ICs, or chips, are a key technology that enables the advanced electronic products used by consumers and businesses everywhere. Our tools are used by semiconductor manufacturers in their wafer fabrication plants, or fabs. Furthermore, we provide maintenance service, spare parts and process support to our customers globally at their fabs, which typically operate on a 24 hour basis.

LOGIC, FOUNDRY AND MEMORY MARKETS

The semiconductor market can be split into three primary segments: logic, foundry and memory. ASMI supplies equipment to the leading semiconductor manufacturers in all of these segments:

- The logic market is made up of manufacturers who create chips, such as microprocessors, that are used to process data and are used in smartphones, laptops, and computers;
- The foundry market consists of businesses that operate semiconductor fabrication plants to manufacture the designs of other so-called fabless semiconductor companies; and
- The memory market covers manufacturers who make chips that store information either temporarily, such as Dynamic Random Access Memory (DRAM), or permanently, such as NAND non-volatile memory.

There are other smaller, yet still important market segments for which ASMI supplies equipment, such as analog and power. Analog and power semiconductors are devices for a wide range of electronic systems for mobile products, automobiles, telecommunications and other applications.

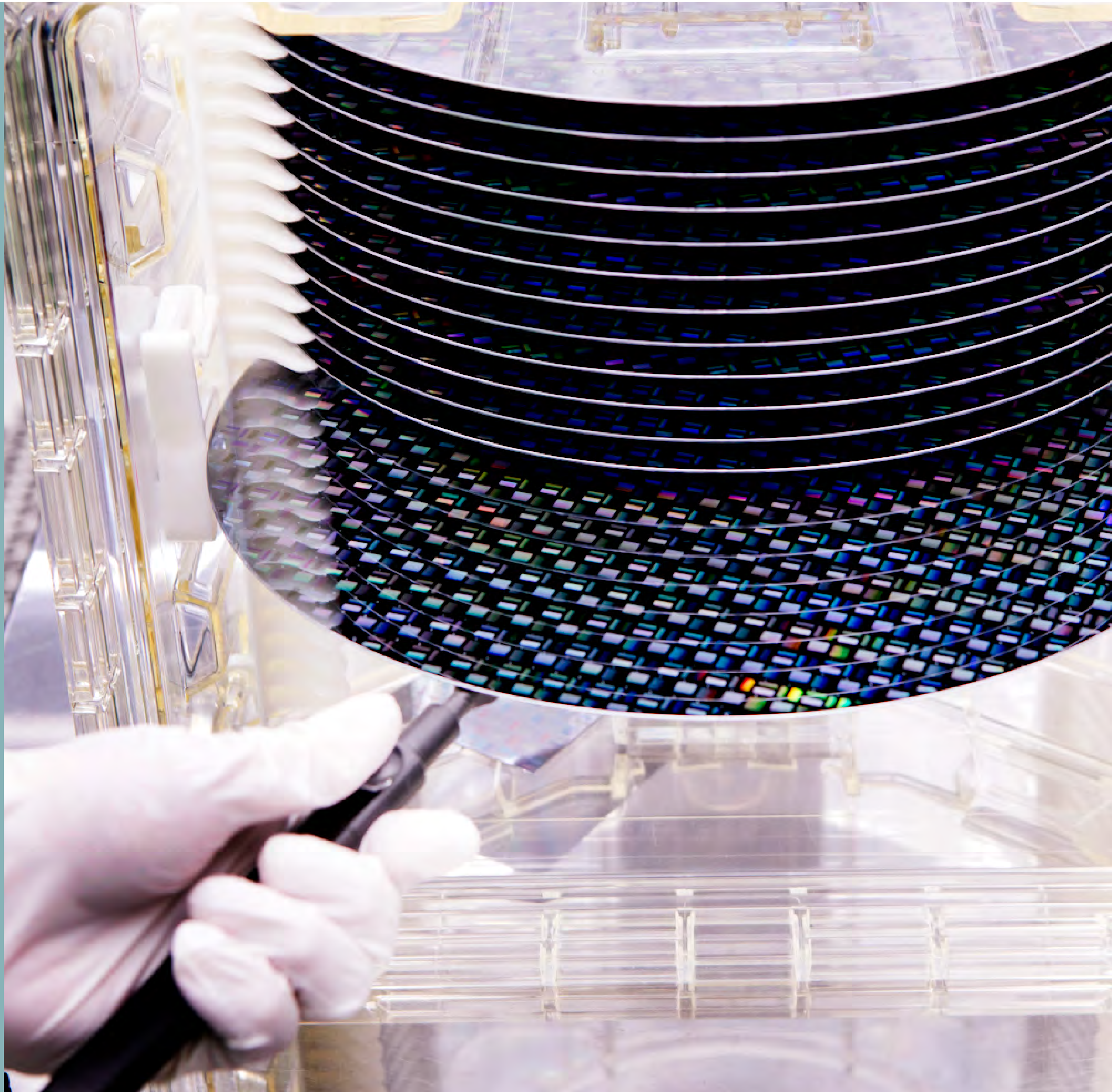
Our customers' goal is to build faster, cheaper, and increasingly powerful semiconductors for each new technology node. We work closely with them to make this a reality, forging mutually beneficial partnerships to help them develop their technology roadmap. Through our intensive R&D programs and customer co-development, we continuously improve our products and processes to meet these advanced technology roadmaps, increase productivity and lower operating costs per wafer. The result is value creation for our customers. While doing so, we work on the edge of what is technologically possible. This creates a very attractive professional and learning environment for our employees. We serve thereby society by helping our customers to produce the chips needed for advanced electronics that deliver a world of improvements and opportunities. The world around us shows an increasing need for the use of more applications and lower energy usage. The technological developments we are working on are supporting those requirements.

ASMI is a key player in the ALD and epitaxy segments, and a niche player in vertical furnace and PECVD. The characteristics of those activities are as follows.

BASICS OF SEMICONDUCTOR MANUFACTURING

The process of making semiconductor chips at our customers' fabs is both highly complex and very costly. Semiconductor fabs house a large set of wafer-processing equipment which perform a series of process steps on round silicon wafers, which are typically 300mm in diameter. The equipment is operated in cleanrooms, which filter the air to avoid contamination from small particles that could negatively affect the circuitry on the chips.

Many individual steps are performed using various types of wafer process equipment to create a semiconductor chip, including photolithographic patterning, depositing thin-film layers, etching to remove material, thermal treatments, and other steps. Our systems are designed for deposition processes when thin films, or layers, of various materials are grown or deposited onto the wafer. Many different thin-film layers are deposited to complete the full sequence of process steps necessary to manufacture a chip. After testing the individual circuits for correct performance, the chips on the wafer are separated and then packaged in a protective housing before ultimately becoming part of a set of semiconductor chips on circuit boards within an electronic product.



ALD

ASMI has a leading position in atomic layer deposition (ALD). ALD is our largest product line and continued to account for more than half of our equipment sales in 2019. ALD is the most advanced deposition method available in the market and makes it possible to create ultra-thin films of exceptional material quality, uniformity and conformality.

ALD is expected to be the fastest growing deposition market segment for the coming 3-5 years. As the industry moves to smaller geometries, more complex device structures, new materials and the need for more precise and conformal film deposition will further increase, which is expected to drive the growth of the ALD market.

We are the leader in the logic/foundry segment of the ALD market and serve nearly the whole addressable market. In 2019, the transition to the most advanced 10nm node in logic and 5nm node in foundry has once more confirmed this position. At each new advanced technology node, a substantially higher number of process steps use ALD, both for new applications and replacing conventional deposition methods. We have entered the ALD memory market at a later stage, hence the part of the addressable market we are serving is smaller, nevertheless we have leading positions in selected parts of this market. In DRAM, ALD requirements have been expanding from multi-patterning to new non-patterning applications. In 3D-NAND, the device complexity increases as the industry moves to higher stacks, such as the transition from 64 layer to 96 layer. This in turn increases the need for ALD. We are strongly focused on expanding our position by broadening our addressable market in ALD, including parts of the market that we previously did not address.

EPITAXY

We have a growing position in the market for epitaxy or Epi. Epitaxy is a process for depositing highly controlled silicon-based crystalline films. Epi is one of the fastest growing parts of the deposition market, with the number of Epi steps increasing as logic/foundry customers move to smaller nodes.

From a solid position in the niche market for power devices, we have successfully broadened our position in recent years in advanced-node CMOS applications, which represents the larger part of the Epi market. In 2017, we introduced the Intrepid ES, for advanced-node CMOS logic and memory applications, which offers an innovative closed-loop reactor temperature control system enabling precise process control, high productivity, and low cost per wafer. In 2017 our Intrepid ES was selected by a leading foundry customer for an Epi layer at the 7nm node, and this year for multiple layers at the 5nm node.

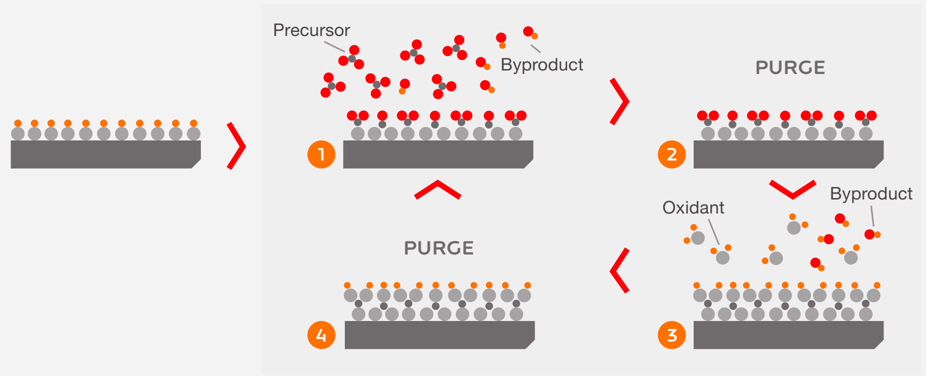
Atomic Layer Deposition

ASMI first started developing atomic layer deposition (ALD) in 1999 through the acquisitions of Microchemistry and later Genitech. Around 2007 we had our first breakthrough in mainstream semiconductor applications when a leading player in the logic segment introduced ALD into high volume manufacturing for high-k metal gate technology. Since then the use of ALD has steadily increased to a multitude of different applications across the logic, foundry and memory segments. Over time, we have substantially expanded our position and we now supply our ALD solutions to all of the top 10 capital spenders in the semiconductor industry.

In support of our goal to address more applications, in 2018-2019 we have introduced two new products, the Synergis thermal ALD tool and the XP8 QCM tool for plasma enhanced ALD applications. Both tools offer a wide range of processes with high productivity.

ALD is a leading edge technology capable of depositing ultra-thin films of exceptional flatness, material quality and uniformity. ALD allows us to deposit thin films atom-by-atom, meaning we can deliver atomic-scale thickness control, high-quality deposition film properties, and large area uniformity, even on complicated features on the wafer, such as fins and deep trenches. With such precision, we can use materials that previously could not be considered, and develop 3D structures that are vital to the future of electronics. The ALD process is a saturated surface-controlled layer-by-layer process where layers are formed during reaction cycles by alternately pulsing precursors and reactants and purging with inert gas in between each pulse. Deposition thickness is precisely controlled by varying the number of cycles.

ALD CYCLE



In 2019 we introduced the Previum process module, which is integrated together with Intrepid Epi process modules for pre-epi wafer surface cleaning. The surface clean process creates a pristine silicon surface for defect-free Epi films, critical for achieving the most advanced node transistor performance requirements.

Our inroads in the market for advanced-node applications combined with a healthy development in the analog & power segment, drove substantial double digit growth in our Epi sales, which in 2019 has become our second largest product line, and another important growth engine in our portfolio next to ALD.

PECVD AND VERTICAL FURNACES

We hold niche positions in the PECVD and vertical furnace market segments. However, the relative large size of these markets makes this part of the market also attractive to ASMI. In vertical furnaces we are for instance primarily focused on the analog segment and on specific logic applications, for CVD, diffusion and oxidation processes. Vertical furnaces utilize a batch configuration, meaning a large number of wafers are processed simultaneously for productivity and cost savings. Our furnace tools are designed with dual batch reactors for even more productivity.

In PECVD our key position is on low-k for advanced logic interconnects. Our PECVD processes are offered on our high productivity XP8 platform and include a broad range of dielectric films for various low temperature deposition applications such as interconnect layers, passivation layers, and etch stop layers.

We invest selectively in the PECVD and vertical furnace markets. Combined with healthy development in the market segments that we address, we have seen solid sales increases in recent years.

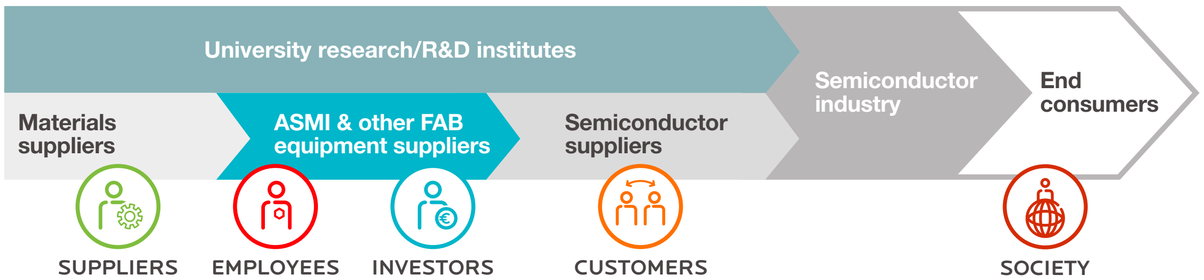
THE WORLD AROUND US

The world around us is digitalizing quickly. Our way of living and working is becoming more and more dependent on technology. As society becomes increasingly automated and connected, we rely on a broad range of electronic devices to control our homes, offices, vehicles, and communications. Advanced semiconductors play a key role in creating this more digitized world. As a result, new end market products and applications are developing, including:

- Mobile and cloud computing, and big data analysis;
- Artificial intelligence;
- Autonomous vehicles;
- Internet of things for smart connected devices; and
- Ultrafast wideband communication networks (5G).

This connected and automated world is creating the demand for massive amounts of data, requiring ever-greater computer processing power and storage, capable of analyzing and acting on the data quickly and effectively. Making this possible requires the constantly increasing processing power of semiconductor chips. And it is our technology that is playing a vital part in making it all possible.

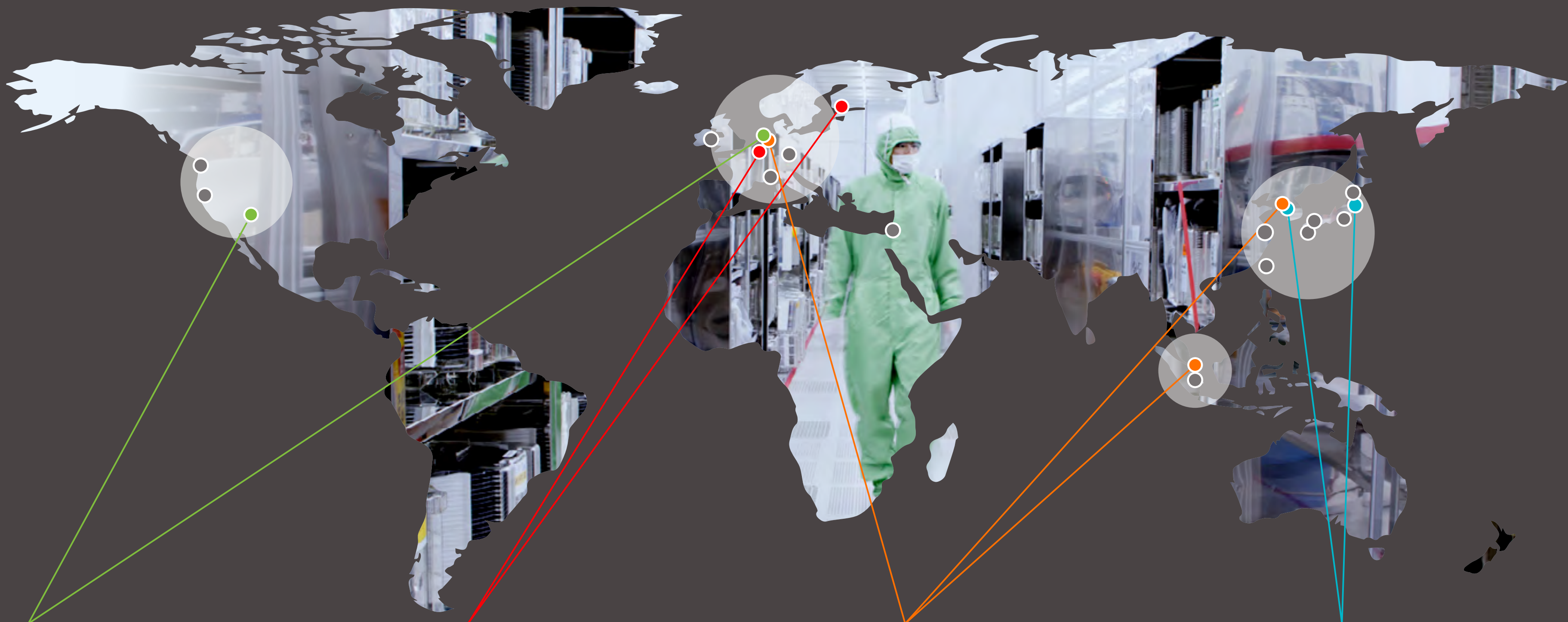
OUR POSITION IN THE INDUSTRY



In 2019, the semiconductor industry was driven by a US$2.1 trillion global electronics industry (VLSI Research, January 2020) that required approximately US$352 billion of semiconductors, which was down by about 12% compared to 2018. The semiconductor demand was in monetary term lower than the year before, driven mostly by lower prices in memory devices, due to overcapacity in the market. In turn, the semiconductor industry supported approximately US$76 billion semiconductor capital equipment industry, which supplies the required production systems and services. Wafer fab equipment spending was down about 9% in 2019 (VLSI Research, January 2020), due to slow memory spending for both the DRAM and 3D-NAND segments. Spending for advanced logic and foundry was up for the year and even accelerated in the second half, as the leading customers stepped up their spending on the most advanced nodes. Regionally China in particular showed solid spending growth in 2019.

Within this high performance computing landscape it is important to reduce the usage of scarce resources, hence innovations in semiconductor technology enable faster and more energy efficient chips. This is one of the drivers for further miniaturization. This constant drive for smaller, lower energy consuming devices puts further pressure on our industry at each new technology node. Moving to new nodes is increasingly difficult with challenges in new materials, new device architectures and complex process steps, which, amongst others, drives as earlier mentioned for example more ALD and epitaxy process steps. Thus we see that each new technology node requires increasing process equipment investments. This is a major reason that new fabs cost more than US$ 10 billion. Because the semiconductor production market is so capital intensive, a limited number of companies are able to participate, and therefore our customer base has become smaller over time. Only more recently we have seen some new customers from China entering the semiconductor space, albeit not yet in the most advanced nodes. Our customers are increasingly dependent on the R&D investments and performance of their equipment suppliers. Accordingly ASMI and our customers maintain a close, mutually beneficial business relationship which includes a cooperative development environment, linking technology roadmaps and equipment performance requirements.

While the market has evolved to a smaller number of large semiconductor manufacturers, it is still highly global with major fabs that we support throughout the US, Asia and Europe. Notably, the China region has become a significant growth area for new fab investments, for both domestic Chinese companies and also foreign companies building fabs there for the local market. To better serve the growing China market, we have increased our investment in people and support infrastructure in China.



THERMAL PRODUCTS BUSINESS UNIT AND PRODUCT RESEARCH & DEVELOPMENT

Phoenix, AZ, US
Almere, the Netherlands

RESEARCH FACILITIES

Leuven, Belgium
Helsinki, Finland

MANUFACTURING

Singapore
Dongtan, South Korea
Almere, the Netherlands

PLASMA PRODUCTS BUSINESS UNIT AND PRODUCT RESEARCH & DEVELOPMENT

Tokyo, Japan
Dongtan, South Korea

OUR PURPOSE

It is our purpose to lead innovation for the semiconductor industry:

- Our deposition technology helps our customers address their device and process development challenges and as such is a key enabler of innovations in semiconductor technology;
- By partnering with our customers to develop new materials, processes, and technologies that support their roadmaps, we enable innovations in semiconductor technology which in turn help create new improved semiconductor devices;
- By serving the leading chipmakers, we maintain an understanding of the important requirements of the next generation of device roadmaps, enabling us to develop value-added solutions to the industry's critical issues, creating an attractive professional and learning environment for our employees;
- Our key contribution to the society at large is that our technology helps keep the industry roadmap moving forward, driving innovation in the broader electronics markets; and
- We strive to achieve this in a responsible manner by causing zero harm, while acting as a responsible global citizen. Safety for our own employees but also the employees of our customers and suppliers is key to us.

This value creation benefits not only our customers and employees, but also businesses and consumers that benefit from the resulting new products and available technologies used throughout society. Furthermore our value-added innovations create attractive possibilities for our suppliers and attractive returns for our shareholders.

STRATEGY

We are an experienced innovation leader. This is the result of our focus on key issues and challenges within the semiconductor industry, enabling us to make a difference to our customers, employees, and other company stakeholders. While challenges and opportunities may change over time, we will continue to bring our breakthrough technologies into volume manufacturing, benefiting our customers.

MISSION

Our mission is to provide our customers with the most advanced, cost-effective, and reliable products, service, and global support network in the semiconductor industry and beyond. We advance the adoption of our deposition technology platforms by developing new materials and process applications that support our customers' long-term technology roadmaps.

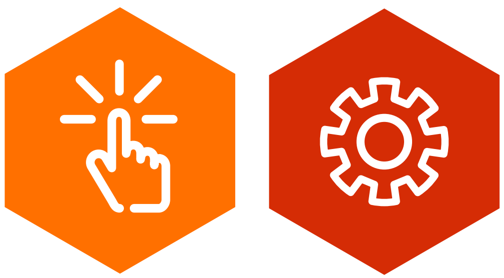
VISION

We aim to delight our customers, employees, shareholders, and society by driving innovation with new technologies, and delivering excellence with dependable products. By doing this, we will create new possibilities for everyone to learn, create, and share more of what they are passionate about.

STRATEGY

Our strategic objective is to realize profitable, sustainable growth by capitalizing on our innovative strength in deposition technologies and our strong relationships with key customers. We act thereby as a responsible citizen.

INNOVATIVE STRENGTH



OPERATIONAL EXCELLENCE

OUR STRENGTHS

- We are a focused deposition equipment player in the semiconductor wafer fab equipment market. Particularly our technologies in ALD and Epi, in which we hold leading positions, play a critical role for our customers in enabling the transition to new device generations. Since 2010, ASMI has increased its sales with an annual average growth of 16%, ahead of the 6% compound annual growth rate shown by the broader wafer fab equipment (WFE) market over this period. Our target is to continue outgrowing the WFE market over time, by leveraging our strong position in the advanced nodes. By growing our sales we can further increase investments in R&D and create value for our stakeholders.
- We have helped shape the industry by driving innovation through our collaborative R&D models, successfully delivering to our customers advanced new materials, new products and new processes. With R&D centers in six countries throughout the world, we are close to our customers and we have access to the smartest professionals working in the semiconductor sector today. This R&D capability has resulted in a strong patent position, with over 1,950 patents in force.
- We have strong customer relationships with the leading semiconductor manufacturers. As we have expanded and deepened our R&D engagements with the chipmakers, we further improved our understanding of the important requirements of the next generation of device roadmaps, enabling us to develop value-added solutions to the industry's critical technology issues.

THE KEY ELEMENTS OF OUR STRATEGY ARE:

INNOVATIVE STRENGTH

We provide leading thin-film deposition technologies that support our customers in staying on the curve of Moore's Law. Our innovative strength is what differentiates us in the marketplace and creates growth opportunities for our company, thereby creating value for our stakeholders and for the society at large. This continues to be the cornerstone of our strategy.

Our R&D investments are targeted at developing new materials and process solutions that enable additional applications and meet next generation device scaling roadmaps.

New products deliver continuous improvements in performance, reliability and cost of ownership. Apart from our internal R&D efforts, we are continuously expanding and deepening our strategic cooperation with key customers, suppliers, chemical manufacturers, and research institutes. Our suppliers manufacture advanced components and assemblies to the tightest of tolerances and are required to adhere to our stringent design specifications, quality systems, and corporate responsibility requirements. This approach enables us to remain innovative and swiftly meet the changing demands of our customers.

OPERATIONAL EXCELLENCE

While technology leadership remains crucial, flawless execution is essential to develop our future positions further. We continuously focus on further improving the effectiveness and efficiency of our organization. We aim to provide our customers with dependable, leading-edge products and services at a consistent performance level, while providing the best total cost of ownership. To help achieve this, we continue to optimize our manufacturing and global sourcing processes, including the migration to common product platforms. We are working with our suppliers to improve fundamental quality through statistical methods and process controls. Our employees are engaged in an improved product life cycle process for our products and our Product Safety Council is focused on further improving product safety through fundamental design.

In support of the company's growth plans, in January 2019 we opened a new product development and manufacturing facility in Dongtan, South Korea. Furthermore, we broke ground this year on a new manufacturing building near our production campus in Singapore, which is expected to be ready for production in the summer of 2020.

In addition to addressing the technology needs of our customers, we also focus on further increasing equipment throughput and equipment reliability, thereby lowering the cost of ownership of our wafer processing systems. Combined with our commitment to quality, we continuously strive to achieve industry-leading productivity. In addition, to enable further efficiencies in our manufacturing process and the maintenance process of our customers, we put significant efforts into improving the level of standardization in our equipment portfolio by migrating to common platforms, sub assemblies and components. One example is our XP8 platform, which is used as a common platform architecture on our newest products for ALD, epitaxy and PECVD.

We strive to maintain a strong balance sheet that will allow us to continue investing in R&D. To this end our target is to keep €300 million in cash on our balance sheet. At the end of 2019 we had €498 million. Our company generated again a healthy free cash flow which reached a new record high of €206 million. We intend to continue using excess cash flow for the benefit of our shareholders. By consistently following this policy we have returned more than €1 billion to our shareholders over the last three years.

CHALLENGES

The rising costs of advanced chip technology

The continuation of Moore's law, indicating that the number of transistors on a chip doubles every two years, at the same manufacturing costs, is becoming increasingly difficult. Investments in new factories for the most advanced nodes amount now to more than US$10 billion. The equipment costs for those more advanced nodes are also increasing. This will put more pressure on equipment manufacturers to come with innovative solutions. Remaining at the forefront of technology developments is essential to remain successful.

Geopolitical risks

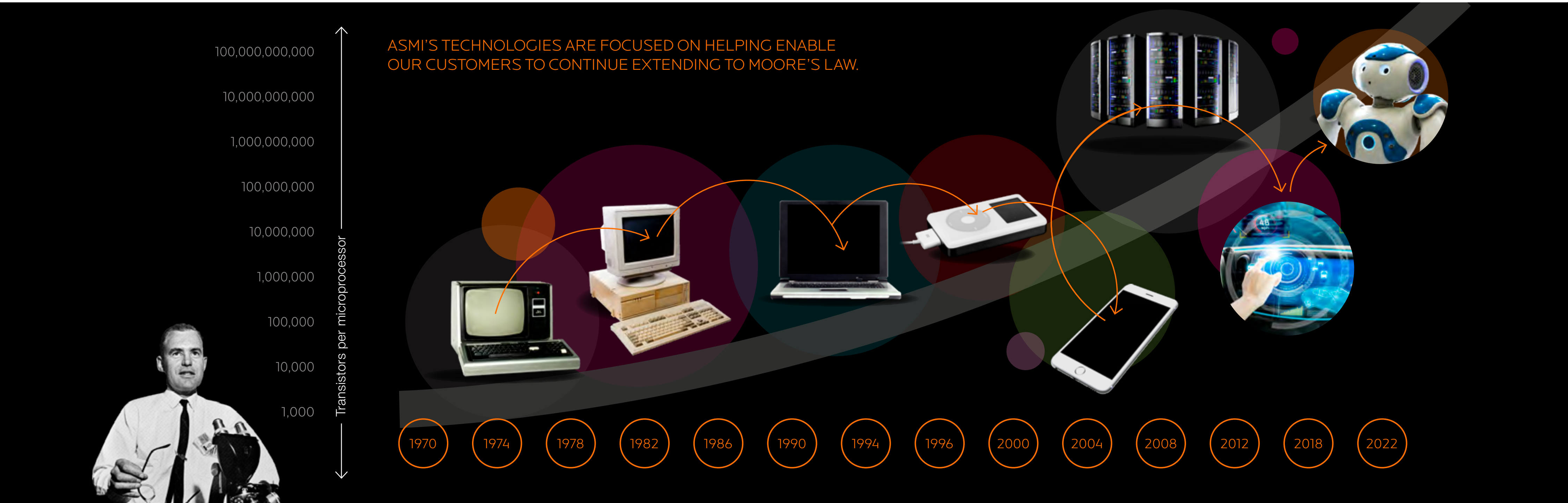
The success of the semiconductor industry in the past was strongly related to the success of all parties in the value chain. Innovative developments of equipment suppliers, supported innovative solutions of chip manufacturers and led to new opportunities for customers making use of those more advanced chips. Geopolitical developments put this model at risk. We will carefully review potential consequences of this and analyze the impact for ASMI and will seek how we can make use of new opportunities that this might offer.

Strengthen our position in the memory market

While we have a strong position in the logic/foundry market, in those segments that we serve, our position in the memory market is weaker. We are working on solutions to serve a bigger part of this market.

The world around us is changing rapidly

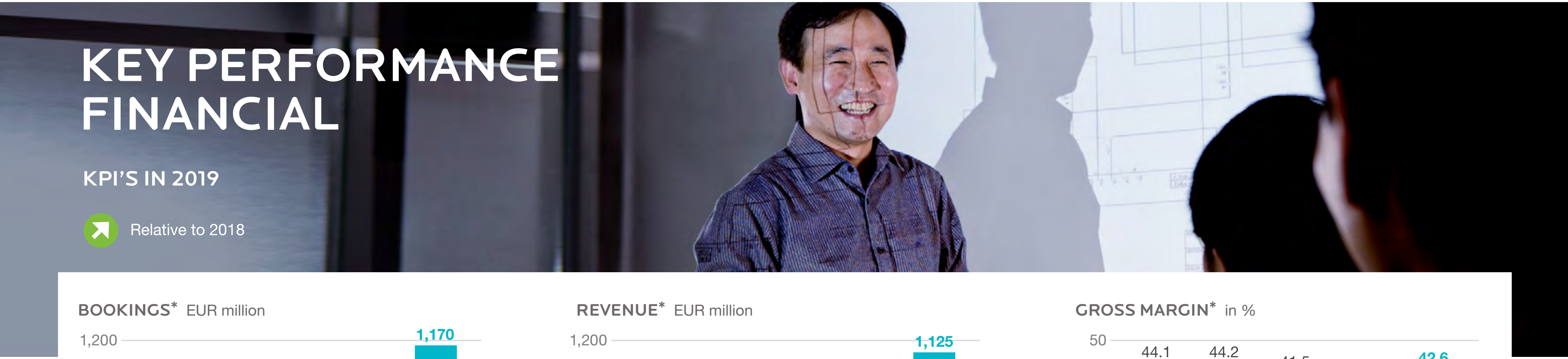
While the average income in a lot of upcoming countries is increasing, leading to a higher demand for end products which are requiring semiconductor content, we also are aware that this will increase the demand of more scarce resources.



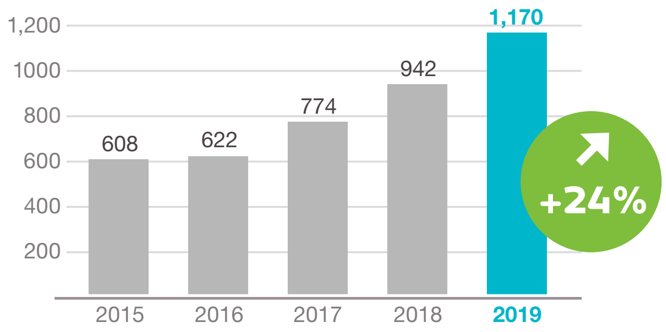
KEY PERFORMANCE FINANCIAL

KPI'S IN 2019

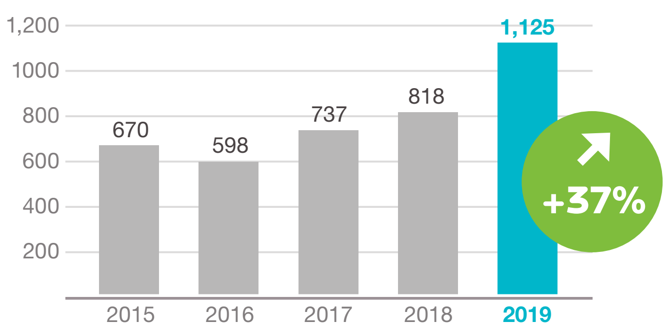
Relative to 2018



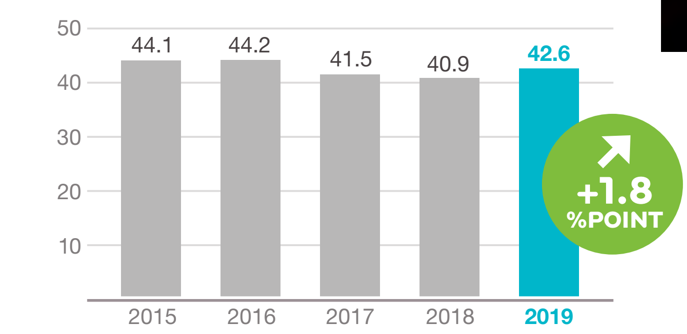
BOOKINGS* EUR million



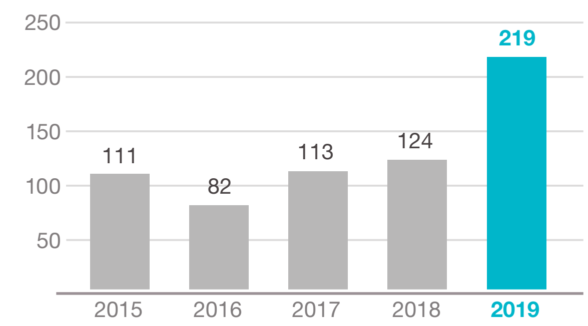
REVENUE* EUR million



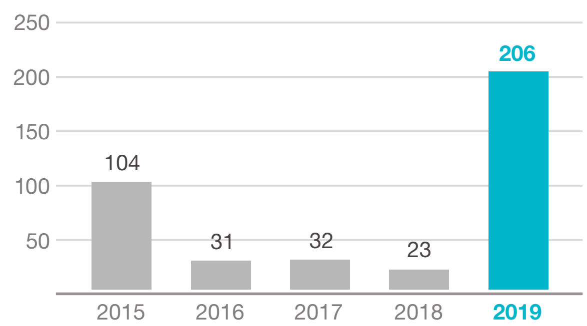
GROSS MARGIN* in %



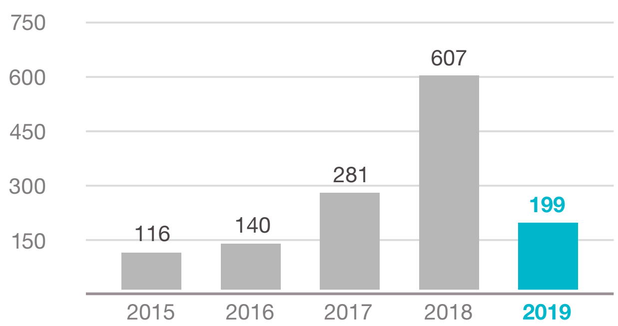
OPERATING RESULT* EUR million



FREE CASH FLOW* EUR million

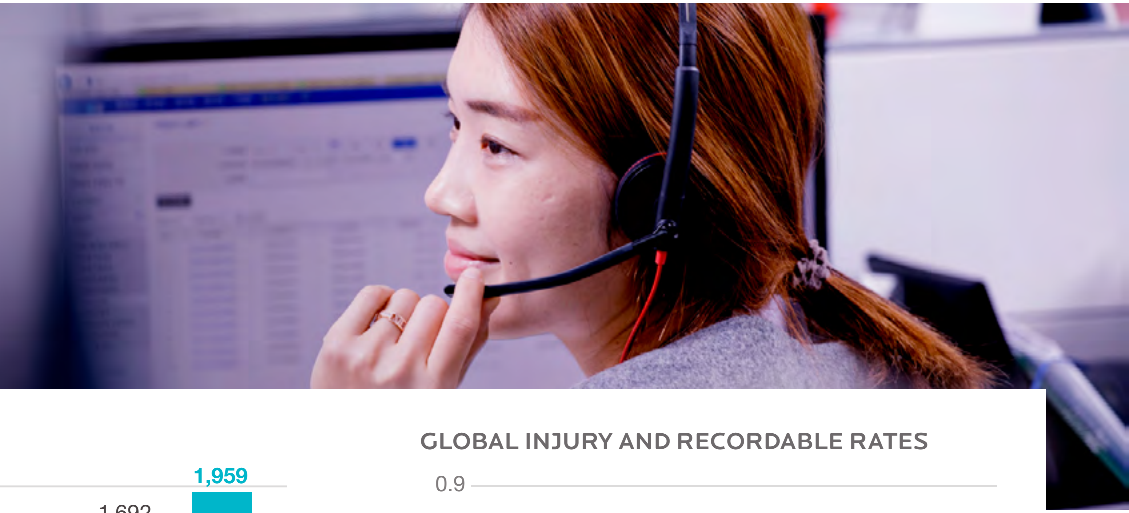


CASH RETURNED TO SHAREHOLDERS EUR million



* Excluding proceeds from patent litigation and arbitration settlements in 2019

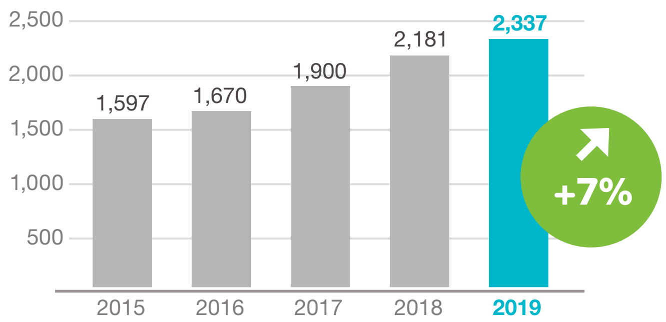
KEY PERFORMANCE NON-FINANCIAL



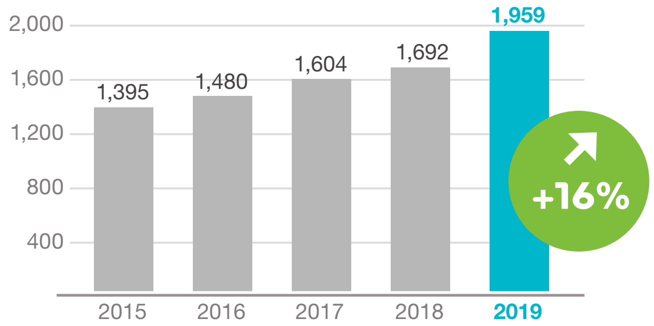
KPI'S IN 2019

Relative to 2018

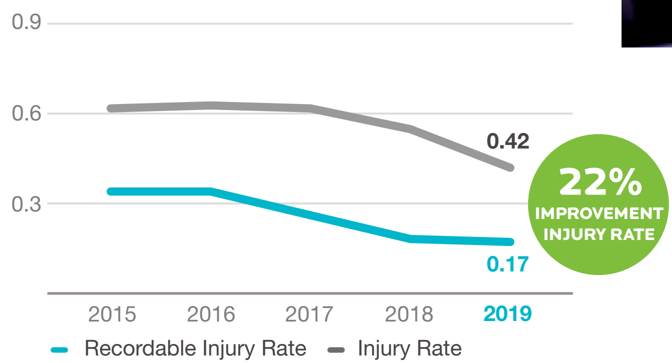
EMPLOYEES (HEADCOUNT)



PATENTS IN FORCE

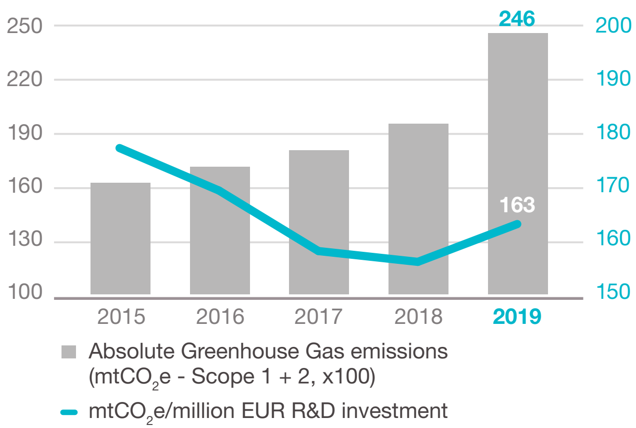


GLOBAL INJURY AND RECORDABLE RATES



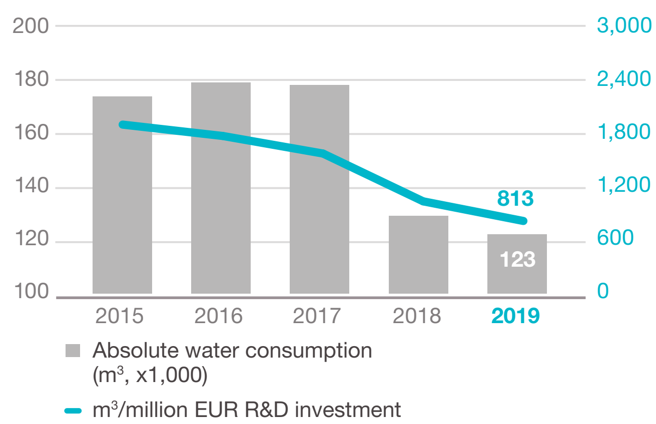
GREENHOUSE GAS (GHG) EMISSIONS

(Absolute and normalized per R&D investment)



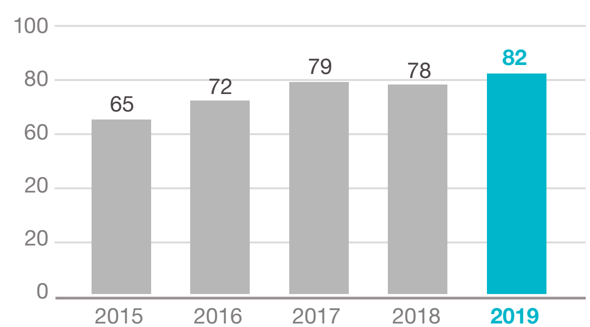
WATER CONSUMPTION

(Absolute and normalized per R&D investment)



LANDFILL DIVERSION RATE

(in %)



VALUE CREATION

We realized record revenues in 2019, growing by 57% to €1,284 million, as we strongly outperformed the WFE market. By industry segment, our 2019 revenue was led by foundry, followed by the logic and memory segments.

DIVERSE PRODUCT LINES

Our ALD product lines enjoyed strong double-digit growth in 2019, with ALD continuing to represent more than half of our equipment revenue over the year. Our other product lines also contributed strongly, led by our epitaxy product line.

MARKET DEVELOPMENT

In 2019, our industry experienced a decline, with wafer fab equipment spending decreasing 9%. This was down to a number of reasons, including a decrease in the memory-end markets, and the uncertain economic outlook and trade frictions within other parts of the semiconductor market.

LONG-TERM VALUE CREATION

We create value through our technologies by enabling leading semiconductor and technology industry partners to deliver the world of tomorrow through our innovative processing solutions and equipment. We partner with our customers and stakeholders to develop new materials, processes, and technologies that support their technology roadmaps. The process solutions delivered on our equipment enable more powerful microprocessors and higher density memory devices, all operating at lower power. Advancements that benefit society are increasingly dependent on capabilities derived from new semiconductor technologies.

GREATER PERFORMANCE, REDUCED ENERGY CONSUMPTION

Our advanced deposition technologies support cost-effective products enabling the electronic devices of the future. This leads to electronic devices that deliver ever-greater performance while reducing their energy consumption. Higher performance translates into more processing power, while a lower energy requirement means smaller, longer-lasting, more efficient products. This enables electronics' manufacturers to further integrate smart technology into a wider range of their products. For example, ASMI's ALD and epitaxy tools are critical technologies for creating high performance transistors that can operate using lower power levels, a key enabler for products such as smart watches and fitness monitors, which have substantial functionality in a small form factor with good battery life.

This value creation benefits all of our stakeholders. Our employees enjoy the challenge of developing cutting-edge technology solutions, and the opportunity for career advancement. Our suppliers, in addition to a higher activity level, also benefit from improved quality and efficiencies resulting from our supplier process control program. Consumers benefit from the value added and energy reduction possibilities provided by new electronic products that are enabled by advanced semiconductors.

OUR BUSINESS MODEL

We strive to create value for the company and all of our stakeholders. Our technology enables precision deposition of thin films in various steps in the fabrication of semiconductor chips, helping our customers build the most advanced chips used in the electronics systems throughout society. To achieve this, we are working with our customers to develop innovative solutions, while constantly looking at what is best for our investors, our employees, society, and other stakeholders.

Our products and process solutions benefit society by helping to enable a wide range of advanced integrated circuit logic and memory chips used in most of the world's electronic systems. Fundamental to our model is R&D investment, including basic chemical, materials, and feasibility research, followed by process and product developments. We aim to continuously recruit world-class technologists in the semiconductor process and equipment technology fields. We cooperate with research institutes and our customers to understand the technology roadmap challenges and to develop the appropriate process and equipment solutions required. Our manufacturing facilities allow us to deliver high-quality systems on schedule so that our customers can ramp their fabrication plants. We support our customers globally with process and equipment services and spare parts.

INPUTS

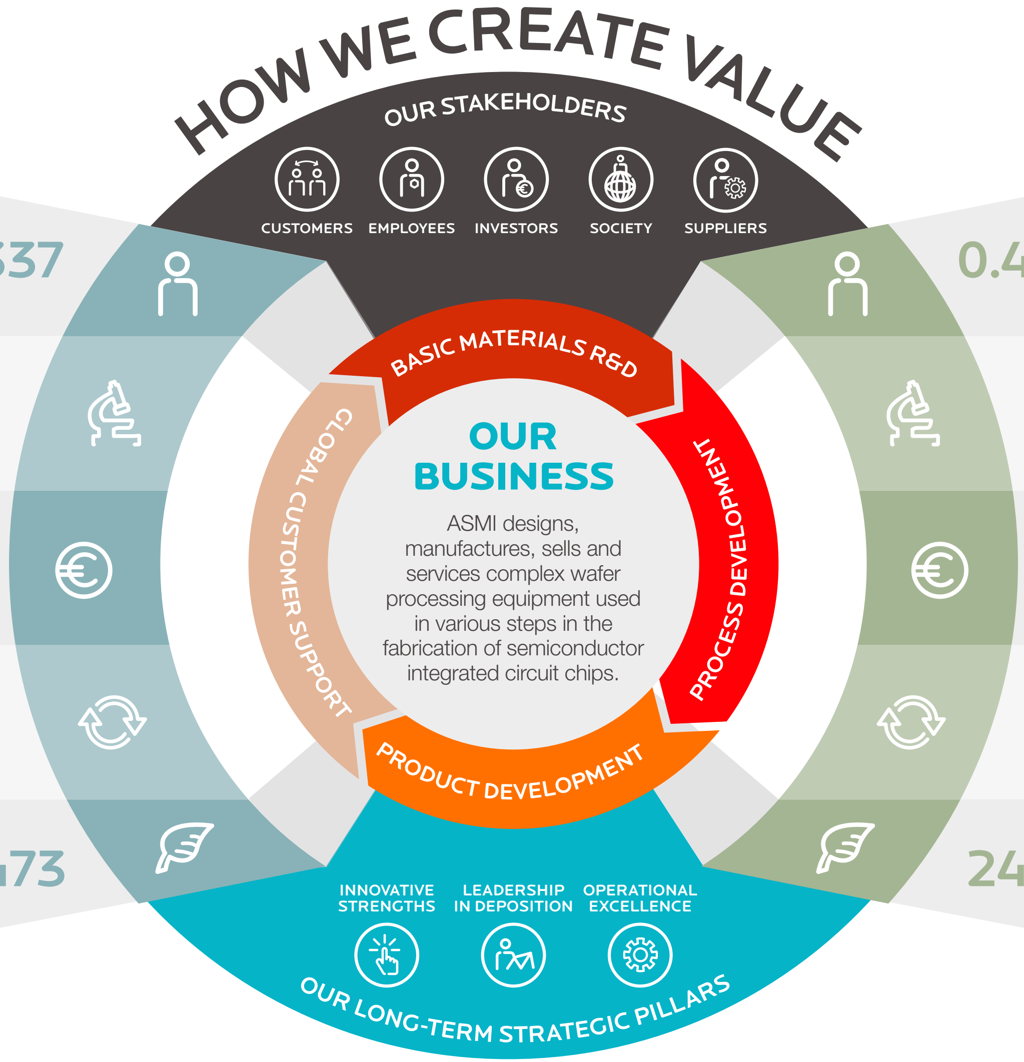
HUMAN CAPITAL
Employees
2,337

INTELLECTUAL CAPITAL
R&D spending (EUR million)
151

FINANCIAL CAPITAL
Equity (EUR million)
1,819

MANUFACTURING & SUPPLY CHAIN CAPITAL
Material spending (EUR million)
510

NATURAL CAPITAL
Electric usage (KwH)
43,401,473



OUTPUTS

HUMAN CAPITAL
Injury rate
0.42

INTELLECTUAL CAPITAL
Patents in force
1,959

FINANCIAL CAPITAL
Operating & investing cash flow (EUR million)
410

MANUFACTURING & SUPPLY CHAIN CAPITAL
Revenue (excl settlements) (EUR million)
1,125

NATURAL CAPITAL
GHG emission scope 1&2 ($mtCO_2e$)
24,590

CUSTOMERS

ASMI's ALD, epitaxy, PECVD and vertical furnace systems are all used in the manufacturing process for the world's most advanced semiconductor chips. These chips are used in the latest smartphones, for servers in cloud computing, to enable artificial intelligence algorithms and for many other applications.

The semiconductor industry finds it increasingly difficult to achieve each subsequent technology node, resulting in more advanced process steps and new materials required. ASMI's equipment is a key component to keeping the industry roadmap going forward.

SMALLER DEVICES

The industry's relentless push to follow Moore's Law leads to the continuous demand for smaller, faster, and cheaper semiconductor components. The technologies required to achieve these advancements are heavily dependent on equipment such as ASM's process tools.

Today, our customers manufacture semiconductor devices as small as 5 nanometers (one nanometer, or nm, is one billionth of a meter), sometimes in a vertical 3D transistor or FinFET architecture. Our customers are already qualifying and testing new critical processes to generate devices with line widths at 3nm. Simultaneously, in our customers' laboratories and several collaborative research environments, even more advanced design rule devices and related materials are being developed. These next-generation technology nodes are increasing the demand for new materials and more complex process integration methods, driving more ALD and epitaxy process steps at each new node.

In developing faster and smaller devices, our customers' major technology requirements are:

- introduction of new thin-film materials and device designs needed for continued scaling;
- reliable manufacturing of taller and narrower 3D structures in devices;
- lithography of ever-smaller feature sizes, now much smaller than the wavelength of visible light; and
- new manufacturing processes that reduce device variability and increase yield.

DEVELOPING NEW MATERIALS

In order to meet our customers' technology needs, we are developing many new materials, along with the deposition equipment capable of achieving performance specifications in volume manufacturing. For example, ALD technology is used to create ultra-thin films of exceptional material quality, uniformity and conformality. ALD of high-k dielectrics and novel metal gate electrodes can improve the performance and reduce the power consumption of a device, thereby enhancing battery life. This same class of materials can also lead to larger charge storage in a smaller capacitor, critical for memories and RF circuits.

In addition to the development of the high-k dielectric, there is also a great deal of focus on new technologies and materials for the metal gate electrode, the gate sidewall passivation, and many other applications. Plasma enhanced ALD (PEALD) is an important technology that enables precise deposition at very low temperatures. One application of PEALD is spacer defined multi-patterning, whereby the deposition of a highly conformal oxide spacer enables the extension of existing optical lithography technology beyond its basic resolution limits.

HIGH PRODUCTIVITY

In addition to addressing the technology needs of our customers, the relentless drive of the industry to reduce cost corresponds to significant spending on development programs that further increase throughput, equipment reliability, and yield in our customers' manufacturing line, and further lower the cost per wafer of the wafer processing systems. Without continuous productivity improvements, the price of chips would keep rising because the capital intensity of each new technology node keeps rising. The value to society is ever increasing performance of electronic systems with a reasonably stable end market price.

An excellent example of high productivity is our XP8 platform, on which we offer ALD, PEALD and PECVD processes. The XP8 incorporates eight process chambers in a compact configuration around one central handling platform. Two wafers are moved simultaneously into dual chamber modules (DCM), which approximately doubles the throughput compared to single-wafer movements. Furthermore, in 2019 we introduced the new XP8 QCM tool, which enables even higher throughput by incorporating four chambers in the quad chamber module (QCM). With four QCM's attached to the XP8 platform, a total of 16 process reactors are configured on the same system. These high productivity systems add substantial value to semiconductor fabs by reducing the cost per wafer for each processing step used in the tools. Eagle XP8 PEALD tools and Dragon XP8 PECVD tools are in volume manufacturing at logic and memory fabs worldwide, and demonstrate reliable advanced performance with high productivity. In 2018 ASMI introduced the Synergis ALD tool, which also uses the proven XP8 platform, and leverages the core technologies from our Pulsar and EmerALD ALD products for high productivity thermal ALD applications. The new Synergis tool allows us to address more ALD applications and therefore increases our served market.

CUSTOMER FEEDBACK

In December 2019, we received a Supplier Excellence Award from TSMC for our technology collaboration with them during 2019. This is the fourth year in a row that we have received an excellence award from TSMC. During the presentation of the award, TSMC explained the key points that contributed to us receiving the award:

1. Outstanding development support;
2. Continuous efforts in productivity improvement; and
3. Excellent delivery support on production ramp.

OUR PRODUCTS

Our products include wafer processing deposition systems for CVD, ALD, epitaxy, and diffusion/furnace. We make two types of process tools: single-wafer and batch. The majority of our business comes from single-wafer tools, which are designed to process an individual wafer in each processing chamber on the tool.

In contrast, a batch tool is designed such that a large number of wafers are processed simultaneously in a larger processing chamber. Batch tools typically achieve a higher throughput compared to single-wafer tools.

Single-wafer tools typically achieve a higher level of process performance and control, especially for complex, critical applications. We work closely with our customers to meet their demands, and in recent years we have developed single-wafer tools with multiple chambers configured together in a compact way on a single platform. This approach offers the best of both worlds, combining high productivity and a high level of performance.

Our XP platform is a high-productivity, common 300mm single-wafer platform that can be configured with up to four process modules. The XP platform enables high-volume multi-chamber parallel processing or integration of sequential process steps on one platform. The XP common platform benefits our customers through reduced operating costs, as many of our products use the same parts and consumables, and a common control architecture improves ease of use.

Our XP8 platform follows the basic architectural standards of the XP, but provides even higher productivity with up to sixteen chambers integrated on a single-wafer platform with a relatively small footprint. The XP8 platform can be configured with dual chamber modules (DCM) enabling up to eight integrated chambers, or with quad chamber modules (QCM) for up to 16 reactors on the same platform.

NEW PRODUCT INTRODUCTIONS

During 2019 we launched three new products. At the Semicon Korea trade show, we introduced the XP8 QCM tool for high-productivity plasma enhanced atomic layer deposition applications. This newest addition to our portfolio of leading ALD platforms allows for the integration of up to four quad chamber modules (QCM), each containing four process reactors, on a single XP8 platform. Thus an XP8 QCM tool supports up to 16 reactors, enabling high productivity.

In July at the Semicon West show, ASMI introduced the Previum process module for integrated pre-deposition surface cleaning. Integrated into the Intrepid ES epitaxy platform, Previum surface cleaning enables optimal quality epitaxial depositions for advanced node channel and source/drain engineering applications.

At the Semicon Europa show we launched the A400 DUO vertical furnace system with dual reactor chambers for wafer sizes of 200mm and smaller, targeting power, analog, RF, and MEMS applications.

BREAKTHROUGH TECHNOLOGIES

We're an innovation company. Innovation is our growth engine and our road to the future. We invest and deliver technology solutions that will drive a smart, connected future. Because of this innovative culture, we are a leading supplier of ALD equipment and process solutions for the semiconductor industry. Today, our ALD process technology delivers the highest performance available to support the next generation of semiconductor devices. Our epitaxy products have also demonstrated solutions for our customers to achieve transistor channel performance at the most advanced technology nodes. We are investing across our full product line spectrum to develop the breakthrough technologies that drive growth for the company.

INCREDIBLE PRECISION

ALD allows us to deposit thin films atom-by-atom on silicon wafers, meaning we can deliver atomic-scale thickness control, high-quality deposition film properties, and large area uniformity.

With such precision, we can use materials that previously could not be considered, and develop 3D structures that are vital to the future of electronics. 3D technology provides a number of real benefits, including saving space while delivering chips with higher performance that consume less power.

ALD IN VOLUME MANUFACTURING

Our ALD technology is being used to build ICs for a wide range of leading-edge products, including high-performance computers and smartphones. The results of ALD are visible everywhere in the world around us.

ALD is also our basic platform for the development of a wide range of new materials. Our research centers across the globe are working on ALD, and we are conducting joint research projects with Europe's largest independent research institute, imec. Taken together, this helps make ALD one of the principal drivers for future growth in microelectronics.

ALD - A DRIVER OF FUTURE GROWTH

Using ALD, we can deposit new materials several atoms thick on semiconductor wafers, producing ultra-thin films of exceptional quality and uniformity.

In PEALD, plasma is used to provide the reaction energy for the process, enabling us to use lower temperatures for low-thermal budget applications. This technology was introduced in DRAM and planar NAND flash manufacturing, for spacer-defined double patterning (SDDP), a technique that can reduce device dimensions, postponing the need for new lithography technologies.

Using ALD technology, we can scale devices to smaller dimensions while reducing the power consumption of transistors, all of which helps the industry follow Moore's Law and create smaller, more powerful semiconductors. For advanced 3D memory applications, where devices are stacked vertically in high densities, ALD is critical for uniformly depositing films in deep trenches and over complicated features. Many new applications are emerging where ALD is the technology of choice, and in a number of cases the only solution that meets the challenging technology requirements.

We expect ALD to be one of the principal drivers of growth in microelectronics over the coming decade. We are seeing more ALD applications required by customers for each new technology node. For example, compared to the 10nm node, there are more ALD layers used for 7nm processor devices, and even more for 5nm. In addition, we expect growth in other deposition technologies, including epitaxy for advanced transistors and PECVD for creating improved interconnects. Looking ahead, we will continue to develop the huge potential of our deposition technologies in support of the semiconductor industry, enabling the industry to support the future demands of consumers and businesses.

EPITAXY

Epitaxy is a critical process technology for creating advanced transistors and memories. The epitaxy process is used for depositing precisely controlled crystalline silicon-based layers that are important for semiconductor device electrical properties. In some cases, the epitaxy films incorporate dopant atoms to achieve specific material properties.

Epitaxy process temperature control is of the utmost importance. We have developed new methods of temperature control in our Intrepid ES epitaxy tool that enable improved film performance and repeatability in volume production. Furthermore, Intrepid's closed-loop reactor temperature control enables enhanced stability in production.

In 2019 we introduced a pre-deposition wafer surface clean technology which is performed in our new Previum process module, integrated together with Intrepid epitaxy process modules. The surface clean process is used prior to the epitaxy deposition to create a pristine silicon surface for defect-free epitaxy film deposition, critical for achieving the most advanced node transistor performance requirements.

PRODUCT STEWARDSHIP

A key tenet of our product stewardship effort is to increase the productivity of our equipment. With the introduction of the Synergis tool in 2018 we are able to address more applications that are capable of running on the high productivity XP8 platform. Synergis improves productivity by integrating up to eight ALD process chambers in a compact footprint. With the new XP8 QCM PEALD tool we have further increased the number of integrated reactors to 16. The result is dramatically improved efficiency as more wafers are processed in less area of the fab cleanroom, compared to previous generation tools. Furthermore we continue to make progress working with customers to increase the throughput of various processes running on their ASMI tools. Increasing throughput is a direct improvement in efficiency.

PRODUCT LIFE CYCLE MANAGEMENT

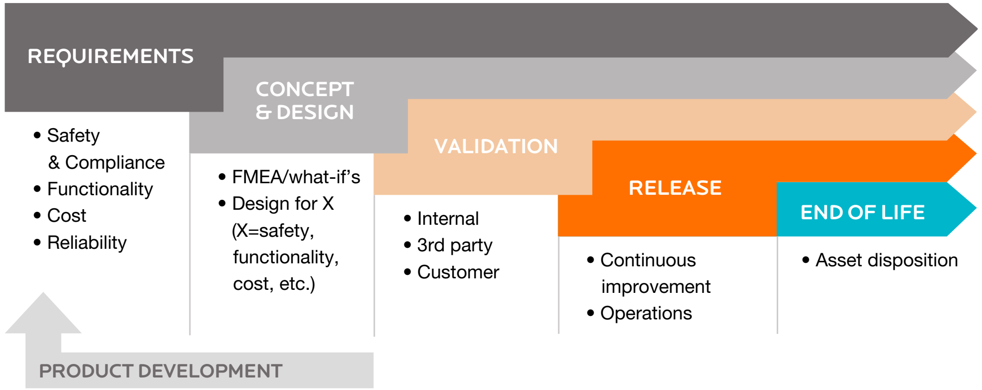
Focusing on product stewardship and product life cycle (PLC) management involves taking responsibility to reduce the product's environmental impact along its entire life cycle, so from cradle-to-grave. Ultimately, this approach enables us to make products more efficiently and productively for our customers, while extending the products' useful life.

Our product life cycle process follows the well-established construct of phase-gate product development guided by several key inputs:

- our collective industry knowledge/experience and subject matter experts;
- industry/customer requirements and frameworks (such as, customer purchase specs and business requirements); and
- industry regulations, standards, and guidelines.

Product-specific requirements realized from these inputs are documented in market requirement specifications (MRS), which are held as the objectives we need to meet through the product development process. The MRS are updated continually to capture changes to market conditions, regulations and standards, and related specifications.

Governance is provided through key technical meetings (architecture reviews, design reviews and validation reviews) and phase exit meetings through the various life cycle stages of the product.



PRODUCT SAFETY AND GOVERNANCE

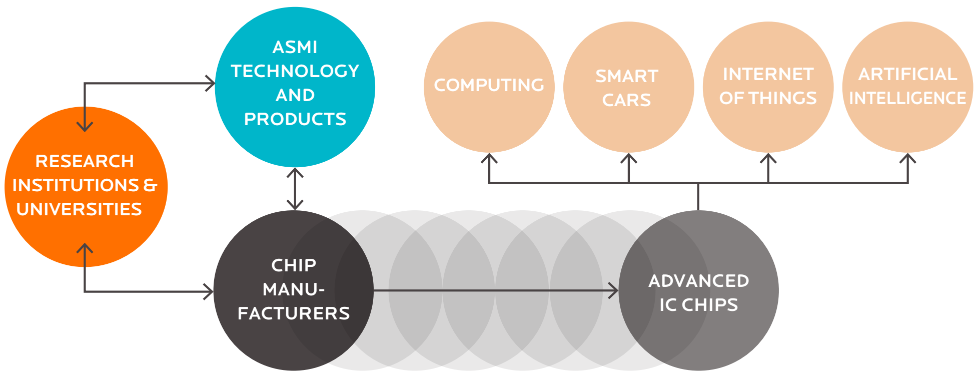
Product safety is a core element of ASMI's innovation process, and it is realized through the design, manufacturing, and ongoing support of our products. The requirements are defined and championed by the Product Safety Council which includes engineers representing each of our design centers. These requirements are established in the PLC during the requirements phase, and include legislation and standards from the semiconductor industry and customers. We verify that safety requirements are met during the concept and design phase as part of safety risk assessments, and through independent third-party validations during the product validation phase. In addition, we integrate the identification of opportunities for safety design improvements into our global safety reporting system. This system enables our engineers and technicians who work with our equipment on a daily basis to report incidents, areas of concern, or opportunities for improvement. Corrective actions and lessons learned are captured, providing an invaluable link between the end user and the design process.

Our stakeholders working with our equipment rely on this process of continual assessment, integration, and improvement, to make sure they can safely work with our products.

GLOBAL RESEARCH

As a global company, we carry out research and development (R&D) on different continents, giving us access to the smartest professionals working in the semiconductor sector today, and bringing our R&D closer to our customers. In our research centers in Belgium, Finland, Japan, the Netherlands, South Korea, and the United States we are active at all stages of our innovations' life cycle, from developing the basic chemistry and materials to implementing improvements on our equipment at our customers' production sites. We also work with specialists across a wide array of disciplines to develop our future products, including scientists from research institutes, universities, and suppliers.

DRIVING INNOVATIONS



REGIONAL EXPERTISE WITH GLOBAL REACH

With our R&D activities chiefly conducted in the principal semiconductor markets of the world, we are able to draw on innovative and technical capabilities internationally. Each geographical center provides expertise for specific products or technologies, and interacts with customers on a global scale. This approach, combined with structured and managed interactions between the individual centers, enables the efficient allocation of resources during development and new product introductions.

Under the umbrella of our global product development policies, our local activities are directed both towards expanding and improving existing product lines to incorporate technology improvements and reduce product cost and total cost of ownership, as well as developing new products for existing and new markets. These activities require the application of physics, chemistry, materials science, electrical engineering, precision mechanical engineering, software engineering, and systems engineering.

GLOBAL PLATFORM ENGINEERING GROUP AND CORPORATE R&D

A global platform engineering group addresses the needs for common platforms and software for the various products in our product portfolio and across different key product units. This helps us drive standardization of hardware and software through the organization. A corporate R&D group consisting mainly of resources in Leuven, Belgium and Helsinki, Finland addresses common needs for advanced process and materials development, and process integration work for the 3nm, 2nm and 1xnm nodes, and even beyond.

INITIATIVES WITH CUSTOMERS, INSTITUTES AND UNIVERSITIES

With our customers, we co-create and jointly develop technology roadmaps, to timely develop the new processes and materials our customers need for their next generation products. The diversity in collaborations, ranging from early research to pilot production, helps us reduce risk as early as possible in the innovation life cycle.

As part of our R&D activities, we are engaged on a global scale in various formal and informal arrangements with customers, suppliers, research institutes and universities.

We have specific bilateral research activities with several key academic groups at universities in Asia, Europe, and the United States, typically centric to our core R&D focus on new equipment, material and process developments.

We contribute to several process and equipment development projects at the major Dutch technical universities through the Dutch NWO* (Netherlands Organization for Scientific Research) funding organization in the domain TTW** (covering Applied and Engineering Sciences), and in Belgium we participate in the industrial users group for several projects supported by the Flemish funding organization VLAIO*** (Agency for Innovation and Entrepreneurship).

We participate in select publicly-funded programs to research and develop technology for semiconductor devices with line widths of 3nm and below, and in 'More than Moore' technologies, a strongly-growing market of various types of analog chips which are not driven by the same

* NWO: Nederlandse Organisatie voor Wetenschappelijk Onderzoek
** TTW: Toegepaste en Technische Wetenschappen
*** VLAIO: Vlaams Agentschap Innoveren & Ondernemen

Moore's Law technology scaling inflections of mainstream logic and memory chips. We are also involved in several cluster development programs in the Eureka initiative, as a member of AENEAS (Association for European NanoElectronics Activities) as mentor or reviewer, and in roadmap activities.

And finally, we occasionally cooperate with other semiconductor capital equipment suppliers in complementary fields, in order to gain knowledge on the performance of our own deposition processes, in cooperation with other processes, either in bilateral or consortia projects.

As of December 31, 2019, we were engaged in several formal joint-development programs with customers for 300mm applications of our products. We also were active in evaluations of our most advanced technologies with selected customers.

In 2017, we renewed our strategic R&D partnership with the Interuniversity Micro-Electronics Center (imec) in Leuven, Belgium, extending into 2022. Essentially all of our 300mm products, and some of our 200mm products, are involved in this partnership. From 2013 through 2019, we significantly expanded our partnership with additional ALD, PEALD, epitaxy, and LPCVD capability. This gives us the opportunity to investigate, both jointly and independently, the integration of individual process steps in process modules and electrically active devices. We have partnered with imec since 1990, with significant on-site representation since 1994.

In December 2003, we commenced a five-year partnership with the University of Helsinki that aims to further develop atomic layer deposition processes and chemistries. This partnership was extended in 2018 for a fourth five-year period extending into 2023.

PATENTS & TRADEMARKS

We expect new deposition technologies and chemistries to be a major driver for new intellectual property (IP) in the future. Patents give us a right to protect our products or aspects thereof, and enable us to speak more openly about our inventions and share ideas in the marketplace that benefit our customers.

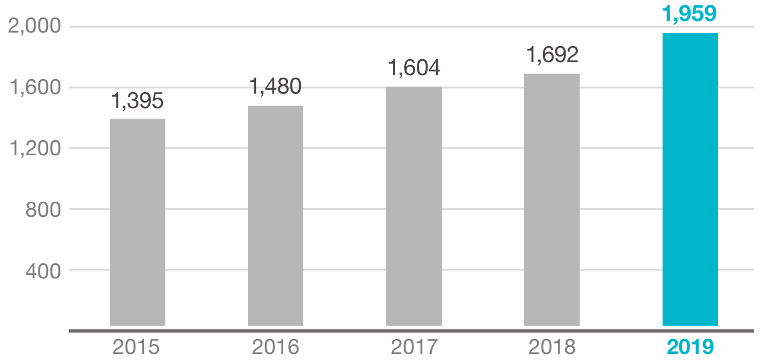
We understand that a failure to adequately protect our IP and/or leakage of our IP could result in the loss of our competitive advantage and adversely impact our financial performance.

We have implemented a program that protects IP for us, our customers, our suppliers and our partners. We train all employees not only on the importance of IP protection, but also on how to recognize and report possible IP infractions. This training is provided to all new hires, and employees are given regular refresher training.

Our patents are usually registered in the principal countries where semiconductor devices or equipment are manufactured and/or sold. Our vision is to increase our value to our customers and shareholders by using our IP in a way that differentiates our products, influences the market, and provides additional monetization opportunities.

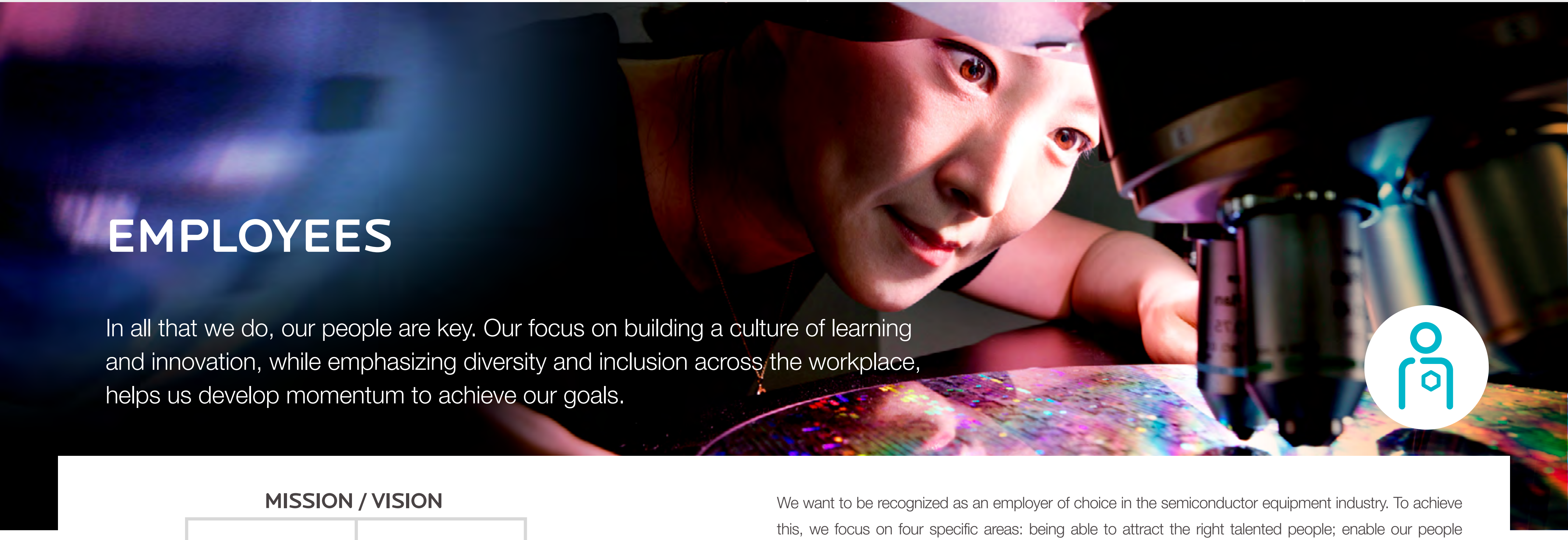
Intellectual property (IP) managers work at all of our major global R&D sites, where they capture patentable material resulting from our R&D activities. We now have over 1,950 patents in force worldwide protecting our various products.

PATENTS IN FORCE



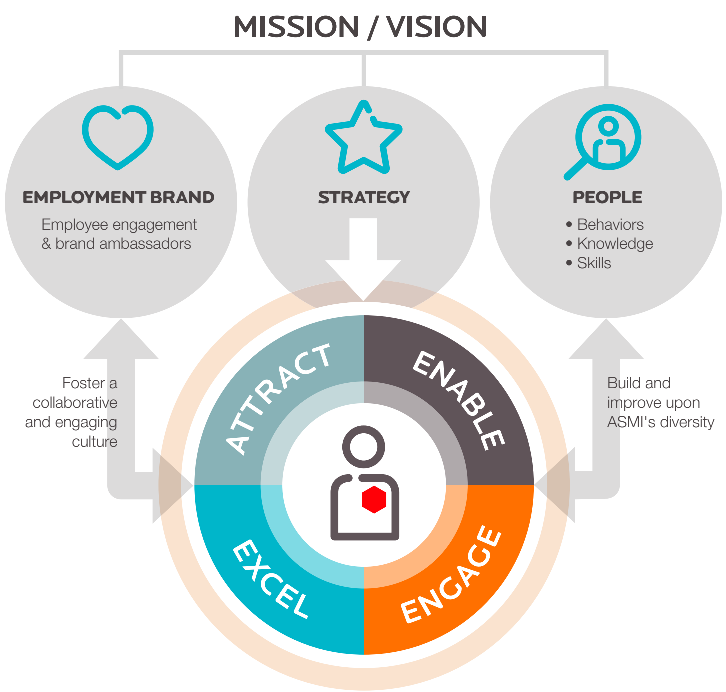
We have registered a number of trademarks covering our product portfolio in the principal countries.

ASM, the ASM International logo, Advance, Aurora, Axis, Dragon, Eagle, EmerALD, Epsilon, Intrepid, Polygon, Previum, Pulsar, Silcore, XP, XP8 and Synergis are registered trademarks of ASM International NV. The ASM Qualified Licensed Supplier logo, A400, A412, Loadstar, NCP are our trademarks. 'Drive Innovation. Deliver Excellence.' is our service mark.



EMPLOYEES

In all that we do, our people are key. Our focus on building a culture of learning and innovation, while emphasizing diversity and inclusion across the workplace, helps us develop momentum to achieve our goals.



We want to be recognized as an employer of choice in the semiconductor equipment industry. To achieve this, we focus on four specific areas: being able to attract the right talented people; enable our people to perform to the best of their abilities; engage our people by fostering a collaborative and appealing culture; and supporting our people to excel in their continued professional development.

EMPLOYEES

The following table lists the total number of employees, exclusive of temporary external workers:

	December 31,	
Geographical location	**2018**	**2019**
Europe:		
- the Netherlands	151	**145**
- EMEA	189	**203**
United States	576	**639**
Japan	248	**271**
South Korea	273	**280**
Singapore	463	**474**
Asia, other	281	**325**
Total	**2,181**	**2,337**

We had 2,337 employees as per December 31, 2019. The following table lists the number of employees per function:

	December 31,	
Function	**2018**	**2019**
Research and development	544	**612**
Manufacturing	456	**484**
Marketing and sales	277	**275**
Customer service	716	**779**
Finance and administration	188	**187**
Total	**2,181**	**2,337**

Location	**Number of R&D employees as of December 31, 2019, exclusive of temporary workers**
Almere, the Netherlands	**39**
Leuven, Belgium	**43**
Helsinki, Finland	**31**
Phoenix, Arizona, United States	**216**
Dongtan, South Korea	**137**
Singapore	**1**
Tokyo, Japan	**145**
Total	**612**

In 2019 we were successful in recruiting 407 people we needed to support our company's growth, ranging from technicians building our products, to service engineers delivering high-quality support to our clients and people in R&D driving our innovations. Our total workforce, including temporary external workers, grew from 2,327 persons to 2,444 persons which includes 2,337 employees, a total increase of 5%. The number of employees within R&D positions increased by 13% to 612, which reflects 26% of ASMI's total employees. Over 2019 our voluntary attrition rate was 8.7%, which is the number of permanent employees that voluntarily left the company. In 2019, we started an initiative focusing on reducing the short-term voluntary attrition (leavers with < 3 years tenure). For this, concrete action plans were defined and implemented.

ATTRACTING A DIVERSE WORKFORCE

We are an equal opportunity employer, and we welcome and value diversity. We recognize and respect the differences between individuals, including gender, ethnicity, religious beliefs, sexual orientation, knowledge and experience, work background, age, skills, etc. Recruiting and developing a diverse workforce gives us a wide range of perspectives, allows us to explore and adopt new technological ideas and innovations, and enables us to continuously strive to deliver excellent products and service to our clients.

To support ASMI to embark on the next phase of growth, further strengthening the positioning of ASMI as employer of choice is crucial in being able to attract future candidates and retain our current talent base. Therefore, in 2019, we have been working on enhancing our ASMI Employee Value Proposition (EVP). The EVP is the framework on which ASMI's employer brand marketing is based and that will guide communications and interactions with candidates and employees and ensure a consistent candidate experience. Based on broad feedback from within ASMI, the renewed employer brand framework, creative concepts and employer brand guidelines were defined and will be finalized in 2020.

ASMI is an equal opportunity employer. We recognize and respect the differences between individuals and we understand that these differences can include ethnicity, religious beliefs, nationality, age, gender, sexual orientation, family status, physical ability, experience, and perspective. While operating in 16 countries, in 2019 we continued to employ a workforce consisting of 29 nationalities. 15% of our workforce is female which is comparable to peers in our industry. Our diversity is reflected in the international spread of our workforce, which for 2019 was 58% in Asia, 27% in the United States and 15% in Europe.

ENABLE OUR PEOPLE, PAY FOR PERFORMANCE

In positioning ASMI as an employer of choice and contributing to our mission to 'Drive Innovation, Deliver Excellence', we deploy a philosophy of differentiating rewards for performance. Our compensation policy is based on market data, skills and education and is further differentiated for performance.

ASMI is complying with all applicable laws, regulations and collective labor agreements, including those relating to minimum wages, to wages and hourly pay. In 2019, in every situation our people have been paid above the local minimum wage. Compensation is not based on such criteria as gender, nationality, and age.

As part of our effort to be transparent about the impact of our compensation programs, we assess the difference in compensation between our female and male employees.

We look at the compensation ratio at management and non-management levels. The analysis is done by comparing the median compensation as a function of gender per job grade and per country, excluding the impact of job scope and country-specific compensation levels.

In line with our findings in 2018, we found no significant disparity between female and male compensation based on relative salary position (RSP) at the different levels in our organization.

Median RSP (Female / Male)	2018	2019
Senior management / executives	107%	108%
Middle management	98%	99%
Non-management	102%	102%
Total	**101%**	**100%**

PEOPLE DEVELOPMENT

As we are entering a new era of innovation, to embark on the next phase of growth, we need to continue to focus on developing our people and leaders, which requires new dimensions in leadership development. We strive to give our people the opportunity to develop their talents and gain the experiences necessary to support our growth ambition and strengthen their employability. We want to be recognized as an employer of choice in our industry.

To realize this, we identify and support people with talent and leadership potential, ensuring we have the right people in the right job at the right time, to nurture future growth.

In 2019, as part of the people development agenda, we designed a completely renewed leadership academy. The first strategic academy program is scheduled for 2020. In 2019, within the current academy programs, 65 of our managers and leaders participated in one of the programs.

In addition, we delivered several training programs for managers, covering coaching, self-paced training, global virtual training and local face-to-face training. Our virtual training via Harvard Manage Mentors (HMM) resulted in more than 60% of our managers participating in one or more training programs, using the eLearning tool, this year. In addition, in collaboration with HMM, we deployed two virtual training sessions focusing on diversity and team management in a global context.

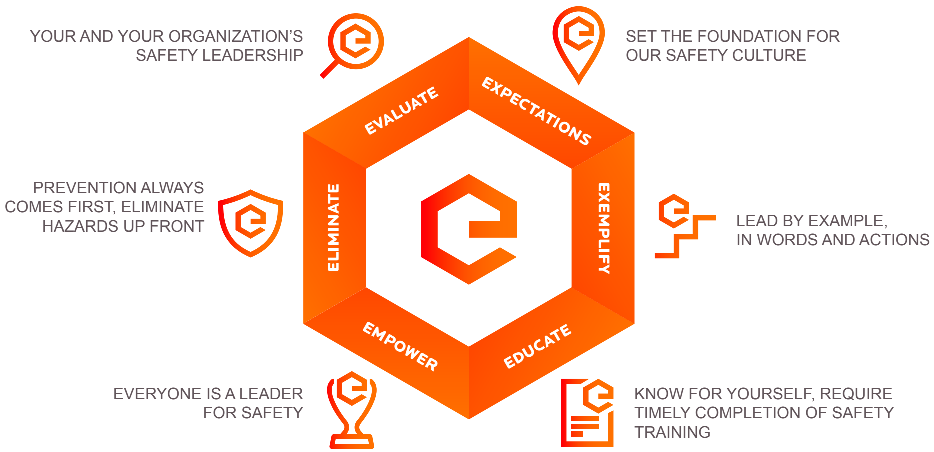
HEALTH & SAFETY

To ensure the safety of our people, and the people of our customers and suppliers, we always put safety first. Our philosophy is that any single injury is one too many. We remain diligent in pushing ourselves to improve in safety so that we can achieve ZERO HARM! To eliminate the risks and hazards that can lead to safety and health incidents, we are focusing on the key elements of safety leadership within the company. We believe that everyone should become a safety leader. We model this through our BeSafe – The 6Es of Safety Leadership framework, which empowers everyone to lead by example through taking action.

The framework emphasizes eliminating hazards and evaluates performance through employee surveys and key performance indicators. Employees who demonstrate significant contributions, positive attributes, and leadership in safety can be nominated by peers for a global quarterly safety leadership award.

We emphasize the importance of collaborating for a safe work environment at our customer sites. Our service engineers work at customer sites, in the presence of ASMI equipment and other supplier equipment. Oftentimes, our engineers are working directly with customer engineers and equipment owners to ensure the performance and uptime of ASMI equipment, while operating around other trades. These shared work environments present unique challenges for everyone working there, and our employees are empowered to identify risks and opportunities in these environments. For these reasons, we collaborate closely with our customers, and with several customers hold “Safety Leadership Collaboration” meetings to identify risks, and share our safety observations to inform and address areas of improvement. Safety is non-competitive, and we hope through these innovative engagements that we can influence our customers to not only engage with ASMI more closely on safety, but leverage the observations and improvement opportunities other suppliers, vendors and trades bring to the industry.

BE SAFE SAFETY LEADERSHIP FRAMEWORK



QUARTERLY SAFETY AWARD WINNERS

Phoenix Facilities Team
For consistently exemplifying safety leadership in words and actions.

Electrical Engineering Champion
Championing product safety – improving designs and eliminating hazards.

Dongtan Facilities Leader
Consistently setting a great example of safety leadership of South Korea facilities and operations.

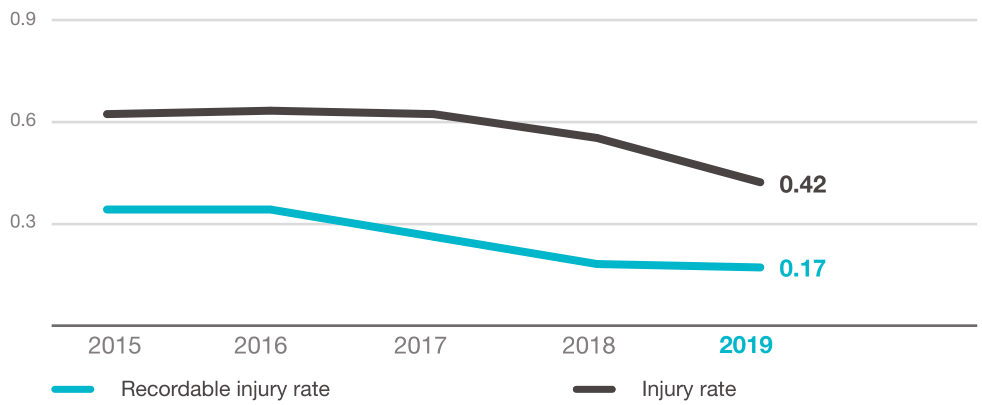
Electrical Engineering Champion
For dedicated teamwork and attention to detail in making ASMI products safer.

Any injury is one too many – that's the philosophy behind our ZERO HARM! safety goal. Any incident or injury inspires us to push ourselves further to identify the risk and prevent the exposure. Our targets are toward this goal – we are ever tightening our injury and incident targets to drive the organization to reduce the risks.

Our key performance measures are aligned with our industry and peers, and allow us to benchmark our performance year-on-year. The key measures include an overall injury rate indicator and a recordable injury rate indicator, which is an indicator of serious injuries requiring medical attention or days away from work.

In 2019, our total injury rate showed a 22.3% improvement from 2018, while our recordable injury rate improved 6.7%.

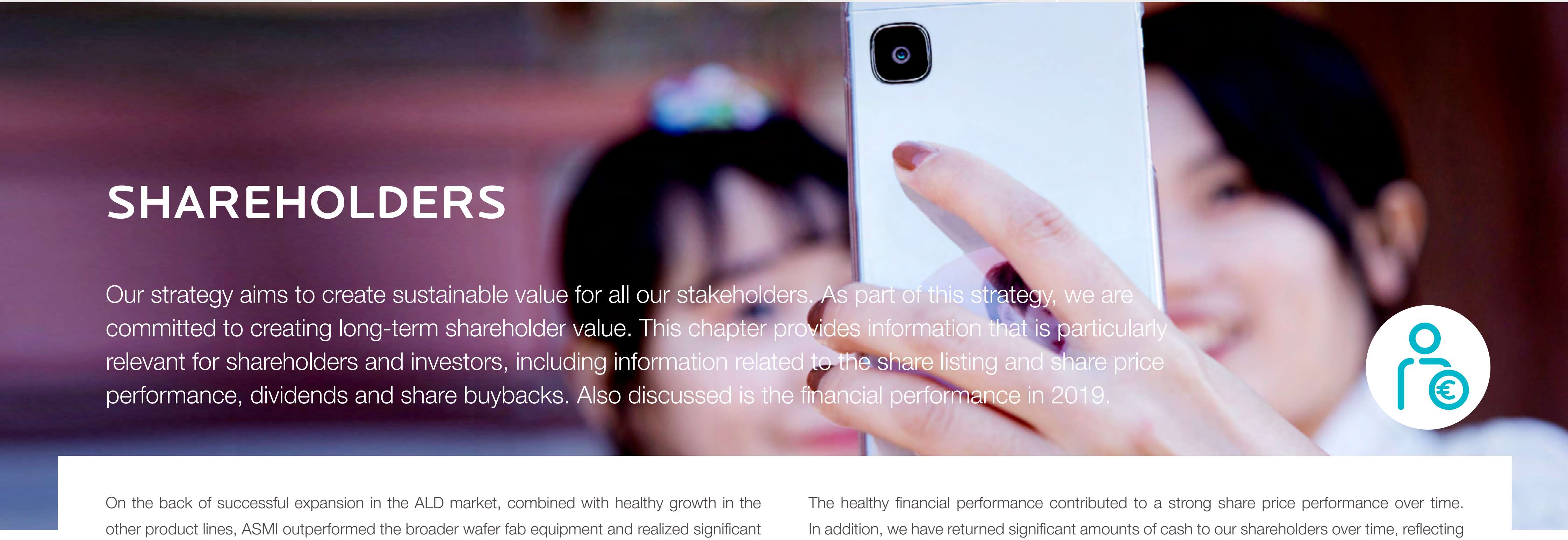
GLOBAL INJURY AND RECORDABLE RATES
(Case Rate per 100 employees)



ETHICS

Our Code of Ethics applies to our Supervisory Board and Management Board, and to all our employees, consultants, contractors, temporary employees and critical suppliers. The Code of Ethics promotes honest and ethical conduct throughout our global operations. The full Code of Ethics can be found on our website. We continuously promote ethical behavior and ensure all employees are actively exposed to our Code of Ethics in multiple ways. New hires are trained in the Code and associated policies within their first weeks of employment; refresher training on ethics topics is conducted annually; articles from Executives and members of the Ethics Committee are published through our global employee newsletter; we post visual awareness reminders at ASMI sites; and a dedicated ethics website is directly accessible via ASMI's Intranet home page. We encourage our employees to speak up when they feel ASMI's actions or behavior are (potentially) in conflict with the Code of Ethics.

For new employees, training starts on the day they join ASMI. They are required to familiarize themselves with the Code of Ethics and associated policies and processes within the first week of employment and complete all required training. In 2019, 100% of our new hires signed off on having read, understood and agreed to the Code of Ethics and completed the required training. In addition to the initial training, we also require all our employees to take refresher training every two years. In 2019, 100% of all our employees completed the bi-annual Code of Ethics courses.



SHAREHOLDERS

Our strategy aims to create sustainable value for all our stakeholders. As part of this strategy, we are committed to creating long-term shareholder value. This chapter provides information that is particularly relevant for shareholders and investors, including information related to the share listing and share price performance, dividends and share buybacks. Also discussed is the financial performance in 2019.

On the back of successful expansion in the ALD market, combined with healthy growth in the other product lines, ASMI outperformed the broader wafer fab equipment and realized significant sales growth in the last several years. 2019 was a very successful year with sales increasing by 37% excluding the settlement proceeds. Combined with an improving gross margin and with operating costs remaining under control, operating profit increased by 77% in 2019. The improvement in profitability and a reduction in working capital led to a strong increase in free cash flow to €206 million.

The healthy financial performance contributed to a strong share price performance over time. In addition, we have returned significant amounts of cash to our shareholders over time, reflecting our policy to use excess cash for the benefit of our shareholders. Over the 2010-2019 period, we returned more than €1.8 billion to the financial markets through dividends, share buybacks, return of capital, and buyback of convertible bonds. Next to the excess cash generated by our operations, we also used in 2017/2018 the proceeds of approximately €0.7 billion from the reduction in our shareholding in ASMPT from 39% to 25% in 2017 for share buybacks and a tax efficient return of capital to shareholders. For 2019 we have increased the proposed regular dividend by 50% to €1.50 per share. The dividend over 2019 marks the tenth year that we pay dividends.

FINANCIAL RESULTS

The following table shows the operating performance for 2019, versus 2018:

(EUR million)	2018	2019	Change
New orders	942.1	**1,328.9**	41%
Backlog	301.5	**351.2**	16%
Book-to-bill	1.2	**1.0**	
Revenue	818.1	**1,283.9**	57%
Gross profit	334.3	**638.5**	91%
Gross profit margin %	40.9%	**49.7%**	
Selling, general and administrative expenses	(121.4)	**(148.9)**	23%
Research and development expenses	(88.6)	**(110.8)**	25%
Operating result	124.3	**378.7**	205%
Operating margin %	15.2%	**29.5%**	
Financing income / (expense)	(0.1)	**(0.3)**	(0.1)
Income taxes	(15.4)	**(53.7)**	(38.2)
Net earnings before share in income of investments in associates	108.7	**324.8**	216.1
Share in income of investments in associates	48.4	**4.2**	(44.2)
Net earnings	157.1	**329.0**	171.9
Net earnings per share, diluted	€2.96	**€6.58**	€3.62
Net earnings per share excluding amortization from the sale of ASMPT shares in 2013	€3.19	**€6.86**	€3.67

The following table shows certain consolidated statement of profit or loss data as a percentage of net sales for our operations for 2018 and 2019:

	2018	2019
Revenue	100.0%	**100.0%**
Cost of sales	(59.1%)	**(50.3%)**
Gross profit	**40.9%**	**49.7%**
Selling, general and administrative expenses	(14.8%)	**(11.6%)**
Research and development expenses	(10.8%)	**(8.6%)**
Operating result	**15.2%**	**29.5%**
Net interest income (expense)	(0.2%)	**(–)**
Foreign currency exchange gains (losses)	0.2%	**(–)**
Share in income of investments in associates	5.9%	**0.3%**
Earnings before income taxes	**21.1%**	**29.8%**
Income taxes	(1.9%)	**(4.2%)**
Net earnings from operations	**19.2%**	**25.6%**

REVENUE

The sales cycle from quotation to shipment for our Front-end equipment generally takes several months, depending on capacity utilization and the urgency of the order. Usually, acceptance is within four months after shipment. The sales cycle is longer for equipment that is installed at the customer's site for evaluation prior to sale. The typical trial period ranges from six months to two years after installation.

Our revenues are concentrated in Asia, the United States and Europe. The following table shows the geographic distribution of our revenue for 2018 and 2019:

	Year ended December 31,			
(EUR million)	2018		2019	
United States	175.9	21.5%	**339.5**	**26.4%**
Europe	165.6	20.2%	**126.2**	**9.8%**
Asia	476.6	58.3%	**818.2**	**63.7%**
	818.1	**100.0%**	**1,283.9**	**100.0%**

A substantial portion of our revenue is for equipping new or upgraded fabrication plants where device manufacturers are installing complete fabrication equipment. As a result, our revenue in this segment tends to be uneven across customers and financial periods. Revenue from our ten largest customers accounted for 79.2% and 82.1% of revenue in 2018 and 2019, respectively. The composition of our ten largest customers changes from year to year. The largest customer accounted for more than 10% of revenue in 2018 and 2019.

	Year ended December 31,		
(EUR thousand)	2018	2019	% Change
Equipment revenue	631.5	909.5	15%
Spares and service revenue	186.6	215.2	15%
Patent litigation & arbitration settlement	–	159.2	n.a.
Total	**818.1**	**1,283.9**	**57%**

Revenue growth driven by logic/foundry

At slightly over €1.1 billion, excluding the €159 million patent litigation & arbitration settlements, our net sales in 2019 increased 37% to a new record high. Equipment sales grew by 44%. Spares and services increased by a solid 15%, supported by the growth in the installed base of equipment in recent years, and represented 19% of total sales in 2019. Currency changes led to a 4% increase in revenue compared to 2018.

In terms of industry segments, sales for the full year were led by the logic and foundry segments. Sales in the foundry segment, our largest segment in 2019, strongly increased, driven by solid investments throughout the year in the most advanced foundry nodes, especially the 5nm node. The second largest segment was advanced logic. Following an already strong increase in 2018, sales in this segment grew again by a substantial double digit percentage in 2019. In both the logic 10nm and the foundry 5nm node the number of ALD layers increased significantly compared to the respective previous nodes, supporting strong share of wallet gains for ASMI with the leading logic and foundry customers. Memory represented the third largest segment. Sales in this segment were relatively flat in 2019, despite the sharp decrease in WFE spending in the broader memory market. ASMI's sales in the memory segment were mainly supported by the benefit of customer specific projects in the DRAM segment.

By product lines, sales in the full year were led by strong double digit growth in our ALD product line, which continued to represent more than half of our equipment revenue in 2019. Sales of our combined other product lines also increased by a robust double digit percentage to a new record high in 2019, led by growth in our Epi business. Epi has now become the second largest product line.

Excluding the settlement proceeds, our sales increased more than 20% from the first half to the second half with record high quarterly sales of €345 million in the fourth quarter of 2019.

BOOKINGS

The following table shows new orders levels for 2019 and the backlog for 2018:

	Year ended December 31,		
(EUR million)	2018	2019	% Change
Backlog at the beginning of the year	**176.3**	**301.5**	**71%**
New orders	942.1	1,328.9	41%
Revenue	(818.1)	(1,283.9)	57%
FX-effect	6.3	4.7	
Adjustment IFRS 15	(5.1)	–	
Backlog as per reporting date	**301.5**	**351.2**	**16%**
Book-to-bill ratio (new orders divided by net sales)	**1.2**	**1.0**	

The backlog includes orders for which purchase orders or letters of intent have been accepted, typically for up to one year. Historically, orders have been subject to cancellation or rescheduling by customers. In addition, orders have been subject to price negotiations and changes in specifications as a result of changes in customers' requirements. Due to possible customer changes in delivery schedules and requirements, and to cancellations of orders, our backlog at any particular date is not necessarily indicative of actual sales for any subsequent period.

For the year in total, our new bookings increased by 24% in 2019 to €1,170 million, excluding the proceeds from the settlements. The book-to-bill, as measured by orders divided by revenue, was 1.0 in 2019. Equipment bookings were led by the foundry segment, followed by logic and memory. Bookings strengthened in the course of the year, excluding the settlement gains, from €235 million in the first quarter to €270 million in the second quarter, €292 million in the third quarter and finished at a new record high of €373 million in the fourth quarter. We also finished the year with a record high order backlog of €351 million, an increase of 16% compared to the end of 2018.

GROSS PROFIT MARGIN

Total gross profit developed as follows:

	Year ended December 31,				
	Gross profit		Gross profit margin		Increase (decrease) percentage points
(EUR million)	2018	2019	2018	2019	
Front-end	334.3	639.5	40.9%	49.7%	8.9 ppt
Front-end, excluding patent litigation & arbitration settlement	334.3	480.3	40.9%	42.6%	1.8 ppt

The gross margin increased in 2019 from 40.9% to 42.6%. In 2019, the margin improved to 42.1% in the first half of the year, and 43.1% in the second half.

Currency changes led to a 4% increase in gross profit compared to 2018.

SELLING, GENERAL AND ADMINISTRATIVE EXPENSES

Total selling, general and administrative expenses developed as follows:

	Year ended December 31,		
(EUR million)	2018	2019	% Change
Front-end	121.4	148.9	23%

Selling, general and administrative (SG&A) expenses increased by 23% in 2019 compared to the previous year. As a percentage of sales (excluding the patent litigation & arbitration settlement), SG&A expenses were 12% in 2019 and 15% in 2018. The increase is due to higher legal costs in the first half of 2019, related to the patent litigation and arbitration case, as well as higher variable compensation in view of the company's strong performance in 2019.

The impact of currency changes on SG&A expenses resulted in an increase of 3% year-over-year.

RESEARCH AND DEVELOPMENT EXPENSES

Total research and development (R&D) expenses, excluding impairment charges, increased by 22% in 2019 compared to the previous year, mainly as a result of higher development activities. As a percentage of sales (excluding the patent litigation & arbitration settlement), R&D expenses decreased to 10% compared to 11% in 2018. Currency changes resulted in a 4% increase in R&D expenses year-over-year.

Total research and development expenses developed as follows:

	Year ended December 31,		
(EUR million)	2018	2019	% Change
Front-end:			
Research and development expenses	125.3	150.7	20%
Capitalization of development expenses	(49.7)	(60.2)	21%
Research and development grants and credits	(0.3)	–	–
Amortization of capitalized development expenses	12.0	15.6	30%
	87.3	106.1	22%
Impairment capitalized development expenses	1.3	4.8	–
Total	88.6	110.8	25%

Impairment of capitalized development expenses related primarily to the development of new technology that is now no longer in-demand from customers.

We continue to invest strongly in R&D. As part of our R&D activities, we are engaged in various development programs with customers and research institutes. These allow us to develop products that meet customer requirements and obtain access to new technology and expertise. The costs relating to prototypes and experimental models, which we may subsequently sell to customers, are charged to the cost of sales.

Our R&D operations in the Netherlands, Belgium, and the United States receive research and development grants and credits from various sources.

OPERATING RESULT

The operating result developed as follows:

(EUR million)	Year ended December 31, 2018	2019	% Change
Front-end:			
Before special items	**125.8**	**224.4**	**78%**
Patent litigation & arbitration settlement	–	159.2	n/a
Impairment charges	(1.3)	(4.8)	n/a
Restructuring expenses	(0.2)	(0.1)	n/a
Including special items	**124.3**	**378.7**	**205%**

Operating profit increased to €219.5 million (excluding patent litigation & arbitration settlement) from €124.3 million in 2018, resulting in an operating profit margin of 19.5% (2018: 15.2%).

Impairment charges in 2019 and 2018 related to capitalized development expenditures and assets.

FINANCING COSTS

Financing costs mainly reflect translation results. A substantial part of our cash position is denominated in US dollars.

RESULTS FROM INVESTMENTS

Results from investments, which primarily reflect our shareholding in ASMPT, decreased to €18.0 million from €60.8 million in 2018. These results exclude the amortization of intangible assets related to ASMPT. During the year, our stake in ASMPT decreased slightly from 25.33% to 25.19%.

Total sales as reported by ASMPT decreased by 19% to US$2.0 billion in 2019. Sales of the Back-end equipment business decreased 24% in 2019. Sales of SMT Solutions decreased by 13% for the full year, and Materials decreased 18%. ASMPT decreased gross margins from 38.0% to 34.8% in 2019. On a 100% basis ASMPT decreased net profits by 21%. For further information on ASMPT, please visit the website www.asmpacific.com.

INCOME TAX

The income tax expense of €53.7 million (2018: €15.4 million) reflects an effective tax rate of 14% (2018: 9.0%). The increase of the effective tax rate is due to the complete utilization of the net operating losses in the Netherlands. For further information on tax, see Note 22 to the consolidated financial statements.

NET EARNINGS

Net earnings developed as follows:

(EUR million)	Year ended December 31, 2018	2019	Change
Front-end:			
Before special items	**110.2**	**170.5**	**60.3**
Patent litigation & arbitration settlement		159.2	159.2
Impairment charges	(1.3)	(4.8)	(3.5)
Restructuring expenses	(0.2)	(0.1)	0.1
Total	**108.7**	**324.8**	**216.1**
Back-end:			
Investment in ASMPT	60.8	18.0	(42.8)
Amortization other intangible assets from purchase price allocation	(12.3)	(13.8)	(1.5)
Total	**48.4**	**4.2**	**(44.2)**
Net earnings from operations	**157.1**	**329.0**	**171.9**

STATEMENT OF FINANCIAL POSITION

Working capital at December 31, 2019 was €160.2 million (2018: €202.7 million). Working capital consists of: inventories, accounts receivable, other current assets, accounts payable, provision for warranty and accrued expenses and other payables. The number of outstanding days of working capital, measured against quarterly sales, decreased from 72 days at December 31, 2018 to 36 days at December 31, 2019.

LIQUIDITY

Our liquidity is affected by many factors, some of which are related to our ongoing operations while others are related to the semiconductor and semiconductor equipment industries, and to the economies of the countries in which we operate. Although our cash requirements fluctuate based on the timing and extent of these factors, we believe that cash generated by operations, together with the liquidity provided by our existing cash resources and our financing arrangements, will be sufficient to fund working capital, capital expenditures and other ongoing business requirements for at least the next twelve months.

On December 31, 2019, our principal sources of liquidity consisted of €498 million in cash and cash equivalents and €150 million in undrawn bank lines.

For the most part, our cash and cash equivalents are not guaranteed by any governmental agency. We place our cash and cash equivalents with high-quality financial institutions to limit our credit risk exposure.

CASH FLOW

The following table shows the cash flow statement:

(EUR million)	2018	2019
Net earnings from operations	**157.1**	**329.0**
Adjustments to cash from operating activities:		
Depreciation, amortization and impairments	55.4	78.3
Income tax	15.4	53.7
Share in income of investments in associates	(48.4)	(4.2)
Share-based compensation	8.2	10.5
Non-cash financing costs	(0.1)	5.5
Changes in other assets and liabilities:		
Accounts receivable	(9.2)	(23.9)
Inventories	(23.0)	3.1
Evaluation tools	(23.0)	(13.7)
Accounts payable and accrued expenses	48.8	81.1
Other assets	(25.0)	(24.3)
Income tax paid	(19.5)	(6.2)
Net cash from operating activities	**136.8**	**488.9**
Capital expenditures (net)	(63.3)	(48.7)
Capitalized development expenditure	(49.7)	(60.2)
Purchase of intangible assets	(1.1)	(2.3)
Dividend received from associates	29.1	32.0
Net cash used in investing activities	**(84.9)**	**(79.2)**
Payment of lease liabilities	–	(12.0)
Purchase treasury shares	(355.0)	(99.9)
Proceeds from issuance of treasury shares	4.8	6.8
Dividend paid to shareholders ASMI	(43.6)	(99.3)
Capital repayment	(208.8)	(1.1)
Net cash used in financing activities	**(602.6)**	**(205.7)**
Foreign currency translation effect	**0.1**	**8.0**
Total net cash provided / (used)	**(550.6)**	**212.0**

We generated cash from operating activities of €488.9 million in 2019 (2018: €136.8 million). We used €79.2 million cash in investing activities (2018: €84.9 million) and used €205.7 million (2018: €602.6 million) in financing activities.

DEBT

We were debt-free as of December 31, 2019.

The original maturity date of the credit commitment was December 16, 2021 and in 2018 and in 2019 we exercised the options to extend the date by one year. This means that the maturity date of the credit commitment of €150 million is now December 16, 2023. As per December 31, 2019, this facility was undrawn.

The credit facility of €150 million includes two financial covenants:

- Minimum consolidated tangible net worth; and
- Consolidated total net debt/total equity ratio.

These financial covenants are measured twice each year, on June 30 and December 31. We were in compliance with these financial covenants as per December 31, 2019.

See Notes 11, 16, and 17 to the consolidated financial statements for more on our funding, treasury policies and our long-term debt.

ASMPT

The assembly and packaging segment of our business is organized in ASM Pacific Technology Ltd (ASMPT). Net cash of our 25.19%-owned associate was €264.9 million on December 31, 2019. The cash resources and borrowing capacity of ASMPT are not available to our wafer processing equipment segment.

Although two directors of ASMPT are directors of ASMI, ASMPT is under no obligation to declare dividends to shareholders or enter into transactions that are beneficial to us. As a substantial shareholder, we can participate in the shareholders' approval of the payment of dividends, but cannot compel their payment or size. Cash dividends received from ASMPT during 2019 and 2018 were €32.0 million and €29.1 million, respectively.

The market value of our 25.19% investment in ASMPT was approximately €1,273 million as per December 31, 2019.

FINANCIAL RISK FACTORS

We are exposed to market risks (including foreign exchange rate risk), credit risk, liquidity risk, and equity price risk. We may use forward exchange contracts to hedge foreign exchange risk. We do not enter into financial instrument transactions for trading or speculative purposes. See Note 17 to the consolidated financial statements for financial risk factors.

OUTLOOK

We have developed forecasts and projections of cash flows and liquidity needs for the upcoming year. These take into account the current market conditions, reasonable possible changes in trading performance based on such conditions, and our ability to modify our cost structure as a result of changing economic conditions and sales levels. In the forecasts, we have also taken into account: the total cash balances amounting to €498 million on December 31, 2019; the ability to renew debt arrangements and to access additional indebtedness; and whether or not we will comply with our financial covenants. Based on this, we believe that our cash on hand at the end of 2019 is adequate to fund our operations, and our investments in capital expenditures and to fulfill our existing contractual obligations for the next twelve months.

SHARE INFORMATION

On December 31, 2019, the total number of issued common shares of ASMI amounted to 51,297,394 compared to 56,297,394 at year-end 2018. The decrease was the result of the cancellation of 5 million treasury shares that was approved by the Annual General Meeting of Shareholders (AGM) on May 20, 2019, and became effective on July 23, 2019.

	2018	2019
As per January 1:		
Issued shares	62,297,394	**56,297,394**
Treasury shares	6,157,241	**6,978,496**
Outstanding shares	**56,140,153**	**49,318,898**
Changes during the year:		
Cancellation of treasury shares	6,000,000	**5,000,000**
Share buybacks	7,242,734	**950,902**
Treasury shares used for share based performance programs	421,479	**498,224**
As per December 31:		
Issued shares	56,297,394	**51,297,394**
Treasury shares	6,978,496	**2,431,174**
Outstanding shares	49,318,898	**48,866,220**

On December 31, 2019, we had 48,866,220 outstanding common shares excluding 2,431,174 treasury shares. This compared to 49,318,898 outstanding common shares and 6,978,496 treasury shares at year-end 2018. Besides the cancellation of 5 million treasury shares in July 2019, the change in the number of treasury shares in 2019 was the result of approximately 951,000 repurchased shares and approximately 498,000 treasury shares that were used as part of share based payments.

On December 31, 2019, 48,583,340 of the outstanding common shares were registered with our transfer agent in the Netherlands, ABN AMRO Bank NV; and 282,880 were registered with our transfer agent in the United States, Citibank, NA, New York.

On February 25, 2020, ASMI announced that it will propose to the AGM 2020 the cancellation of 1.5 million treasury shares, as the number of 2.4 million treasury shares held at that date was more than sufficient to cover our outstanding options and restricted/performance shares.

MARKET CAPITALIZATION

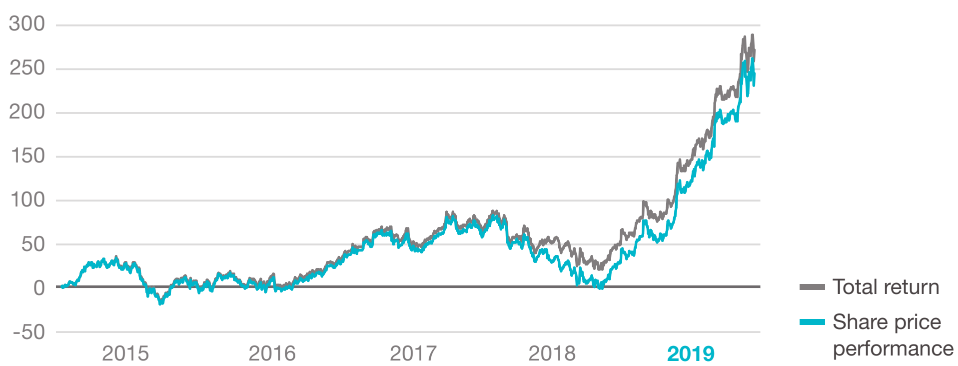
The market capitalization of ASMI at year-end 2019 was €4,894 million, based on the closing share price of €100.15 at Euronext Amsterdam on December 31, 2019 and 48.9 million total outstanding shares per year-end. The market capitalization at year-end 2018 was €1,785 million.

SHARE PERFORMANCE

On December 31, 2019, the closing price of ASMI's shares on Euronext Amsterdam was €100.15. The highest closing price during the year was €104.40, on November 15, 2019, and the lowest was €33.96, on January 3, 2019. The average daily trading volume of ASMI shares on Euronext Amsterdam in 2019 was 224,790. This compares to an average daily volume of 266,960 in 2018. Euronext Amsterdam accounted for approximately 54% of total trading in ASMI shares in 2019.

The graph below shows the performance of ASMI's shares on Euronext. The total share return in this graph is the performance of the share including dividends paid and capital returned over the period.

SHARE PRICE PERFORMANCE AND TOTAL SHARE RETURN in %



Following the voluntary delisting from Nasdaq in 2015, our NY Registry Shares have been eligible for trading on the over-the-counter (OTC) market in the United States under the symbol ASMIY. Information on the trading and share price of our shares on the OTC Market in the United States can be found on www.otcmarkets.com.

SHAREHOLDER RETURNS

Over time, we have returned significant amounts of cash in different forms to our shareholders, reflecting our policy to use excess for the benefit of our shareholders. In 2019, we returned approximately €200 million to our shareholders in the form of dividends and share buybacks. During 2018, we returned approximately €607 million to shareholders in the form of dividends, share buybacks, and the capital return that was paid in July 2018. During the last three years, we returned more than €1.0 billion in cash to shareholders.

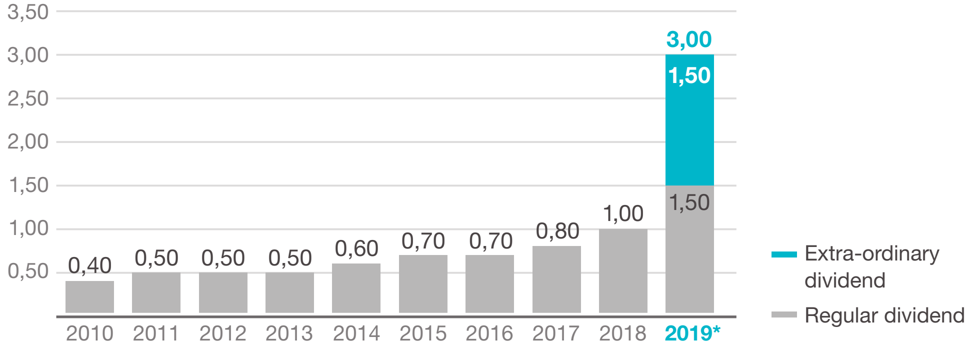
DIVIDENDS

ASMI aims to pay a sustainable annual dividend. Annually, the Supervisory Board, upon proposal of the Management Board, will assess the amount of dividend that will be proposed to the Annual General Meeting of Shareholders (AGM). The decision that a dividend be proposed to the AGM will be subject to the availability of distributable profits as well as retained earnings and may be affected by our potential future funding requirements. Accordingly, dividend payments may fluctuate and could decline or be omitted in any year.

The proposed dividend for 2019 will mark the tenth consecutive year that ASMI has paid a dividend. Our dividend has steadily increased over time. Over 2011, 2012 and 2013, we paid a dividend of €0.50 per common share. The dividend increased to €0.60 over 2014, €0.70 over 2015 and 2016, €0.80 over 2017 and €1.00 per common over 2018.

ASMI announced on February 25, 2020, that it would propose to the forthcoming Annual General Meeting of Shareholders (AGM) 2020, to declare a regular dividend of €1.50 per common share over 2019. The regular dividend increases 50% compared to the dividend paid over 2018. After the payment of the interim dividend of €1.00 per common share on November 12, 2019, the remaining regular dividend payment will be €0.50 per common share. As part of its commitment to use excess cash for the benefit of its shareholders, ASMI will also propose to the forthcoming AGM 2020 to declare an extra-ordinary dividend of €1.50 per common share. This will bring the total dividend paid to shareholders over 2019 to €3.00 per common share.

DIVIDEND PER SHARE IN EUR PAID OVER



* Proposed full year 2019 dividend, of which €1 per share was already paid in the form of an interim dividend in November 2019

DIVIDEND TIMETABLE

- Ex-dividend date shares Euronext and OTC US: May 20, 2020
- Record date May 21, 2020
- Payment date May 28, 2020

SHARE BUYBACK

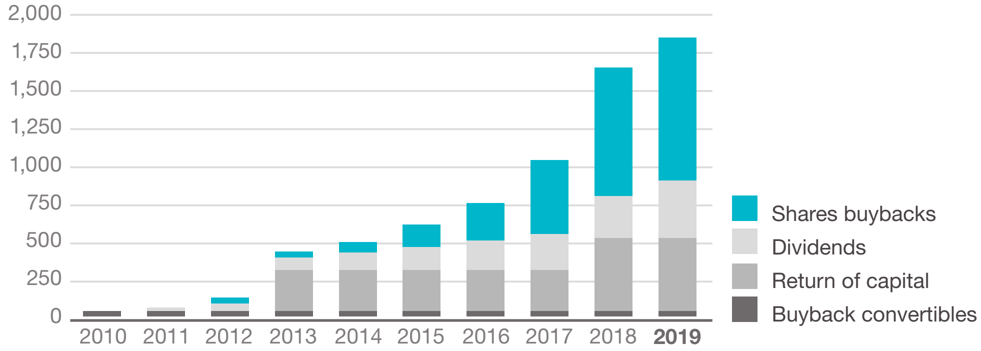
ASMI announced on February 25, 2020, that its Management Board authorized a new repurchase program of up to €100 million of the Company's common shares within the 2020 time frame. This buyback program will be executed by intermediaries and will end as soon as the aggregate purchase price of the common shares acquired by ASMI has reached €100 million. This repurchase program is part of ASMI's commitment to use excess cash for the benefit of its shareholders.

On February 17, 2020, ASMI completed its €100 million share buyback program 2019-2020. The authorization of this program was announced on July 23, 2019, and the program started on November 1, 2019. In total, 984,279 shares were repurchased at an average price of €101.60, under the 2019-2020 program.

The 2020 program is the seventh consecutive share buyback program. Next to the 2019-2020 program the earlier programs included:

- On June 5, 2018, ASMI announced the start of a share buyback program of ASMI's common shares up to €250 million. This program followed on ASMI's announcement on February 28, 2018, that it intended to use €250 million of the proceeds of the partial sale of a stake of approximately 9% in ASMPT for a new share buyback program. The 2018 program started on June 6, 2018, and ended on October 11, 2018. In total, 5,443,888 shares were repurchased at an average price of €45.92, including expenses, under the 2018 program;
- On April 24, 2017, ASMI announced that that the proceeds of approximately €248 million of the partial secondary placement of shares of ASMPT were intended to be used for a new share buyback program. The 2017-2018 €250 million program started on September 22, 2017, and ended on March 29, 2018. In total, we repurchased 4,353,292 shares at an average price of €57.43, including expenses, under this program;
- The €100 million share buyback program 2016-2017 that was announced on October 26, 2016 – initially for an amount of €50 million – and was increased to €100 million as announced on March 2, 2017. This program started on December 13, 2016 and was completed on August 31, 2017. Under the 2016-2017 share buyback program 1,997,522 shares were repurchased at an average price of €50.06;
- The €100 million share buyback program 2015-2016 that was announced in October 2015. This program started on November 26, 2015 and was completed on November 11, 2016. Under the 2015-2016 share buyback program 2,772,729 shares were repurchased at an average price of €35.98; and
- The €100 million share buyback program 2014-2015 that was announced in October 2014. This program started on November 24, 2014 and was completed on May 20, 2015. In total, 2,594,420 shares were repurchased at an average price of €38.55, for an amount of €100 million, under this program.

CUMULATIVE CASH RETURNED TO MARKET EUR million



CAPITAL REPAYMENT

In addition to the regular dividend, on August 10, 2018, ASMI distributed €4.00 per common share to its shareholders through a tax efficient repayment of capital. The proposal for this capital repayment was initially announced on February 28, 2018, and approved by the AGM 2018.

In July 2013, ASMI distributed €4.25 per ordinary share to its shareholders. This followed on the sale of 12% of the total shares in ASMPT in March 2013. The extraordinary return of capital in 2013 was in addition to the dividend paid that year.

MAJOR SHAREHOLDERS

Pursuant to the Dutch Financial Supervision Act (Wet op het financieel toezicht or WFT), legal entities as well as natural persons must immediately notify the Dutch Authority for the Financial Markets (AFM) when a shareholding equals or exceeds 3% of the issued capital. The AFM must be notified again when this shareholding subsequently reaches, exceeds or falls below a threshold. This can be caused by the acquisition or disposal of shares by the shareholder or because the issued capital of the issuing institution is increased or decreased. Thresholds are: 3%, 5%, 10%, 15%, 20%, 25%, 30%, 40%, 50%, 60%, 75%, and 95%. The AFM incorporates the notifications in the public register, which is available on its website. Failure to disclose the shareholding qualifies as an offense, and may result in civil penalties, including suspension.

The following table sets forth information with respect to the ownership of our common shares as of February 1, 2020, by each beneficial owner known to us of more than 3% of our common shares:

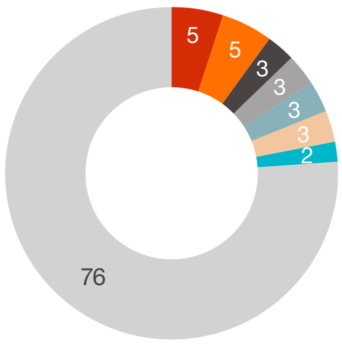
	Number of shares	Percent [1]	Number of voting rights	Percent [1]
ASM International N.V. [2]	2,453,763	4.8%	–	–
Tokyo Electron Ltd. [3]	2,699,000	5.3%	2,699,000	5.3%
Invesco Limited [4]	2,560,526	5.0%	2,328,398	4.5%
Norges Bank [5]	1,686,836	3.3%	1,686,836	3.3%
Schroders Plc [6]	2,370	–	1,545,628	3.0%
BlackRock, Inc [7]	1,539,309	3.0%	1,630,952	3.2%
JP Morgan Asset Management Holdings Inc. [8]	1,652,994	3.2%	1,621,051	3.2%
Acadian Asset Management LLC. [9]	1,584,172	3.1%	825,936	1.6%

1 Calculated on the basis of 51,297,394 issued common shares as of January 31, 2020, and without regard to options.
2 On January 31, 2020, ASMI held 2,453,763 ordinary shares in treasury. Treasury shares held by the Company cannot be voted on.
3 All of the 2,699,000 shares capital interest and voting rights of Tokyo Electron Ltd are held directly actual. Based on the notification filed with the AFM on July 1, 2013.
4 All of the 2,560,526 shares capital interest and 2,328,398 voting rights of Invesco Limited are held indirectly actual. Based on the notification filed with the AFM on November 15, 2019.
5 All of the 1,686,836 shares capital interest and voting rights of Norges Bank are held directly actual. Based on the notification filed with the AFM on January 6, 2020.
6 Schroder Plc's capital interest amounts to 2,370 shares held indirectly potential. Of the voting rights, 1,543,258 are held indirectly actual and 2,370 indirectly potential. Based on the notification filed with the AFM on December 6, 2019.
7 Of BlackRock, Inc.'s capital interest 24,134 shares are held indirectly potential and 1,515,175 shares are held indirectly actual, of the voting rights 25,345 are held indirectly potential and 1,605,607 indirectly actual. Based on the notification filed with the AFM on October 1, 2019.
8 JP Morgan Asset Management Holdings Inc. has a capital interest of 1,652,994 shares held indirectly actual and voting rights of 1,621,051 shares held indirectly actual. Based on the notification filed with the AFM on November 29, 2019.
9 All of the 1,584,172 shares capital interest and 825,936 voting rights of Acadian Asset Management LLC. are held directly actual. Based on the notification filed with the AFM on August 20, 2019.

A 'beneficial owner' of a security includes any person who, directly or indirectly, through any contract, arrangement, understanding, relationship, or otherwise has or shares (i) voting power which includes the power to vote, or to direct the voting of, such security and/or (ii) investment power which includes the power to dispose, or to direct the disposition, of such security. In addition, a person shall be deemed to be the beneficial owner of a security if that person has the right to acquire beneficial ownership of such security, as defined above, within 60 days, including but not limited to any right to acquire: (i) through the exercise of any option, warrant or right; (ii) through the conversion of a security; or (iii) pursuant to the power to revoke, or pursuant to the automatic termination of, a trust, discretionary account, or similar arrangement.

The graph below provides an overview of the shareholders' structure.

VOTING RIGHTS ASMI in %



KEY FIGURES PER SHARE

The table below shows the key figures per share and other relevant share data for the last three years.

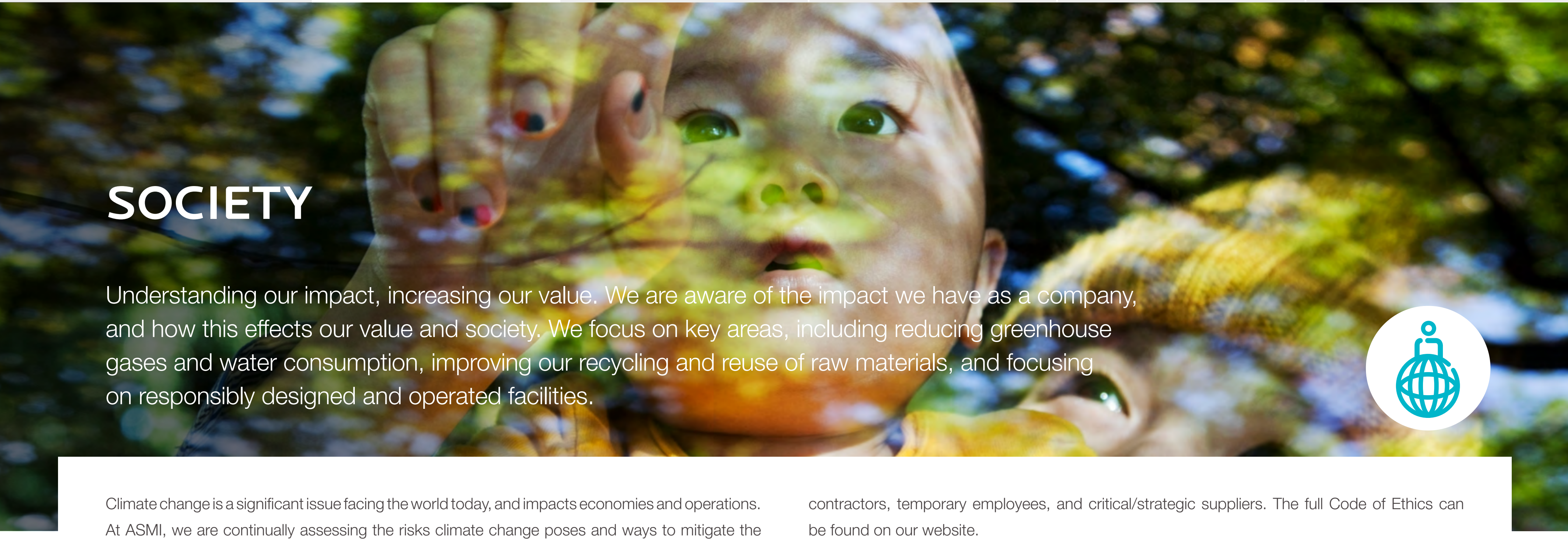
(EUR, except number of shares)	2017	2018	2019
Net earnings per share, diluted	7.63	2.96	6.58
Normalized net earnings per share, diluted	3.21	3.19	6.86
Dividend per share paid out	0.70	0.80	2.00
Shareholders' equity per share	35.83	33.28	37.22
Issued shares year-end (thousand)	62,297	56,297	51,297
Outstanding shares year-end (thousand)	56,140	49,319	48,866
Average outstanding shares basic (thousand)	58,573	52,432	49,418
Average outstanding shares diluted (thousand)	59,325	53,110	49,999
Closing share price Euronext Amsterdam			
Year-end	56.37	36.20	100.15
High	62.27	62.62	104.40
Low	42.07	33.90	33.96
Market capitalization year-end (EUR million)	3,165	1,785	4,894

OPEN DIALOG AND TIMELY INFORMATION

We maintain an open dialog with our shareholders and investors. We provide the financial markets with accurate and timely information through, among other things, press releases, our annual reports, quarterly earnings calls and webcasts and investor meetings. Investors can find up-to-date and comprehensive information about the company and our shares on our website.

VICTOR BAREÑO

Almere, the Netherlands
T: +31 88 100 8500
E: victor.bareno@asm.com



SOCIETY

Understanding our impact, increasing our value. We are aware of the impact we have as a company, and how this effects our value and society. We focus on key areas, including reducing greenhouse gases and water consumption, improving our recycling and reuse of raw materials, and focusing on responsibly designed and operated facilities.

Climate change is a significant issue facing the world today, and impacts economies and operations. At ASMI, we are continually assessing the risks climate change poses and ways to mitigate the risks. We set targets and objectives to reduce our impact on the environment. We evaluate the associated risks and are developing mitigation steps and ways to positively contribute to global strategies to combat climate change. For example, we are evaluating our renewable energy portfolio, and developing steps that we can take to reduce our associated emissions. We are looking to the future for our next set of environmental targets and objectives, and working to strengthen their alignment with global initiatives such as the UN Sustainable Development Goals (SDGs). Our Environmental policy is a key element of our Corporate Responsibility policy. It establishes our commitment to reduce our environmental impact by continuously improving our management systems and setting the right objectives. We continuously assess the range of aspects we need to identify, and set improvement targets on the most important impacts.

ETHICS

The company has adopted a Code of Ethics that sets out clear standards in different areas of business life. Its purpose is to promote a clear, strong, and consistent culture of ethics that applies to our Supervisory Board and Management Board, and to all our employees, consultants, contractors, temporary employees, and critical/strategic suppliers. The full Code of Ethics can be found on our website.

SPEAKING UP

The SpeakUp! program enables employees, suppliers, customers, and any other stakeholder to report ethics issues, concerns or complaints anonymously and in their own language. Potential violations of our Code of Ethics can be reported through the SpeakUp! process, or directly to management, HR, or the Compliance Officer. When we receive complaints, these are investigated under the supervision of the Ethics Committee. Independent of the way of reporting, our Code of Ethics includes a non-retaliation policy that applies to any person making use of this process.

Under the governance of our Ethics Committee, which reports to the Management Board, we continually track our performance against our goals and improve our ethics management system and performance. We continue to strive for zero ethics violations. In 2019, five concerns were reported through our SpeakUp! system, while two cases were reported via other channels to the Ethics Committee. All incidents were fully investigated and, in those cases involving violations to our Code of Ethics, appropriate actions were taken according to internal policies. The Ethics Committee reviewed all cases and approved the measures taken.

GLOBAL EMPLOYMENT STANDARDS

Our Global Employment Standards (GES) also summarize our approach to respecting human rights throughout our global operations and supply chain. They are written with everyone in our value chain in mind. The GES reflect the principles laid out by the United Nations in the Guiding Principles on Business and Human Rights, and support the RBA Code of Conduct framework, including the following:

- Prohibit the use of forced or involuntary labor, including fees of any type to secure employment;
- Prohibit the employment of child labor; ASMI policy specifically does not allow anyone under the age of 18 to be employed at ASMI; and
- Prohibit corporal punishment, threats of violence or other forms of physical or verbal coercion or harassment. We believe that everyone deserves to work in an environment free of any threats to their human rights.

In 2019, we had no reports or evidence of any human rights violations or abuses within our global hiring or employment practices.

LIVING WAGE

ASMI recognizes the importance of the discussion around Living Wage, and the applicability across ASMI's global operations and supply chain. As stated in our Global Employment Standards, ASMI is committed to comply with all applicable wage and hour laws, regulations and collective labor agreements, including those relating to minimum wages. In 2019, ASMI paid at least the local minimum wage to its employees and committed that our wages exceed living wage guidance where available.

In addition, ASMI actively engaged with outside organizations to benchmark Living Wage best practices and participated in an RBA workshop that explored application of the Anker Methodology, auditability, and practical application in a complex supply chain.

PRIVACY

The data (person identifiable information) about our employees is data we protect with care. We do so in all countries in which we operate with the absolute aim to comply with the local legal requirements. In this respect we have adopted and rolled out policies and privacy codes, and entered into agreements (also with third party processors) in our effort to protect the integrity and confidentiality of the data of our employees. The same is applicable with respect to the privacy of our customers and suppliers.

ENVIRONMENTAL FOOTPRINT

In 2016, we initiated a five-year target cycle for reducing our environmental footprint in key areas that are applicable to our business and aligned with industry standards, including the Sustainability Accounting Standards Board (SASB) standards for the semiconductor industry. In reference to science-based targets, we have normalized our greenhouse gas (GHG) emission reduction and our water consumption reduction objectives to our research and development (R&D) spend. Our R&D operations are responsible for a majority of the utility consumption through equipment installations and supporting facility infrastructure, accounting for more than 75% of electrical consumption and almost 80% of water consumption. In 2018 we significantly surpassed our 2020 water consumption objective, and reset the objective to further challenge ourselves. Our environmental targets for 2016-2020 are now:

1. Reduce greenhouse gas emissions by 5% per euro of research and development (R&D) investment below 2015 levels by 2020;
2. Reduce water consumption by 45% (up from 10%) per euro of R&D investment below 2015 levels by 2020;
3. Divert more than 90% of all waste from landfill through recycle or reuse by 2020; and
4. All new construction projects to exceed the energy efficiency standards of local jurisdictions.

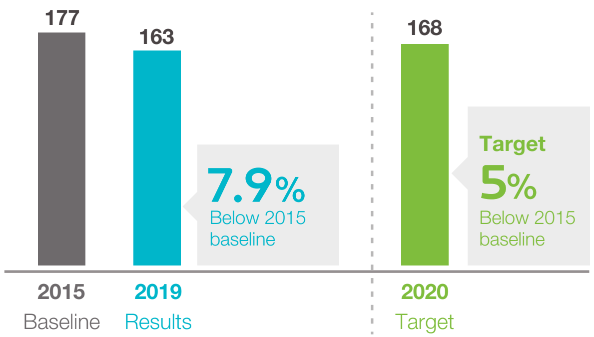
These targets are aligned with key initiatives across our business, and is consistent with and managed within our environmental management system which is certified to the ISO 14001 standard. They are in support of UN Sustainable Development Goals (SDGs) 12-Responsible Consumption and Production, and 13-Climate Change. Our investment in new and more sustainable facilities contributes to SDG 8-Decent Work and Economic Growth.

Over 95% of our realized greenhouse gas emissions are a direct result of Scope 2 purchased electricity. We strive to find ways to reduce our electrical consumption and source power responsibly at our engineering and manufacturing sites. We report progress through annual participation in the CDP Report.

Our primary use of water is in the treatment and abatement of R&D process gases. Our efforts to reduce our water consumption needs to balance with the efficiency to abate potential air emissions and compliant with the statutory air emissions limits in the areas in which we operate. All of our engineering labs are supported with the proper abatement equipment, and are connected to water reclaim/reuse systems to help minimize water consumption.

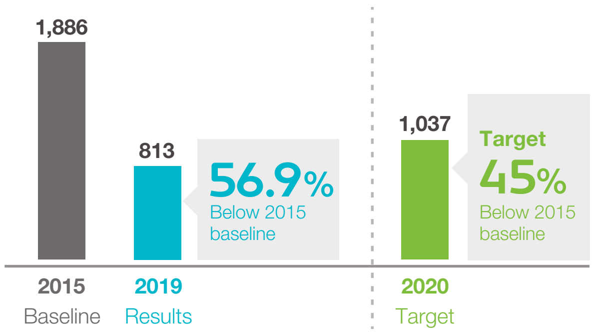
ENVIRONMENT

GREENHOUSE GAS (GHG) EMISSIONS (per R&D investment)



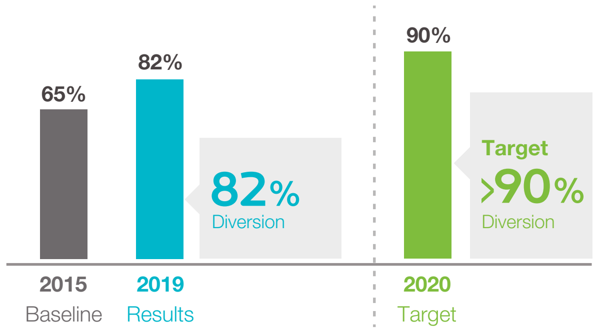
Figures are $mtCO_2e$/R&D investment EUR millions

WATER CONSUMPTION (per R&D investment)



Figures are m^3/R&D investment EUR millions

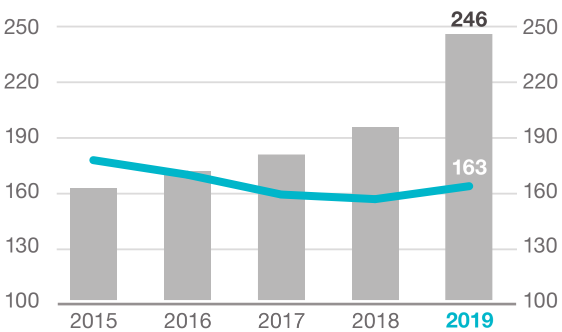
LANDFILL DIVERSION RATE



Figures are percent solid waste landfill diversion

GREENHOUSE GAS (GHG) EMISSIONS

(Absolute and normalized per R&D investment)

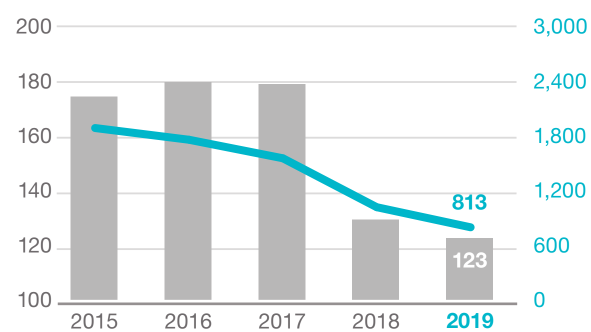


Absolute Greenhouse Gas emissions ($mtCO_2e$ - Scope 1 + 2, x100)

$mtCO_2e$/million EUR R&D spend

WATER CONSUMPTION

(Absolute and normalized per R&D investment)

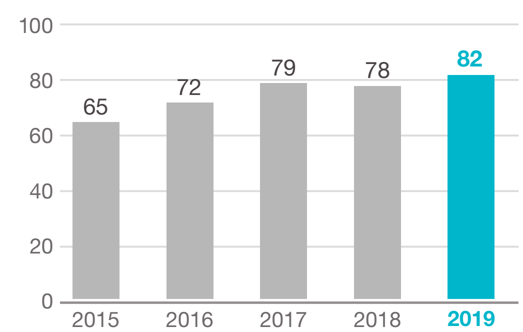


Absolute water consumption (m^3, x1,000)

m^3/million EUR R&D spend

LANDFILL DIVERSION RATE

(in %)



We focused our efforts to reduce the landfill of solid waste through the implementation of a crate reuse program, which is reviewed in the Corporate Responsibility section of this report relative to circularity. By implementing a reuse program between ASMI, customers and suppliers, we are able to reduce the one-time use of this packaging, often resulting in large crates being used multiple times.

REUSE OF SHIPPING PACKAGING

Our new manufacturing operations under construction in Singapore, and targeted for a summer 2020 opening, is being built to the BCA Green Mark Gold Plus certification standard.

In 2019, there were no material changes to our current operations that alter the way we interface with the ecosystem or manage our on-site surface water at our existing sites. We conduct an impact assessment for every new project, and strive to minimize identified potential impacts, such as through erosion protection, surface water containment, abatement technologies, and water resource management. Our focus and data collection for environmental measures is ongoing, and we maintain a process with individual site accountability for data accuracy. This means employees who are close to the operations and understand the inputs and outputs are also responsible for maintaining the data on a monthly basis. This helps ensure not only accuracy, but the ability to quickly identify opportunities and risks.

2019 is year four in our five-year environmental performance improvement cycle (from 2016-2020). We have sustained and continue to improve on the progress from 2017, exceeding the five-year objectives in both normalized greenhouse gas (GHG) emissions and water consumption. We strive to sustain the progress through 2020 with our new, larger facilities in South Korea (opened 2019, for R&D and Manufacturing) and Singapore (opening 2020, for Manufacturing) coming on-line.

As we grow our R&D operations, our absolute electrical consumption has increased. However, we reduced our absolute water consumption significantly after the successful implementation of a water reuse plant in Phoenix, leading to a 35% absolute reduction in Phoenix. In addition to reducing our environmental impact, this project positively impact to ASMI financially, with a return on investment of two years. Although ASMI continues to grow, we have chosen to reset our water target to 45% reduction globally by 2020 from the 2015 baseline. We achieved 45.4% reduction by 2018, however with further growth and expansion at multiple sites, we foresee it will be a challenge to sustain this through 2020 and thus feel it is the right objective to set. GHG emission and water consumption values reported are based on utility receipts for ASMI Environmental Management System sites. The uncertainty in the reported information is less than 10% due to shared utility arrangements at some of our leased sites.

Some initiatives that contributed to the progress toward the normalized objectives in 2018 include:

- Water - Expansion of integration of water reuse plant with existing operations/equipment;
- GHG - Continued conversion to LED lighting globally;
- In Tokyo, we have completed the conversion of all office spaces in 2019;
- In Singapore, all warehousing lighting conversion completed; and
- GHG - Replacement of company vehicles with hybrid vehicles in Tokyo.

In 2020, we will open a new facility in Singapore meeting the BCA Gold Plus Standard. This is a building energy and environmental design standard, and is above the basic requirements of design currently required in Singapore.

Our landfill diversion slightly improved in 2019 (relative to 2018). In 2019, the product shipping container reuse program led to reduction in raw materials needed at our Singapore operations, and ultimately contributed to approximately a 20% increase in reused container tonnage. This reuse directly reduced the tons that would previously have been sent to landfill/waste management.

CLIMATE CHANGE

Climate change is a significant issue facing the world today, and has the potential to impact economies and operations. At ASMI, we are continually assessing the risks climate change poses and ways to mitigate the risks. We set targets and objectives to reduce our impact on the environment. We evaluate the associated risks and are developing mitigation steps and ways to positively contribute to global strategies to combat climate change. For example, we are evaluating our renewable energy portfolio, and developing steps that we can take to reduce our associated emissions. We are looking to the future for our next set of environmental targets and objectives, and working to strengthen their alignment with global initiatives such as the UN Sustainable Development Goals (SDGs).

ENERGY TRANSITION

At ASMI we acknowledge our role in the efforts to limit the global average temperature increase. We recently changed to all renewable electricity at our Almere Corporate Headquarters, and are progressively working a plan to increase our renewable energy at other locations. We will continue this switch and search for other ways to contribute to the energy transition.

CIRCULAR ECONOMY

We recognize the inherent value of a circular economic framework for product stewardship. We partner with customers in the deployment, operation, and ongoing maintenance of our equipment and processes in their facilities. We develop system improvements and offer upgrades to improve deposition performance, yield, and productivity, and refurbishment services to extend the useful working life of the equipment. We refurbish and redeploy products and are piloting a process to recover and reuse product shipment packaging materials. As a first step, ASMI focused packaging reuse efforts on new product development and identified reuse opportunities with contract manufacturers in-region to practically evaluate the feasibility. We piloted the process in 2018 and then grew the program to include 5 product platforms in 2019 including example new product packaging displayed below. Through reuse of shipping packaging we were able to successfully avoid more than 25 tons of packaging waste this year. We believe this is just the start and look forward to extending the program to additional products and our customers. Such processes and practices are consistent with a circular economic product model to increase the value, performance, and the working life of ASMI's products and services.

CONFLICT MINERALS AND HUMAN RIGHTS

Conflict minerals are those minerals mined in the Democratic Republic of Congo (DRC) or adjoining countries. Profits from the sale of these minerals may directly or indirectly benefit those involved in rebel conflicts and human rights violations. These minerals and the metals created from them – tin, tantalum, tungsten, and gold – can make their way into the supply chains of products used around the world, including the semiconductor industry. As a responsible member of the global community, we have a strong commitment to preventing human-rights violations.

OUR APPROACH

Our Conflict Minerals Policy communicates our commitment to responsible sourcing. To enforce this policy, we developed, and have been executing our supply chain Conflict Minerals due diligence process annually since 2014 (ASM conflict minerals policy).

We joined and participate in the widely-recognized Responsible Minerals Initiative (RMI). The RMI brings together the electronics, automotive, and other industries to jointly improve conditions in the extractives industry (www.conflictfreesourcing.org).

Our programs focus on communicating our policy, training and surveying our critical suppliers, and collecting supply chain sourcing information on the sources of tin, tantalum, tungsten and gold (3TG) using the industry-standard RMI template, known as the Conflict Minerals Reporting Template (CMRT). We actively engage with critical suppliers and conduct due diligence based on OECD guidance.

OUR PERFORMANCE MANAGEMENT AND GOAL

We encourage all of our suppliers to source 3TGs responsibly, and to use certified conflict-free smelters using recognized certification organizations. Our goal is to trace all of our critical and strategic suppliers and ensure they are using only certified conflict-free smelters, and that our sourcing funds do not finance conflict in the covered countries.

After we complete our due diligence survey, we carry out detailed data verification and analysis with identified smelters, from whom our suppliers source. This process establishes traceability to the smelters and confirms that the smelters identified are on the validated conflict-free smelters (CFS) list published by the RMI. This helps us ensure that the products and components we source are DRC mineral conflict-free.

COMPLIANCE

We are committed to the RBA Code of Conduct, including its commitment to conflict-free sourcing, and will continue our active participation and contribution to the RMI and our engagement with other relevant stakeholders. These include the European Parliament and other international NGOs through our engagement with CFSI. Current information on the due diligence process and our policy can be found on our website in the supply chain section under corporate responsibility. In 2021, the European Union will introduce a regulation establishing supply chain due diligence obligations for importers, based in the EU, of tin, tantalum and tungsten, their ores, and gold originating from conflict-affected and high-risk areas.

COMMUNITY CONNECTION AND WELL-BEING

One of the most important connections we make is with the communities in which we operate. As a global company, we have roots in local communities in Europe, the United States and across Asia. In 2019, we participated in a number of new community efforts. In all cases, we are proud to provide support for programs that are important to our employees and that address important community needs.

CONTRIBUTING TO ZERO HUNGER

CONTRIBUTING TO ZERO HUNGER

In 2019, teams at our Singapore locations, volunteered to help stamp out hunger. The Singapore team contributed to zero hunger by volunteering for the Meals on Wheels program. This charitable cause aims to deliver meals to housebound elderly who are unable to buy and prepare their own meals. The elderly persons, who usually live alone, depend upon volunteers from Touch Home Care's Meals on Wheels to deliver their meals.

CONNECTING TEENS AND TECHNOLOGY

CONNECTING TEENS AND TECHNOLOGY

JetNet aims to inspire children and teenagers to learn more about technology and to stimulate them to consider a technical education and career.

In 2019 we organized a short internship for students showing all aspects of work at ASMI. We showed multiple departments and let them experience all aspects of our business such as engineering/design, but also testing, supply chain management and manufacturing. A number of employees are involved to enthusiast the students about their profession. One of the practical activities was building an optical theremin, to let them experience some technical skills. An optical theremin can play sounds without touching, through a combination of light from the surroundings and shadows, pitch and volume are determined.

CONTRIBUTING TO ZERO THIRST

In the summer, temperatures in Phoenix, Arizona can reach extremely high levels. Under such conditions, people need clean, cool drinking water to stabilize their core body temperature and reduce the risk of dehydration and heat stroke. However, not everyone has access to such an important commodity. So ASM Phoenix employees worked together in the month of July to collect and donate 446 cases of water to members of the elderly and homeless communities in Phoenix. The water drive provided over 17,838 recyclable bottles of water for underserved and at risk persons in our community.

SUPPORTING PEOPLE WITH LIMITED JOB PROSPECTS

As part of our commitment to corporate responsibility, ASMI is exploring ways to increase opportunities for people with a distance to the labor market, and who have limited job prospects due to their health, mental or physical condition.

This initiative is part of the Dutch Prestatieladder Socialer Ondernemen (PSO) program, the Dutch scheme for social entrepreneurship, to encourage employers to make a sustainable contribution to the job market.

2019, the first full year of our 'Aspirant status', we stimulated this target group to apply on several open vacancy's.

We were able to offer a candidate from the target group an open (permanent) position within ASMI.

ASMI will continue making efforts to be an inclusive organization.

SUPPLIERS

ASMI is engaged in manufacturing products of increasing complexity in a challenging business environment, which requires quick responses to customized solutions. A robust supply chain management system, with a diverse scope and global footprint, is necessary to meet our business ambitions. This requires our global supply chain organization to continuously drive operational excellence by employing policies, initiatives, and tools to proactively engage our suppliers to ensure business compliance and continuity.

A DIVERSE GLOBAL SUPPLY CHAIN

Our mission at ASMI is to build a world-class supply chain that provides our customers with the most technologically advanced products, services, and global support network, at a competitive cost of ownership. We partner with hundreds of suppliers who provide goods and services used to manufacture our products and serve our customers. They play a critical role in enabling us to achieve our mission, covering a broad spectrum of commodities across more than 20 countries and regions worldwide. The main categories include contract manufacturers, precision machining, gas systems, robotics, electronics, and high-tech chemistries. These suppliers manufacture advanced materials to stringent tolerances and performance attributes, as required to achieve our design specifications and requirements. This approach enables us to remain innovative and swiftly meet the challenging demands of our customers.

Our supply chain is a critical part of our end-to-end value chain, with our customers and other stakeholders increasingly expecting greater transparency along the entire supply. This includes how our products are manufactured, whether labor standards are upheld, assurance that workers are treated fairly, and reducing the impact our supply chain has on the environment among other requirements.

As part of our supplier management process, we have developed a critical and strategic supplier risk assessment process based upon a multitude of criteria, including the key aspects of Corporate Responsibility. We assess our supply chain annually, and identify our critical and strategic suppliers based on key elements such as, the amount we spend with them, how many similar or alternative suppliers exist, and the amount of time we would need to switch suppliers if we had to.

These critical and strategic suppliers are proactively managed with a comprehensive initiatives program, aimed at driving business compliance, risk management, supply continuity, and performance among other requirements. The best performing suppliers are recognized in our Supplier Day forum which is held annually to communicate and align supply chain goals and objectives.

HOLD CRITICAL SUPPLIERS TO THE SAME STANDARDS

We use the Responsible Business Alliance (RBA) Code of Conduct as our Supplier Code of Conduct, enabling us to extend our commitment and approach to corporate responsibility, and we have established management systems for our critical and strategic suppliers that match the industry-standard supplier assessment process. Having integrated corporate responsibility into

THE DIVERSE NATURE AND COMPLEXITY OF ASMI'S SUPPLY CHAIN SYNERGIS ALD (EXAMPLE):

REPRESENTATIVE COMMODITIES

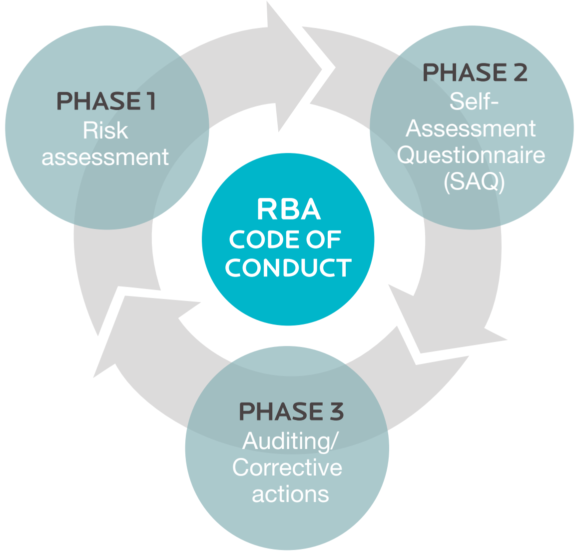
We are making an effort to increase our responsible business commitment with critical/strategic suppliers that acknowledge the RBA Code of Conduct and conduct their business in accordance with those principles. For the Synergis product we achieved an 89.7% spend percentage with those suppliers.

our supply chain management process, we believe that we can create long-term business value and further mitigate supply risk.

We require our critical and strategic suppliers to follow the RBA Code of Conduct to ensure alignment with the policies and expectations of ASMI.

We conduct an assurance process for our critical and strategic suppliers and set objectives for RBA Code acknowledgment, self-assessment, auditing, and corrective action processes that are consistent with RBA requirements.

CRITICAL SUPPLIER CR STRATEGY



We also go beyond the Code to partner with customers to map our contract manufacturer labor sourcing process to prevent forced and bonded labor (FLBL). In 2019 we analyzed the migrant labor sourcing practices of our contract manufacturers. We completed mapping of key strategic suppliers' foreign migrant workforce, including development of action plans where risks may still exist. We are planning to further strengthen supplier engagement with risk assessments and audits.

SUPPLIER EXPECTATIONS

We communicate our expectations and measure conformance to our expectations with our critical and strategic suppliers. This approach manages our supply chain risks by focusing on the areas where a majority of our materials come from and spending occurs.

Our critical and strategic supplier requirements include their commitment to:

- the RBA Code of Conduct;
- ASMI's Corporate Responsibility policy;
- ASMI's Environmental Health and Safety policy;
- ASMI's Code of Ethics;
- ASMI's Intellectual Property policies;
- hazardous materials identification regulations;
- conflict materials identification and disclosure; and
- global trade compliance and export controls.

These requirements are outlined on our public supplier management web page.

INTEGRATED SUPPLIER MANAGEMENT

We believe that building a sustainable supply chain begins with solid business partnerships. Our goal is to find the most capable suppliers in the industry, treat each supplier with respect, and conduct business fairly across all facets of our operations.

By adhering to these principles, we believe we can forge lasting partnerships that will provide long-term benefits to ASMI, our suppliers, our customers, and our stakeholders.

Suppliers who share our vision for an integrated supply chain model routinely demonstrate a commitment to solving our customers' challenges. They understand industry dynamics and recognize the need to partner in developing solutions that improve the overall strength of ASMI.

When faced with a particular opportunity, they will quickly use their industry expertise to highlight opportunities and share recommendations, whether technical, commercial, or environmental. In many cases, these suppliers can call on a wide variety of global industries and disciplines from which to share best practices. By building a strong relationship with our suppliers, we are able to build upon a foundation of experience and rapidly respond to the challenges of our business environment.

RISK ASSESSMENT AND MANAGEMENT

We operate globally and have partnerships with suppliers from more than 20 countries across Asia, North America, and Europe. We place high expectations on our supply chain when it comes to operational flexibility and responsiveness, and together we must be prepared to respond quickly to a wide range of unplanned events. This requires working proactively with our supply chain partners to ensure they are able to assess and manage risks.

Our supply chain risk management process consists of a combination of critical and strategic supplier risk assessments, supplier self-assessments, RBA audits, and training and capability-building activities to help our supply chain be both resilient and responsible.

In addition to the aforementioned RBA Code and SAQ compliance, we actively engage our critical and strategic suppliers to drive:

- business continuity planning;
- financial risk monitoring; and
- strategic business reviews.

Consideration is also given to other suppliers that we are actively developing or that have key capabilities.

SUPPLIER DEVELOPMENT AND PERFORMANCE MANAGEMENT

Keeping pace with Moore's Law means the semiconductor industry is advancing at an impressive rate and placing increasing demands on our products. This means we need to make advances across a number of areas simultaneously, including in material properties, operational capability, manufacturing processes, and capacity management.

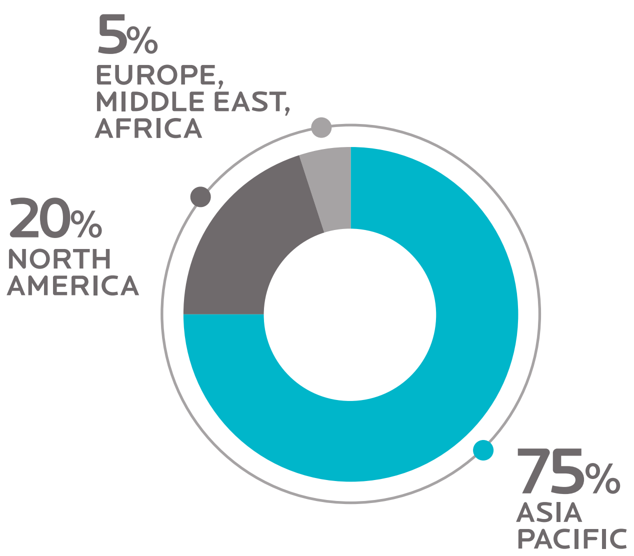
These advances and demands are quickly shared with our supply chain, which means we need to continually evaluate our supplier landscape to partner with those suppliers who have demonstrated the right level of business commitment.

We continue to invest in our own ability to meet these increasing challenges, which includes growing our capabilities and resources in our global procurement organization, inclusive of our supplier development teams. These investments are consistent with our commitment to continuous improvement. As part of our supplier selection and recertification process, our supplier development team performed comprehensive audits, evaluating supplier compliance across a multitude of business elements. In 2019, these audit areas included supplier's employee health and safety, quality management system, ISO compliance, and intellectual property management. During these audits, we had a 93% closure rate on corrective actions.

We are committed to working with each of our suppliers in developing the right technology, operational capability, or investment in capacity. In addition, we are also committed to helping them adhere to our corporate responsibility expectations. For our critical and strategic suppliers, we not only communicate our expectations, we also offer free hosted webinars to help them to understand the code requirements and the measurement methods, and to gradually build up their knowledge to enhance their management systems.

Our supply chain organization has continued the proliferation of our supplier scorecard to evaluate each of our critical and strategic suppliers against a wide range of performance and compliance criteria. Elements such as business compliance, cost, quality, and delivery, are tabulated, analyzed and distributed quarterly. Each supplier's performance is reviewed quarterly between the commodity managers and their key supplier counterparts. In addition to this, semi-annual executive business reviews are held to put action plans together to monitor and address any gaps or key opportunities.

SUPPLY CHAIN SPEND BY REGION



SUPPLY CHAIN EVOLUTION

ASMI continues to make investments throughout the supply chain in both people and business processes. In doing so, our goal is to move further along the continuum of proactively addressing our customer's technology and capacity needs.

The Supplier Development Engineering has also aggressively expanded the process control system (PCS) program within our supply chain since introduction in 2017. Supplier participation increased from 18 in 2018 to 97 suppliers in 2019. With PCS, our suppliers will commit to actively improve their manufacturing process controls and measure the consistency of their products to design specifications.

In April 2019, ASMI embarked in a global program project ASCENT to accelerate our B2B engagement across many facets of supplier engagement, digitizing how we collaborate and optimizing business processes. This two year initiative will significantly improve efficiency and effectiveness of our sourcing activities, procure-to-pay processes, supplier quality management and supplier performance engagement. We are confident this capability will enable ASMI to scale and harmonize our supply chain operations to meet the growing business objectives, with the first module planned to go-live in Q2 2020.

MOVING FORWARD

In 2020, we will continue to make advancements in supplier development, as well as providing support with product design rationalization that will enable us to streamline our key supplier engagements.

We continue to strategically consolidate our spend with key suppliers close to our primary manufacturing locations in Singapore and South Korea and supportive of ASMI compliance policies and effective in delivery to the business needs. Spend with ASMI key suppliers has increased from 67% in 2017, 73% in 2018 to 76% in 2019 and spend with Asia Pacific based suppliers has also increased from 68% in 2018 to 75% in 2019.

Peter A.M. van Bommel
Member of the Management Board and Chief Financial Officer

INTERVIEW WITH THE CFO

In the following interview Chief Financial Officer Peter van Bommel discusses some of the key financial topics that impacted the company in 2019 and comments on the policy for the use of cash.

HOW WOULD YOU DESCRIBE ASMI'S FINANCIAL PERFORMANCE IN 2019?

2019 was a very successful year. Our sales increased with 57% to a level of €1,284 million. Even when you exclude the impact of the settlement of the legal cases our sales increased still by 37% in 2019 to €1,125 million, a new record high for our company. While the overall WFE market was down by a high single digit percentage we benefited from our strong position in the logic/sector which showed a solid increase in investment level, driven by spending on the most advanced nodes. In these new technology nodes,10nm in logic and 5nm in foundry, we have been able to substantially grow our share of wallet compared to the previous technology generation on the back of a solid increase in the number of ALD applications. Equipment sales grew strongly by 44%. This was again led by our ALD product line, which continued to account for more than half of equipment sales in 2019. However, we also achieved strong double digit growth and record revenue in the combined other product lines, epitaxy, vertical furnaces and PECVD. Our spares & service business, which is a solid and consistent contributor to our growth, increased sales by 15% in 2019.

Excluding the settlement gains, the gross margin increased to 42.6%. With operating expenses remaining under control, operating profit increased by 77% to €220 million. The operating margin improved from 15.2% in 2018 to 19.5% in 2019.

"WITH COSTS UNDER CONTROL, OPERATING PROFIT INCREASED BY 77% IN 2019"

Results from investments, excluding amortization of intangible assets, reflecting our share of ASMPT's net profits decreased by 70% to €18 million. ASMPT reported a drop of 19% in sales to approximately US$2 billion in 2019, impacted by the downturn in the back-end equipment market.

Our total net profits, including the settlement gains, approximately doubled to €329 million in 2019. The financial position continued to be solid with the cash position increasing to €498 million at the end of the year (2018: €286 million).

The 2019 Annual Report is the third integrated report we are publishing. As last year we have tried to improve this report further and more importantly it reflects the additional steps we have taken to reduce our environmental footprint and to strengthen our safety culture.

CAN YOU COMMENT ON THE DEVELOPMENT IN GROSS MARGIN AND OPERATING EXPENSES?

Gross margin showed a solid increase from 40.9% in 2018 to 42.6% in 2019, excluding the impact from the settlements. While we still incurred extra costs related to new growth initiatives and product introductions, this was more than offset by better margins on the newly introduced products which improved as compared to 2018. In the course of 2019, the gross margin improved and with 43.6% in the fourth quarter we achieved the highest level in the last ten quarters.

Our total operating expenses as a percentage of total sales, excluding the settlement effects, decreased to 23.1% in 2019 compared to 25.7% in 2018. SG&A expenses increased by 23%. This was mainly caused by higher legal costs in the first half of 2019, related to the patent litigation and arbitration case, as well as higher variable compensation in view of the company's strong performance in 2019. Besides this, SG&A increased due to investments to strengthen the organization such as in new IT systems.

Looking at R&D expenses, I first like to note that under IFRS we are required to capitalize the development expenses. Once a development project moves to the stage of high-volume manufacturing (HVM) further costs are directly expensed and the related capitalized development expenses start to be amortized. Our total R&D spending excluding these IFRS effects increased by 20% in 2019, driven by investments in products innovation and new applications that will further expand our served available markets. The level of capitalization, and consequently the level of reported R&D expenses, depends on the mix of development expenses in a given quarter and can therefore fluctuate from quarter to quarter. This was clearly visible in 2019. In the first half of the year, capitalization was relatively high, because development expenses were a larger part of the total. In the second half of 2019, a number of development projects moved to the HVM stage, which led to a reduction in capitalization and an increase in amortization. On a full year basis, however, capitalization as a percentage of total R&D spending remained relatively stable. On a structural basis, we expect R&D spending excluding IFRS effects to remain in a range of a low to mid-teens percentage of sales (2019: 13%).

WHAT WAS THE IMPACT OF THE SETTLEMENT OF THE LEGAL CASES?

During 2019, we resolved all pending disputes between ASMI and Kokusai Electric Corporation (KEC) with respect to patent licenses. On July 1, 2019, we announced a settlement agreement with KEC to resolve all lawsuits regarding the use and infringement of patents. This agreement included the payment of an amount of US$115 million, or €103 million, by KEC to ASMI. On October 29, we announced to have settled with KEC the arbitration dispute that concerned the breach of a license agreement between the companies that ended in November 2017. This settlement agreement included the payment of another US$61 million, or €56 million, by KEC to ASMI.

The proceeds of in total €159 million positively impacted our sales and bookings in 2019. The proceeds also increased our gross profit and operating result in 2019 with €159 million. In the first half of the year, we still incurred higher legal costs related to these cases, included in SG&A expense, which decreased again in the second half.

“FREE CASH FLOW STRONGLY INCREASED, DRIVEN BY HIGHER PROFITABILITY AND IMPROVED WORKING CAPITAL”

Our cash position was also positively impacted by the €159 million in settlement proceeds, of which €52 million was received in the third quarter and €107 million in the fourth quarter of 2019.

Furthermore, the settlement proceeds affected our company's effective tax rate. At earlier occasions, we guided that our structural tax rate would increase to a mid to high teens percentage, once we would have fully utilized the NOL's (net operating losses) in the Netherlands. With the gain from the settlements, combined with normal operating profitability, we exhausted the remaining NOL's. As a consequence, our total effective tax rate increased to 14% in 2019.

CAN YOU EXPLAIN THE DRIVERS BEHIND THE INCREASE IN THE FREE CASH FLOW?

Free cash flow strongly increased to €206 million in 2019, excluding the settlement proceeds and the dividends from ASMPT, on the back of higher profitability and improved working capital.

Our capital expenditures, while lower than in 2018, were still relatively high, reflecting the further investments in our new manufacturing facility in Singapore. This new state-of-the-art facility is on track to be completed at the end of the second quarter 2020. Our capital expenditure is therefore expected to remain relatively high in the first half of 2020.

As reported in last year's Annual Report, we further stepped up our focus on working capital efficiency. The measures that we started to implement in 2018 paid off in 2019. Total working capital dropped from €203 million at the end of 2018 to €160 million at the of 2019. Despite the substantial increase in sales and actively levels in the fourth quarter of 2019 as compared to same period in 2018, inventories were relatively stable and accounts receivables only increased by 15%. Excluding the settlement effects working capital dropped to 42 days at end of 2019 compared to 72 at the end of 2018.

"OVER TIME, WE HAVE STEADILY INCREASED THE DIVIDEND"

I'm also particularly pleased with the underlying quality of the working capital which further improved in 2019. Looking at inventories, for instance, while work-in-progress (WIP) increased due to the higher activities, the absolute level of raw materials decreased as compared to the end of 2018. As another example, we kept the level of overdues on accounts receivables at a low level.

WHAT IS ASMI'S POLICY FOR THE USE OF CASH?

Our key priority is to maintain a strong financial position that allows us to continue investing in the growth of our company. As mentioned, we further increased R&D spending last year and we invested in our new manufacturing facility. Regarding excess cash, which we define as amounts that are meaningfully above the €300 million cash level that we intend to keep on the balance sheet, our policy is to use it for the benefit of our shareholders. Since 2010, we have returned more than €1.8 billion in cash in different forms to the financial markets, of which more than €1 billion during the last three years.

In July 2019, we announced a new €100 million share buyback program. Under this program, that was started in November 2019 and completed in February 2020, we bought back close to 1 million shares. In October 2019, we also announced to bring forward part of the 2019 dividend in the form of an interim dividend of €1 per share, in view of the further increase in the cash position at that time. In 2019, we used a total of €200 million for shareholder remuneration, of which approximately €100 million for dividends and another €100 million for share repurchases.

We will propose to the AGM 2020 a total dividend of €3.00 per share over 2019. This consists of a regular dividend of €1.50 per share, a 50% increase compared to the dividend that we paid over 2018. In addition, the total dividend of €3.00 also includes an extra-ordinary dividend of €1.50 per share. Following the interim dividend of €1.00 per share that we paid last November, a final dividend of in total €2.00 per share will be paid in May 2020, subject to approval by the AGM. In addition, in February 2020, we announced the authorization of a new €100 million share buyback program.

The proposed extra-ordinary dividend and the new share buyback reflect our continued commitment to use excess cash for the benefit of the shareholders. Our policy regarding the regular dividends is unchanged: we aim to pay a sustainable dividend. This means that we have the intention to maintain the absolute level of the dividend at least stable. Over time, we have steadily increased the regular dividend.

CORPORATE GOVERNANCE

At ASMI, we believe good corporate governance is a vital part of our culture, behavior and management and aligns with our core values. Our corporate governance is supported by a strong focus on integrity, transparency and clear and timely communication. At the same time, we endeavor to ensure that our policies and procedures comply with both applicable Dutch corporate governance requirements, and the relevant laws.

TRANSPARENT PROCESSES

Our corporate governance framework supports our business and meets the needs of our stakeholders. We achieve this by setting up transparent processes and following internal policies and procedures that comply with applicable Dutch corporate governance requirements.

CORPORATE GOVERNANCE

Good corporate governance is about applying sound business practices. At ASMI we do business in an ethical and transparent manner. We achieve this by setting up transparent processes and following internal policies and procedures that enable us to operate in the best interests of all our stakeholders, and which comply with applicable Dutch corporate governance requirements.

HIGH STANDARD OF CORPORATE GOVERNANCE

ASMI aspires to high standards of corporate governance and ethics practices. Sound corporate governance is a key component of ASMI's culture, behavior, and management and is consistent with our core values. Our corporate governance is supported by a strong focus on integrity, transparency and clear and timely communication. We endeavor to ensure that our policies and procedures comply with both applicable Dutch corporate governance requirements, and the relevant laws. Furthermore, our corporate governance structure supports our business and meets the needs of our stakeholders.

CORPORATE GOVERNANCE FRAMEWORK

The corporate governance framework describes how ASMI's strategy, mission, vision and objectives are embedded across the organization. Our Code of Ethics sets clear standards in different areas of business life. Its purpose is to provide a clear, strong, and consistent culture of ethics that apply to all who work at ASMI.

ASMI's policies and regulatory framework guide how we work. Key components are our financial, IT, product safety, EHS, compliance, and business continuity frameworks which are supported by transparency and accountability through our monthly business review cycle, our internal control framework as well as our performance management cycle.

Our risk management approach enables us to identify and manage the strategic, operational, financial, and compliance risks to which ASMI is exposed. In addition, it enables us to improve effectiveness and efficiency in our operations and it promotes reliable financial reporting, and compliance with laws and regulations increasing transparency and accountability.

Corporate governance-related documents are available on our website, including, amongst others:

- Supervisory Board profile;
- Supervisory Board rules;
- Management Board rules;
- Audit Committee charter;
- Nomination, Selection and Remuneration Committee charter;
- Remuneration policy;
- Code of Ethics;
- Whistleblower policy;
- Anti-fraud policy; and
- Rules concerning insider trading.

CORPORATE GOVERNANCE FRAMEWORK

COMPANY STRUCTURE

ASMI is a publicly listed company established under Dutch law. The Company's management and supervision structure is organized in a two-tier system, comprising a Management Board, composed of executive directors, and a Supervisory Board, composed of non-executive directors. The Company's Management Board has ultimate responsibility for the overall management of ASMI. The Management Board is supervised and advised by an independent Supervisory Board. The Management Board and the Supervisory Board are accountable to ASMI's shareholders.

FRONT-END OPERATIONS

We conduct our Front-end business through wholly-owned subsidiaries, the most significant being ASM Front-end Manufacturing Singapore Pte Ltd (FEMS), located in Singapore, ASM Europe BV (ASM Europe), located in the Netherlands, ASM America Inc (ASM America), located in the United States, ASM Japan KK (ASM Japan), located in Japan, and ASM Korea Ltd (ASM Korea), located in South Korea. The location of our facilities allows us to interact closely with customers in the world's major geographical market segments: Europe, the United States, and Asia.

BACK-END OPERATIONS

Our investment in ASM Pacific Technology (ASMPT) represents the Back-end business. The Back-end operations are conducted through facilities in Hong Kong, the People's Republic of China, Singapore, Malaysia, and Germany. Our current shareholding in ASMPT is 25.19%.

Organization structure

ASMI SHARES

ASMI's common stock trades on the Euronext Amsterdam Stock Exchange (symbol ASM) and ASMI is required to comply with the Dutch Corporate Governance Code (the Code). The ASMI common shares, which are held in the US as New York Registry Shares, are eligible for trading on the OTC Market under the symbol ASMIY.

ANNUAL GENERAL MEETING OF SHAREHOLDERS

ASMI shareholders exercise their rights through Annual and Extraordinary General Meetings of Shareholders. ASMI is required to convene an Annual General Meeting of Shareholders (AGM) in the Netherlands each year, no later than six months after the end of the Company's financial year. Additional Extraordinary General Meetings of Shareholders may be convened at any time by the Supervisory Board or the Management Board.

The convocation date is legally set at 42 days prior to the date of the AGM.

The record date is legally set at 28 days prior to the date of the AGM. Those who are registered as shareholders at the record date are entitled to attend the meeting and to exercise other shareholder rights. Shareholders may be represented by written proxy.

PUBLICATION IN ENGLISH

The Annual Report, the Financial statements and other regulated information such as defined in the Dutch Act on Financial Supervision (Wet op het Financieel Toezicht), will solely be published in English on the Company's website (www.asm.com).

The draft minutes of the AGM are available on the Company's website no later than three months after the meeting. Shareholders may provide their comments in the subsequent three months. Thereafter, the minutes are adopted and published on the Company's website.

2019 AGM OF ASMI

On May 20, 2019, ASMI held its AGM in Amsterdam, the Netherlands. The attendance rate was 67.86% of the total issued share capital of ASMI as per the registration date. In line with the ASMI Boards' recommendations, the shareholders approved all resolutions as proposed to the AGM. The minutes of the AGM are published on the Company's website.

VOTING RIGHTS

In the AGM, each ordinary share with a nominal value of €0.04 entitles the holder to cast one vote, each financing preferred share with a nominal value of €40.00 entitles the holder to cast one thousand votes and each preferred share with a nominal value of €40.00 entitles the holder to cast one thousand votes. Presently, there are no preferred shares and financing preferred shares outstanding. Treasury shares held by the Company cannot be voted on.

The authorized capital of the Company amounts to 82,500,000 common shares of €0.04 par value, 88,500 preferred shares of €40 par value and 6,000 financing preferred shares of €40 par value. Per December 31, 2019, 51,297,394 common were issued and fully paid. No preferred nor financing preferred shares were issued on December 31, 2019.

Financing preferred shares are designed to allow ASMI to finance equity with an instrument paying a preferred dividend, linked to EURIBOR loans and government loans, without the dilutive effects of issuing additional common shares.

PREFERRED SHARES

Preferred and financing preferred shares are issued in registered form only and are subject to transfer restrictions. Essentially, a preferred or financing preferred shareholder must obtain the approval of the Company's Supervisory Board to transfer shares. If the approval is denied, the Supervisory Board will provide a list of acceptable prospective buyers who are willing to purchase the shares at a cash price to be fixed by consent of the Supervisory Board and seller within two months after the approval is denied. If the transfer is approved, the shareholder must complete the transfer within three months, at which time the approval expires.

Preferred shares are entitled to a cumulative preferred dividend based on the amount paid-up on such shares. Financing preferred shares are entitled to a cumulative dividend based on the par value and share premium paid on such shares.

STICHTING AGREEMENT

ASMI is party to an agreement with Stichting Continuïteit ASM International (Stichting), pursuant to which the Stichting is granted an option to acquire up to a number of our preferred shares corresponding with a total par value equal to 50% of the par value of our common shares issued and outstanding at the date of the exercise of the option. Stichting is a non-membership organization organized under Dutch law. The objective of the Stichting is to serve the interests of the Company. For that objective, the Stichting may, among other things, acquire, own, and vote on preferred shares in order to maintain our independence and/or continuity and/or identity.

The members of the board of Stichting are:

- Dick Bouma, Retired Chairman Board Pels Rijcken & Droogleever Fortuijn;
- Rob Ruijter, former Chairman Supervisory Board Delta Lloyd; and
- Rinze Veenenga Kingma, President Archeus Consulting BV.

The purpose of above mentioned option is to protect the independence, the continuity and the identity of ASMI against influences that are contrary to the interests of ASMI, its enterprise and the enterprises of its subsidiaries and all stakeholders.

POWERS

The powers of the AGM are defined in our Articles of Association. The main powers of the shareholders are to:

- appoint, suspend, and dismiss members of the Management Board and Supervisory Board;
- approve the financial statements;
- declare dividends;
- discharge the Management Board and Supervisory Board from responsibility for the performance of their respective duties for the previous financial year;
- appoint the external auditors;
- approve amendments to the Articles of Association;
- authorize the Management Board to issue shares and grant subscriptions for shares;
- withdraw pre-emptive rights of shareholders upon issuance of shares;
- authorize the Management Board to withdraw pre-emptive rights of shareholders upon issuance of shares; and
- authorize the Management Board to repurchase or cancel outstanding shares.

CORPORATE RESPONSIBILITY

For over 50 years we have helped the industry create smaller and more powerful microchips. Our focus is on continuing to help our customers achieve critical technology and productivity improvements responsibly by striving to reduce our impact on the environment and positively contributing to society.

ASMI MISSION

Our mission is to provide our customers with the most advanced, cost-effective, and reliable products, services and global support network in the semiconductor industry, and beyond.

CR VISION

As a truly global citizen, our vision of ZERO HARM! means we strive to reduce our impact on the environment, and positively contribute to society.

CR STRATEGY

- Continue our strong focus on R&D and innovation to create value for society through technology.
- Manage all aspects of our business responsibly to meet or exceed stakeholder expectations.
- Hold our critical suppliers to the same standards that we hold ourselves to.

MANAGE ALL ASPECTS OF OUR BUSINESS RESPONSIBLY

Our Corporate Responsibility (CR) policy lays out our commitment to and expectations with regard to, health and safety, the environment, labor, ethics, and supply chain management. Each of these areas is further supported by policies, programs, systems, and metrics to ensure that we meet our long-term objectives. The full text of our CR policy is available on our website.

The Responsible Business Alliance (RBA) Code of Conduct (the Code) has been adopted by ASMI and many of our customers. It is also our supply chain code of conduct and 100% of our critical and strategic suppliers have committed to the Code. The Code evolves constantly to cover the most recent developments in responsible business practices, and follows multiple international expectations and standards, including:

- The OECD Guidelines for Multinational Enterprises;
- The Universal Declaration of Human Rights; and
- The ILO International Labor Standards and International Organization for Standardization (ISO).

We use the Code, its supporting documentation, and engagement with the RBA and member customers to drive continuous improvement within our company.

However, responsibility is more than codes and standards. Responsibility is also about understanding stakeholder priorities, our material aspects, and integrating responsible business practices into our objectives, strategies, and processes. It is about finding new ways to develop, manufacture, and support our products with less risk to people and the environment. Our employees are encouraged to contribute toward realization of our ZERO HARM! vision.

Integral to ASM's ZERO HARM! goals, the United Nations' Sustainable Development Goals (SDGs) reflect the priorities of global society, and our CR strategy seeks to align with and make significant contributions to a number of these important goals:

OUR RELEVANT SDGS

We contribute to five Sustainable Development Goals (SDGs) that we have identified as being most relevant for us.
Below we provide examples of where in this report you can read about the steps we took in 2019 to contribute to these goals.

ACHIEVE GENDER EQUALITY

In the employees chapter you can read about the compensation of our female and male employees and our diverse workforce.

FOSTER INNOVATION

Our innovations drive growth, and benefit consumers and businesses by enabling more powerful technologies. You can find examples of how we contribute to SDG 9 in the customer chapter.

COMBAT CLIMATE CHANGE

Greenhouse gas emissions can directly affect our impact on the environment and the climate. More information on the steps we are taking in this area can be found in the society chapter.

PROMOTE SUSTAINABLE GROWTH

Our focus is on growing sustainably, which is why our new facility in Singapore aimed to exceed energy efficiency requirements whenever possible. More details can be found in the society chapter.

ENSURE SUSTAINABLE CONSUMPTION AND PRODUCTION

Our aim is to identify ways to preserve natural capital. In 2019 we continued to look for opportunities to reduce our environmental footprint. More information can be found in the society chapter.

CR STRATEGY AND GOVERNANCE

Our CR management system is embedded in our corporate governance framework.

The Corporate Vice President of Operational Excellence has overall responsibility for Corporate Responsibility. The Corporate Vice President of Human Resources is Chairperson of the ASMI Ethics Committee which is integral to CR governance. The Corporate Vice President of Global Operations has overall responsibility for supply chain management. These leaders and their respective organizations define ASMI's CR strategy and objectives which are subject to approval by the Management Board.

STAKEHOLDER ENGAGEMENT METHODS

We regularly engage with appropriate stakeholders to improve and mature as a business. Their feedback helps us shape our CR strategy and objectives.

KEY STAKEHOLDER ENGAGEMENT METHODS AND BENEFITS

Stakeholder	Engagement method	Feedback	Outcome
Customers	Direct customer meetings (recurring) Attending customer supplier development sessions (recurring)	Engagement with our key customers has provided systematic inputs to improve the structural maturity and operational performance of the company	ASMI continues to score higher on supplier process maturity scales with key customers, and strengthens its related policies, procedures, and activities
Employees	Bi-annual Safety survey Annual Report Survey Corporate Responsibility Survey	Survey conducted of all worldwide employees in labs, manufacturing, and service, with feedback on areas to improve safety and satisfaction with our programs and performance All employees surveyed regarding CR program	Focused lab, manufacturing, and service safety improvement plans with targets tied directly to the employee feedback, including improvements in communication of safety project improvements, and improvements in routine manager and employee safety audits Integrating employee feedback in our strategy and objectives
Industry consortium and partners	Renewed R&D partnership with imec Extended University of Helsinki partnership	Cooperation and bilateral research activities	Additional ALD, PEALD, Epitaxy, and CVD capability

The above table lists selected few examples of how we consider stakeholder input and feedback, which we use to further improve our strategies, objectives, and ultimately our performance.

We also engage with sustainable development organizations such as the CDP (formerly the Carbon Disclosure Product) a non-profit organization that help companies and cities document and disclose their environmental impacts. We also engage with the Vereniging van Beleggers voor Duurzame Ontwikkeling (VBDO - Dutch Association of Investors for Sustainable Development). We participate in the Transparency Benchmark, a biennial assessment on the content and quality of corporate social responsibility reports of Dutch companies, which is used by the Dutch Ministry of Economic Affairs to assess and drive adoption of sustainable investment best practices. In 2017, when the last assessment took place, ASMI placed in the top-third of companies who completed this benchmark.

MATERIALITY

In 2015, we introduced our materiality assessment process. The process provides us with the opportunity to continually assess if our strategies and objectives are aligned with our stakeholders and overall importance to our business. The process has remained consistent, following the sustainability materiality steps and matrix based on the Global Reporting Initiative's (GRI) Sustainability Reporting Standards, and represents the internal and external stakeholders we have identified. Our materiality assessment includes select customers and non-governmental organizations (NGO's). The results of the materiality assessment inform our 2020-2025 strategies and objectives.

The aspects in the top-right segment of the above chart are referred to as 'primary aspects' in this report Primary aspects are considered strategic to our business.

Resource priority decisions are made regularly, with priority given to those which are of high importance to ASMI and our stakeholders. In the past year we enhanced our engagement with investor sustainability groups to better understand their concerns and desired areas of focus for ASMI. We incorporated the internal and external stakeholder materiality inputs to adjust our strategies and objectives.

We conducted a CR survey of all ASMI employees regarding the overall importance and interest in various aspects of the program. 97% of employees that responded indicated that progress in corporate responsibility was important to them and 59% of employees wanted to get directly involved.

R&D investment, which results in patents and intellectual property, are assets protected by legal agreements and information security systems. Protecting these investments helps drive company financial health through product development and customer confidence.

All aspects in the materiality assessment are rated with respect to current and future risks and global trends. For example, we recognize that climate change, resource conservation, and water management are critical aspects of preserving Natural Capital. Their inclusion means that we continue to strive for improvements with a positive environmental impact. In parts of the world where natural resources such as water are in limited supply, conservation efforts to preserve such resources are vital.

Note: Those aspects in the top-right segment of the chart are referred to as 'primary aspects' in this report.

ECONOMIC

1. Company financial health
2. R&D investment
3. Business risk and business continuity (BCP)
4. Product life cycle management
5. Protecting and using intellectual property
6. Maximize shareholder ROI

SOCIAL

7. Stakeholder engagement
8. Ethics Code of Conduct
9. Customer partnership
10. Attracting, developing and retaining talent
11. Worker health and safety
12. Diversity
13. Employee relations and workplace vitality
14. Community engagement
15. IT security

ENVIRONMENTAL

16. Product safety and environmental compliance
17. Corporate philanthropy
18. Supplier responsibility and rba code of compliance
19. Supplier EHS (supply chain responsibility)
20. Hazardous substance management
21. Climate change (energy use and GHG reduction)
22. Recycling/reuse
23. Water usage/recycling
24. Product services and support

Primary aspects	Our strategies	Setting strategies, steering and controls	Progress in 2019	Result/stakeholders' impact
ECONOMIC				
1 **Company financial health** 2 **R&D investment** 5 **Protecting and using intellectual property**	› Realize profitable, sustainable growth through innovation › Maintain technology leadership in deposition › Invest in and develop new applications to support our customers' with increasing technology requirements › Leverage our strong technology expertise to enhance customer/stakeholder relationships › Create the company culture and environment for innovation and patent creation with strong IP protection programs	› Management meetings › Market assessments › Business unit/operational reviews › Technical steering meetings › Legal reviews	› Renewed partnership with University of Helsinki › Continued implementation of software, training and agreements protecting IP	› Technology leadership recognition with sustainable profitability and business growth › IP creation/Patent creation
SOCIAL				
8 **Ethics Code of Conduct** 9 **Customer partnership** 10 **Attracting, developing and retaining talent** 11 **Worker health and safety** 15 **IT security**	› We use performance evaluation, succession planning, and employee learning and development programs › Establish leadership academy to ensure our leadership pipeline and stay competitive in labor markets › We partner closely with select top universities globally for technology development and recruitment › Conducts business according to ethical and professional standards › Implement Ethics Code of Conduct, CR policy, and commitment to RBA Code of Conduct › Secure IT systems › We have strong relationships and engagements with our customers	› Global EHS and Product Safety Leader teams › Global Human Resources › Global EHS › Global IT › Ethics Committee › Global Sales & Product Management	› Lab gas system improvements › Customer safety leadership engagements › Management safety audit leadership › Globally harmonized new employee onboarding process › Interactive platform for developing managerial skills › Piloting technical career ladder for engineers › Gifts and entertainment policy and reporting improvements	› Safer work environment and processes › Closer engagement with customers to improve collective safety › Stable workforce with suitable technology and leadership capability › Employee professional development › Employment creation and employee satisfaction › Compliance and responsible business practices › Secure innovation and personnel data
ENVIRONMENTAL				
16 **Product safety and environmental compliance**	› Reduce overall risk of exposure with focus on high risk activities and functions, including Labs, Manufacturing and Service › Contribute to and protect the communities in which we operate, and continuously strive to reduce the environmental impact	› Product safety steering committee › Business unit engineering › Global EHS and facilities	› Continue to strengthen product compliance team › Improved standardization of global design standards › Lab gas system enhancements › Improvements in chemical storage infrastructure	› Compliant and safe products › Customer satisfaction and safety › Minimize environmental impact and protect communities in which we operate

The table above provides an overview of the primary aspects and their related strategies.

For more information on each aspect, please refer to the following sections of this report:

Primary aspects	More information in
1 **Company financial health**	Shareholders
2 **R&D Investment**	Customers
5 **Protecting and using intellectual property**	Customers
8 **Ethics Code of Conduct**	Employees & Society
9 **Customer partnership**	Customers
10 **Attracting, developing and retaining talent**	Employees
11 **Worker health and safety**	Employees
15 **IT security**	Risk management
16 **Product safety and environmental compliance**	Customers

TAX PRINCIPLE

We view tax as an integrated part of doing business and that tax should follow business. The respective taxes are determined and paid in the countries where the respective value is created, in accordance with all relevant rules and regulations. Tax is among the elements that we take into account while doing business, including the locally available tax incentives and exemptions. We seek to establish and maintain an open and constructive relationship with tax authorities in the countries in which we operate. We do not use artificial tax structures aimed at tax avoidance. We aim to follow both the letter as well as the spirit of the law.

We apply the arm's length principle to determine transfer prices in accordance with domestic and international rules and standards, such as the OECD Guidelines for Multinational Enterprises. Our disclosures are made in accordance with the relevant local and/or international regulations and guidance, based on all the relevant facts and circumstances.

A tax control framework is in place, and as part of this we continuously monitor our tax positions and tax developments. As part of ASMI's tax strategy, the tax department recommends a balanced approach in the interest of all stakeholders, while adhering to ASMI's tax policy and complying with all relevant tax laws and regulations. In line with our tax principles we do not use artificial tax structures solely aimed at tax avoidance, nor do we use tax havens or non-cooperative jurisdictions to avoid transparency on our tax position. ASMI proactively engages with tax authorities, and tax exposures (if any) are contained and under control. For specific transactions and/or a specific approach, for example with respect to the application of the at arm's length principle in transfer pricing matter, we may seek upfront certainty by requesting a tax ruling from the respective tax authority as we believe such certainty is valuable for our stakeholders, including the respective tax authority.

INFORMATION SECURITY

Our technologies, innovations, IP, products and process data, as well as the sensitive information about our customers, suppliers, and employees, are valuable assets. Any breach of our information systems could adversely affect our finances and operating results, as well as our reputation. Information security is a material aspect to us and our stakeholders, and requires the proper controls to protect it.

Our approach to information security management includes developing and sustaining a proper global IT security management framework with a policy, processes, and controls to protect against unauthorized system access and loss of valuable information, regardless of location.

In 2019, we continued to assess our position on network security and took steps to enhance the security posture of our global network, improved employee education, and awareness on cyber security/safety, and made infrastructure modernization enhancements.

RISK MANAGEMENT

Effective risk management is a key success factor for realizing our strategic objectives. ASMI has implemented an internal risk management and control framework to identify risks and opportunities that may impact us and to take appropriate mitigation initiatives. In order to enable accelerating growth across multiple dimensions, in 2019 we have focused on enhancing risk management in our primary processes.

RISK MANAGEMENT APPROACH

ASMI's risk management approach is based on the COSO reference model and is an integral part of our Corporate Governance Framework which describes how our strategy, mission, vision, and objectives are embedded across the organization.

The objective of the risk management approach is to identify and manage the strategic, operational, financial, and compliance risks to which ASMI is exposed. In addition, it enables us to improve effectiveness and efficiency in our operations and it promotes reliable financial reporting, and compliance with laws and regulations.

Every year we assess the risks that could impact achievement of our strategic objectives at a consolidated level (top-down approach) and on a segment level (bottom-up approach). If necessary, we implement countermeasures to mitigate the risks within the defined risk appetite, and integrate these countermeasures in our risk management and control framework, which contains all mandatory corporate policies and operating procedures.

In 2019 we have focused on further enhancing our bottom up processes in order to increase scalability and enable accelerating growth across multiple dimensions. We will continue this focus in 2020.

Business management provides the Management Board with a quarterly assurance letter regarding the reliability of their financial reporting, the effectiveness of their internal controls, risk management, and compliance with internal policies and laws and regulations.

RISK MANAGEMENT APPROACH

Our risk management and internal control activities are organized through the three lines of defense model; the Management Board is ultimately responsible for risk management and compliance in line with the risk appetite and is supported by:

- **First line of defense:** Business and operations management owns and manages risk, which includes identifying, assessing, controlling, and mitigating risks;
- **Second line of defense:** Oversight functions support business and operations management and help ensure that the risk and control procedures are operating as intended; and
- **Third line of defense:** Internal Audit provides independent objective assurance on the effectiveness of governance, risk management, and internal controls, including the manner in which business and operations management and the oversight functions manage and control risk. Internal Audit brings a systematic, disciplined approach to evaluate and improve the effectiveness of risk management, control and governance processes.

RISK CULTURE

ASMI strives for a culture of openness and transparency in which identified risks are disclosed proactively and unexpected events are reported as soon as they occur. We are continually increasing risk awareness to make it an integral part of the company culture and our primary processes. Our Code of Ethics applies to all ASMI employees and temporary staff and describes how we work in an open, transparent, honest, and socially responsible way. The effectiveness of, and compliance with, the Code of Ethics is enabled through annual online training and assessed by actively detecting and investigating any alleged misconduct and taking appropriate disciplinary action if misconduct is substantiated.

RISK APPETITE

Undertaking business activity inevitably leads to taking risks. Each type of risk encountered is dealt with in a manner that matches the risk appetite established by the Management Board. Risk appetite is the level of risk we deem acceptable to achieve our objectives. ASMI's risk appetite is primarily determined based on the defined and agreed strategy and the individual objectives within this strategy. Risk appetite is further guided by our Code of Ethics as well as detailed policies and procedures. The risk appetite is the total residual impact of the risks that ASMI is willing to accept in the pursuit of its (strategic) objectives. The risk appetite per objective or risk area is determined annually by the Management Board.

The nature of the risk is a key determinant of our risk appetite:

STRATEGIC RISKS	RISK APPETITE
Strategic risks and opportunities may affect ASMI's strategic objectives. Strategic risks include economic and political developments and the need to anticipate and respond in a timely manner to market circumstances.	We are willing to accept reasonable risks in a responsible way to achieve our strategic ambitions and priorities. Innovation will drive future growth, and as a result we are willing to take a higher risk in our longer-term growth areas, such as ALD and epitaxy products.

OPERATIONAL RISKS	RISK APPETITE
Operational risks cover adverse developments resulting from internal processes, people, and systems, or from external events related to our business.	We avoid risks that can negatively impact our operational goals while ensuring that our sustainability commitments are met. ASMI has a very low tolerance related to risk associated with people safety, and product safety, and associated compliance risks. We strive for Zero Harm!

FINANCIAL RISKS	RISK APPETITE
Financial risks include risks related to accounting and reporting, tax, and other elements that impact our financial position.	We avoid risks that could jeopardize the integrity of our reporting, and/or financial sustainability of the company as investor commitment depends on it.

COMPLIANCE RISKS	RISK APPETITE
Compliance risks consist of unanticipated failures to implement or comply with relevant laws and regulations.	We strive for full compliance with our Code of Ethics and national and international laws and regulations of the markets in which we operate. We have a zero-tolerance approach to bribery and corruption, fraud, and all other forms of (illegal) misconduct.

CONTROL EFFECTIVENESS STATEMENT

The Management Board is responsible for ASMI's internal risk management and control framework. This system is designed to manage the main risks that may prevent ASMI from achieving its objectives. The internal risk management and control framework, and the evaluation of the effectiveness of our internal controls and areas for improvement, are regularly discussed with the Audit Committee and KPMG Accountants, our external auditor. The Audit Committee reports on these matters to the Supervisory Board.

The Management Board conducted an assessment of the design and operating effectiveness of the internal risk management and control framework. Based on this assessment and the current state of affairs, to the best of its knowledge and belief, the Management Board confirms that:

- the internal risk management and control framework provides reasonable assurance for the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with Generally Accepted Accounting Principles;
- the management report includes a fair review of the development and performance of the business, and the position of the company and the undertakings, included in the consolidation as a whole, as well as a description of the principal risks and uncertainties that the company faces;
- there are no material risks or uncertainties that could reasonably be expected to have a material adverse effect on the continuity of ASMI's operations in the coming twelve months; and
- there is a reasonable expectation that ASMI will be able to continue its operations and meet its liabilities for at least twelve months, therefore it is appropriate to adopt the going concern basis in preparing the financial reporting.

All internal control systems, no matter how well designed and implemented, have inherent limitations. Even systems determined to be effective may not prevent or detect misstatements or fraud, and can only provide reasonable assurance with respect to disclosure and financial statement presentation and reporting. Additionally, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate due to changed conditions and that the degree of compliance with the policies or procedures may deteriorate.

In view of all of the above, the Management Board believes that it complies with the requirements of best practice provision 1.2 and 1.4 of the Dutch Corporate Governance Code.

RISK CATEGORIES AND FACTORS

In conducting our business, we face a number of risks that may interfere with our ability to achieve our business objectives. Some of these risks relate to our operational processes, while others relate to our business environment. It is important to understand the nature of these risks and the impact they may have on our business, financial condition, and results of operations. These risks are not the only ones we face. Some risks may not yet be known to us, and certain risks that we do not currently believe to be material could become material in the future.

The significant risks currently considered relevant, potential consequences, and applicable mitigating measures can be outlined as follows:

STRATEGIC RISKS	MITIGATING MEASURES
Inability to respond to changes in product demand and technology change could result in decreased orders and financial loss and/or reputation damage.	In addition to our continued focus on new product launches, our investments in R&D increase considerably. In order to ensure optimal return on investment we focus on further enhancement of our internal R&D processes and teams as well as optimal cooperation with key stakeholders.
Cyclical nature of the semiconductor market which leads to abrupt changes in demand resulting in fixed overheads during downturns or insufficient production capacity during upturns.	We are investing in new production facilities. In addition we outsource generic manufacturing and are optimizing our primary processes to enhance scalability. Our financial structure including cash and a standby credit facility is set up to further mitigate this risk.
Inability to attract and retain qualified management, technical, sales and support personnel could result in delayed product development, production and diversion of management resources.	To remain competitive we continuously benchmark our compensation & benefit packages. In addition, we have robust talent management and succession planning programs and tools in place. This consists of leadership academy and talent succession reviews up to board level and help our managers to strengthen the leadership pipeline.
Failure to adequately identify and mitigate the risks arising from operating in an international context such as political landscape, changes in legislation, instability, protectionism and cultural differences could impact our business.	Our primary processes are set up to understand, adapt to and effectively apply international cultural and legal norms for doing business.

OPERATIONAL RISKS	MITIGATING MEASURES
Failure to deliver product of sufficient quality or on time resulting in financial loss due to penalties, rework and/or reduced future demand.	We are continuously improving our already robust quality assurance processes and controls to ensure consistent product quality. In 2019 we have further enhanced our primary processes in support of accelerating growth across multiple dimensions based on clear objective setting, risk identification and control reviews. We will continue this focus in 2020 to pro-actively meet or exceed (future) customer needs and requests.

OPERATIONAL RISKS	MITIGATING MEASURES
Dependence on a small number of large customers. Loss of a customer or significant reduction in demand could result in significant downturn of our financial results.	We work proactively with our customers to respond to requests timely and meet expectations. We are diversifying our customer base by continued investments in the More than Moore and China markets.
IT security breaches including cyber attacks resulting in loss of data, downtime or disruption of critical business operations. Our software development & production processes may introduce viruses in our tools.	An IT risk management framework is in place. As part of the IT risk management framework, we monitor threats and vulnerabilities, conduct cyber drills, perform gap assessments, apply remediation and identify improvement projects across the Prevent, Detect and Response pillars. These activities are prioritized using a risk-based approach. We prioritize responding to tool-related and data-related incidents, tasking our key personnel in implementing sustainable solutions.
Failure of suppliers to deliver resulting in financial loss due to penalties, rework and/or reduced future demand.	Effective recovery plans are in place. In addition we are further improving primary processes including our supplier portal and front end operations processes.
Climate change can have a physical impact on our operations and can cause disruptions in our supply chain and markets.	Business interruption policies and procedures are in place. In addition, we plan to further enhance our corporate responsibility agenda based on the climate change risks with the aim to make a sustainable impact while leveraging our key strengths.
Incidents and accidents threatening our ability to operate.	Our EHS organization is responsible for preventive and corrective action processes and within the processes the implementation of structural controls is driven. Safety is discussed in all key meetings. Safety leadership collaborations have been set up with key customers.

FINANCIAL RISKS	MITIGATING MEASURES
Financial reporting and/or the disclosures are not complete, inaccurate or not in accordance with laws & regulations resulting in reputational damage and/or financial loss.	A financial control framework is in place and we perform an annual fraud risk assessment and take follow up actions based on the outcome.
Changes in valuation of ASMPT affecting our future financial position.	We have significant influence in ASMPT due to the fact that we have board representation.

COMPLIANCE RISKS	MITIGATING MEASURES
Non-adherence to laws and regulations resulting in reputation damage and/or financial loss.	We prepare, roll out and make available relevant policies and procedures which are regularly reviewed and audited. Key controls are embedded in our primary processes.
Failure to adequately protect our intellectual property and/or leakage of our IP.	We regularly monitor the market and take steps, when appropriate, to ensure compliance with our intellectual property rights which may include various intellectual property related audits. In addition, control and governance frameworks are in place in our primary processes to establish, maintain and protect our intellectual property rights and minimize the risk of data leakage as far as possible.

MANAGEMENT BOARD

The Management Board, supervised and advised by the Supervisory Board, manages ASMI's strategic, commercial, financial, and organizational matters, and appoints senior managers.
The Supervisory Board supervises and advises the Management Board in the execution of its tasks and responsibilities and establishes their individual remuneration within the boundaries of the remuneration policies approved by the Annual General Meeting of Shareholders and the recommendations by the Nomination, Selection and Remuneration Committee.


From left to right: **Charles D. (Chuck) del Prado, Peter A.M. van Bommel**

COMPOSITION OF THE MANAGEMENT BOARD

CHARLES D. (CHUCK) DEL PRADO - CEO

Mr. del Prado was appointed as a member of the Management Board in May 2006 and President and Chief Executive Officer on March 1, 2008. Mr. del Prado was reappointed on May 28, 2018 for a period of four years. On September 30, 2019, Mr. del Prado announced his wish to retire from the company at the Annual General Meeting of shareholders to be held in May 2020. Between 1989 and 1996, Mr. del Prado held several marketing and sales positions at IBM Nederland N.V. From 1996 to 2001, he worked in various management positions at ASML, in manufacturing and sales in Taiwan and the Netherlands. He was appointed as Director Marketing, Sales & Service of ASM Europe in March 2001. From 2003 to 2007, he was President and General Manager of ASM America. From January 1, 2008 to February 29, 2008, he acted as Executive Vice President Front-end Operations at ASM America. He holds a Master's of Science degree in Industrial Engineering and Technology Management from the University of Twente, the Netherlands. Mr. del Prado is a Dutch national.

PETER A.M. VAN BOMMEL - CFO

Mr. van Bommel was appointed as a member of the Management Board on July 1, 2010 and became Chief Financial Officer on September 1, 2010. Mr. van Bommel was reappointed on May 28, 2018 for a period of four years. Mr. van Bommel has more than twenty years of experience in the electronics and semiconductor industry. He spent most of his career at Philips, which he joined in 1979. From the mid-1990s until 2005, he acted as CFO of several business units of the Philips Group. Between 2006 and 2008, he was CFO at NXP, formerly Philips Semiconductors. He was CFO of Odersun AG, a manufacturer of thin-film solar cells and modules until August 31, 2010. He holds a Master's degree in Economics from the Erasmus University Rotterdam, the Netherlands. Mr. van Bommel is a Dutch national.

On April 13, 2016, Mr. van Bommel was reappointed for a period of four years as a member of the Supervisory Board of Royal KPN N.V. He also became the Chairman of the Audit Committee as per that day. On April 16, 2015, Mr. van Bommel was appointed as a member of the Supervisory Board of Neways Electronics International N.V. Since May 2017, Mr. van Bommel is Executive Director of Stichting Bernhoven.

RESPONSIBILITIES

In addition to the duties of the Management Board stipulated by law and our Articles of Association, the Management Board has the following responsibilities:

- achieving the aims, strategy, policy and results of the Company;
- managing the risks associated with the activities of the Company;
- ensuring proper financing of the Company;
- establishing and maintaining disclosure controls and procedures that ensure that all major financial information is known to the Management Board in order to ensure that the external financial reporting is achieved in a timely, complete and accurate manner; and
- determining relevant aspects and achieving aims relating to corporate social responsibility and sustainability.

The Management Board is guided by the interests of the Company, taking the interests of all stakeholders into consideration.

The members of the Management Board are collectively responsible for managing the Company. They are collectively and individually accountable to the Supervisory Board and the Annual General Meeting of Shareholders for executing the Management Board's responsibilities. The Management Board has the general authority to enter into binding agreements with third parties.

The Management Board held various meetings throughout the year 2019. At least once a month, the Management Board meets to discuss and review the performance of the company.

RISK MANAGEMENT AND CONTROL FRAMEWORK

The Management Board ensures that the Company has an adequately functioning internal risk management and control framework. A comprehensive risk management and control framework, based on the "three lines of defense model", has been established that allows the Audit Committee and the Management Board a clear overview of the effectiveness of internal controls and risk management. This is explained in more detail in the risk management chapter.

The Management Board periodically discusses the internal risk management and control systems with the Supervisory Board and the Audit Committee. The Management Board provides the Supervisory Board with all information required for the fulfillment of their obligations and the exercise of their powers.

The Management Board provides the Annual General Meeting of Shareholders with all information required for the fulfillment of its obligations and the exercise of its powers in a timely fashion. The Management Board is responsible for the quality and completeness of financial and other reports that are publicly disclosed by or on behalf of the Company, including all reports and documents the Company is required to file.

CONFLICTS OF INTEREST

Each Management Board member shall immediately report any potential conflict of interest to the Chairman of the Supervisory Board and to the other Management Board members. In such cases, a Management Board member shall provide the Chairman of the Supervisory Board and the other Management Board members with all information relevant to the conflict and follow the procedures as set out in the Management Board rules.

APPOINTMENT, SUSPENSION, AND DISMISSAL

The Annual General Meeting of Shareholders (AGM) appoints a Management Board member based on a binding nomination drawn up by the Supervisory Board. The AGM may set aside a binding nomination by a resolution taken with an absolute majority of the votes cast, representing at least one third of the share capital. If such a binding nomination is set aside, a new binding nomination will be drawn up by the Supervisory Board and submitted to a newly called General Meeting of Shareholders. If this binding nomination is set aside, the General Meeting of Shareholders is free to appoint a Management Board member, but only with an absolute majority of the votes cast representing at least one third of our issued capital.

A Management Board member may be suspended at any time by the Supervisory Board. A Management Board member may, in accordance with a proposal by the Supervisory Board, be dismissed by the AGM through a majority vote. A resolution to suspend or to dismiss a member of the Management Board, other than in accordance with a proposal of the Supervisory Board, shall require the affirmative vote of a majority of the votes cast at a meeting. The affirmative votes must represent at least one third of the issued capital.

REMUNERATION

For information regarding the remuneration of the Management Board, please see the remuneration policy which is posted on our website, the remuneration report, which is included in this report, and Note 25 to the consolidated financial statements.

SUPERVISORY BOARD

The Supervisory Board oversees strategic and commercial policymaking by the Management Board and the way in which it manages and directs ASMI's operations and affiliated/associated companies. Members of the Supervisory Board are appointed by the Annual General Meeting of Shareholders upon binding nomination by the Supervisory Board.

COMPOSITION

Name	POSITION	Nationality	Year of Birth	Initial Appointment	Term Expires
Jan C. Lobbezoo [1) 2)]	Chairman of the Supervisory Board	Dutch	1946	2009	2021
Marc J.C. de Jong [1)]	Member of the Supervisory Board	Dutch	1961	2018	2022
Stefanie Kahle-Galonske [1)]	Member of the Supervisory Board	German	1969	2017	2021
Martin C.J. van Pernis [2)]	Member of the Supervisory Board	Dutch	1945	2010	2020
Ulrich H.R. Schumacher [2)]	Member of the Supervisory Board	German	1958	2008	2020

[1] Member of Audit Committee.
[2] Member of Nomination, Selection and Remuneration Committee.

JAN C. LOBBEZOO

Mr. Lobbezoo was initially elected as a member of the Supervisory Board in May 2009. He became Chairman of the Supervisory Board in July 2013 and was reappointed as member and Chairman on May 22, 2017 for a period of four years. Mr. Lobbezoo was Executive Vice President and Chief Financial Officer of the semiconductor division of Royal Philips Electronics from 1994 to 2005. He was a member of the Board of Taiwan Semiconductor Manufacturing Company (TSMC) for 12 years until 2007 and remains its adviser, specifically in the areas of US corporate governance, international reporting, and financial review. Currently, Mr. Lobbezoo is on the Supervisory Board of a small start-up company called VPI, which is active in development of medical software for surgery. He is Chairman of the Supervisory Board of Point One Innovation Investment Fund. He holds a Master's degree in Business Economics from the Erasmus University Rotterdam, the Netherlands, and is a Dutch Registered Accountant (RA) and a member of the Dutch NBA. Mr. Lobbezoo is a Dutch national.

MARC J.C. DE JONG

Mr. de Jong was elected as a member of the Supervisory Board on May 28, 2018 for a period of four years. Mr. de Jong started his career with Philips Electron Optics in 1986. In 1994 he joined Philips Automotive Lighting and in 2000 he became an executive manager of Philips Lighting responsible for the business unit Special Lighting & UHP. From 2003 until 2005 he was the executive general manager of the business unit Lamps Europe. After which he became a member of the Executive Management Team of NXP Semiconductors N.V. until 2009, responsible for the business unit Automotive and Identification. From then on until 2013 he was the executive responsible for the Professional Lighting Solutions business group of Philips Lighting and was also a member of the Group Management Committee of Royal Philips. From 2013 onwards Mr. de Jong has been Executive General Manager of InnoMarket B.V. From 2015 till April 2018 he was CEO of LM Wind Power A/S. Mr. de Jong holds a Master's degree in Physics and Mathematics from the VU University of Amsterdam, the Netherlands, and a Master's degree in Business Administration (executive program) from the Erasmus University Rotterdam, the Netherlands and Rochester, USA. Mr. de Jong is currently member of the Supervisory Boards of Nissens A/S based in Denmark, First Sensor AG, based in Germany and Sioux B.V., based in the Netherlands. Mr. de Jong is a Dutch national.

STEFANIE KAHLE-GALONSKE

Mrs. Kahle-Galonske was elected as a member of the Supervisory Board on May 22, 2017 for a period of four years. Since April 2016 Mrs. Kahle-Galonske is CFO of Egon Zehnder International in Zurich, Switzerland. From March 2013 till March 2016, she was CFO of Markem-Imaje at Dover Corporation, based in Geneva, Switzerland. Between January 2007 and February 2012, she held various senior finance positions at NXP Semiconductors in France and the Netherlands. She started her career in 1997 at Philips Electronics in Hamburg, Germany, and held various finance positions till December 2006 at Philips Electronics and Semiconductors in Germany and the US. Mrs. Kahle-Galonske graduated in Economics at Ruhr-University of Bochum, Germany and is a CPA since 2002. Mrs. Kahle-Galonske is a German national.

MARTIN C.J. VAN PERNIS

Mr. van Pernis was initially elected as member of the Supervisory Board in May 2010 and was reappointed on May 28, 2018 for a period of two years. Mr. van Pernis joined Siemens in 1971 and retired from the Siemens Group at the end of 2009 as Chairman of the Management Board of Siemens Nederland NV. Mr. van Pernis is Chairman of the Supervisory Boards of Aalberts Industries NV, CM.com BV, CM Payments, Sacon Architects and the Rotterdams Philharmonic Orchestra, and he is a member of the Supervisory Board of Optixolar BV / Coolback BV and is a member of the Advisory Board of G4S Netherlands. Mr. Van Pernis was until May 2018 also Chairman of the Supervisory Board of Batenburg Techniek NV. Mr. van Pernis studied Electrical Engineering at the Technical University Delft and Technical High School The Hague, the Netherlands, and Law and Economics at the Erasmus University Rotterdam, the Netherlands. Mr. van Pernis is a Dutch national.

ULRICH H.R. SCHUMACHER

Mr. Schumacher was initially elected as member of the Supervisory Board in May 2008 and was reappointed on May 25, 2016 for a period of four years. From 1986 to 1999, he held various engineering and management positions at Siemens AG. Between 1996 and 1999, he was CEO and President of Siemens Semiconductor Group, and became President and CEO of Infineon Technologies AG after the spin-off from Siemens Semiconductor Group in 1999. From 2004 to 2007, Mr. Schumacher was a partner at Francisco Partners, a private equity investment company based in the US. Between 2007 and 2011, he was the CEO and President of Grace Semiconductor Manufacturing Corporation. More recently he was Managing Director of CGS DS. From 2012 until the end of 2015, he was Chairman of the Supervisory Board of PACT XPP Technologies AG. From 2013 till February 2018, Mr. Schumacher was the Chairman of the Executive Board and CEO of Zumtobel Group AG. Mr. Schumacher holds a PhD in Electrical Engineering from the University of Aachen, Germany and has completed further education in Business Administration. Mr. Schumacher is a German national.

THE IMPORTANCE OF DIVERSITY

The Supervisory Board recognizes the value of diversity amongst the members of the Supervisory Board and the members of the Management Board. Diversity is considered in any event to consist of gender, specific knowledge, work background, nationality, age and ethnic diversity, (technical) experience, and skills.

With respect to gender, we strive to have a composition of both the Supervisory Board and Management Board, representing at least 30% of the seats held by either gender at the same time.

RESPONSIBILITIES

The supervision over the policies of our Management Board and the general course of our business, and the related management actions, is entrusted to the Supervisory Board. In our two-tier structure under applicable Dutch law, the Supervisory Board is a separate body independent from the Management Board.

The Supervisory Board supervises and advises the Management Board in executing its responsibilities, particularly regarding:

- achievement of the Company's objectives;
- corporate strategy and the risks inherent in the business activities;
- structure and operation of the internal risk management and control systems;
- financial reporting process;
- compliance with legislation and regulations;
- relation of the Company to its shareholders; and
- relevant aspects of corporate social responsibility.

The Supervisory Board is responsible for monitoring and assessing its own performance.

CONFLICTS OF INTEREST

A Supervisory Board member facing a conflict of interest shall, in accordance with Article 13 of our Supervisory Board rules, inform the Chairman of the Supervisory Board immediately. The Chairman shall, if possible in consultation with the other members of the Supervisory Board, determine the course of action to be taken.

APPOINTMENT

In accordance with Dutch law and the Corporate Governance Code, the Supervisory Board has drawn up a profile for its own composition. This Supervisory Board Profile is available on our website. For the selection of future members of the Supervisory Board, we will actively seek for candidates that support the realization of diversity on the earlier mentioned criteria. Any appointment or reappointment to the Supervisory Board shall be based on the candidate's match with the Supervisory Board Profile. For reappointment, the candidate's performance during the previous period shall be taken into account. A Supervisory Board member who is available for reappointment must be interviewed by the Chairman of the Supervisory Board and the Chairman of the Nomination, Selection and Remuneration Committee. The Chairman of the Nomination, Selection and Remuneration Committee must be interviewed by the Chairman of the Supervisory Board. All members of the Supervisory Board follow an introduction program after their first appointment, in which financial and legal aspects as well as financial reporting and specific features of ASMI are discussed.

The Supervisory Board shall consist of at least three members. The members should operate independently of each other and within a good relationship of mutual trust. They should be experienced in the management of an international, publicly listed company, and have sufficient time available to fulfill the function of a Supervisory Board member. The Supervisory Board members appoint a Chairman from among themselves.

The Supervisory Board is composed of five members.

All members of the Supervisory Board meet the required profile. Supervisory Board members serve in principle a four-year term and may be re-elected in line with article 2.2 of the Corporate Governance Code.

REMUNERATION

For information regarding the remuneration of the Supervisory Board, please see the remuneration report, which is included in our Annual Report 2019, and Note 25 to the consolidated financial statements.

COMMITTEES

In order to more efficiently fulfill its role and in compliance with the Code, the Supervisory Board has created two committees: the Audit Committee and the Nomination, Selection and Remuneration Committee (NSR).

AUDIT COMMITTEE

The Audit Committee assists the Supervisory Board in its responsibility to oversee ASMI's financing, financial statements, financial reporting process, and system of internal business controls and risk management. The Audit Committee advises the Supervisory Board for the nomination of the external auditor of the Company.

The Audit Committee consists of:

- Stefanie Kahle-Galonske (Chairwoman);
- Jan Lobbezoo; and
- Marc de Jong.

The Audit Committee supervises the activities of the Management Board with respect to:

- the structure and operation of the internal risk management and control systems, including supervision of the enforcement of the relevant legislation and regulations;
- the role and functioning of internal audit;
- policy on tax structure;
- the applications of information and communication technology;
- financing of the Company;
- compliance with recommendations and observations of internal and external auditors;
- release of financial information; and
- relations with the external auditor, including, in particular, its independence, remuneration, and any non-audit services performed for the Company.

The Audit Committee meets periodically to:

- consider the adequacy of the internal control procedures;
- review the operating results with management and the independent auditors;
- review the scope and results of the audit with the independent auditors;
- review the scope and results of internal audits with internal audit;
- review performance evaluations relating to the auditor's independence;
- review performance and services of the external auditor; and
- review adequateness of the financing structure and tax structure of the Company.

The Chief Executive Officer, Chief Financial Officer, Director Internal Audit, Corporate Director Group Control, and representatives of the external auditor are invited to, and also attend, the Audit Committee meetings.

Mr. Lobbezoo, Chairman of the Supervisory Board, and Mrs. Kahle-Galonske, member of the Supervisory Board, are both members of the Audit Committee and are the Supervisory Board's financial experts, taking into consideration their extensive financial background and experience.

NOMINATION, SELECTION AND REMUNERATION COMMITTEE

The Nomination, Selection and Remuneration Committee (NSR) advises the Supervisory Board on matters relating to the selection and nomination of the members of the Management Board and Supervisory Board. The NSR Committee further monitors and evaluates the Remuneration Policy for the Management Board.

The NSR Committee consists of:

- Martin van Pernis (Chairman);
- Jan Lobbezoo; and
- Ulrich Schumacher.

The NSR Committee ensures that a competitive remuneration structure is provided by benchmarking with other multinational companies of comparable size and complexity operating in comparable geographical and industrial markets. The NSR Committee evaluates the achievement of performance criteria specified per Management Board member. After the evaluation, it recommends the level of remuneration to the Supervisory Board.

On an annual basis, the NSR Committee reports to the Supervisory Board on the application of the remuneration policy in the previous year and recommends the remuneration policy for the following years.

The Chief Executive Officer and the Corporate Vice President Global Human Resource are invited to, and also attend, the NSR Committee meetings.

SUPERVISORY BOARD REPORT

During the year under review, the Supervisory Board performed its duties in accordance with applicable legislation and the Articles of Association of ASM International N.V. and supervised and advised the Management Board on an ongoing basis.

FINANCIAL STATEMENTS

We present the ASMI 2019 Annual Report in accordance with EU-IFRS, as prepared by the Management Board and reviewed by the Supervisory Board. Our independent auditors, KPMG Accountants N.V., have audited these financial statements and issued an unqualified opinion. Their report appears on pages 156 to 163.

All of the members of the Supervisory Board have signed the financial statements in respect of the financial year 2019.

SUPERVISION

Supervision of the Management Board, its policy decisions and actions are entrusted to the Supervisory Board. In accordance with Dutch law, the Supervisory Board is a separate body, independent of the Management Board. The Supervisory Board supervises and advises the Management Board in executing its responsibilities. The profile of the Supervisory Board describes the range of expertise that should be represented within the Board. The procedures of the Supervisory Board and the division of its duties are laid down in the Supervisory Board rules. Both documents are available on our website www.asm.com.

MEETINGS OF THE SUPERVISORY BOARD

During 2019, the Supervisory Board met with the Management Board on eight occasions, and in one conference call. Jan Lobbezoo, Stefanie Kahle-Galonske and Martin van Pernis attended all Supervisory Board meetings with the Management Board, while Marc de Jong attended all meetings except one and Ulrich Schumacher attended all meetings except two.

Committee	Supervisory Board	Audit Committee	Nomination, Selection and Remuneration Committee (NSR)
Jan C. Lobbezoo	8/8	4/4	4/4
Marc J.C. de Jong	7/8	3/4	–
Stefanie Kahle-Galonske	8/8	4/4	–
Martin C.J. van Pernis	8/8	–	4/4
Ulrich H.R. Schumacher	6/8	–	3/4

Attendance is expressed as the number of meetings attended out of the number eligible to be attended.

In these meetings, the Boards discussed the strategy and the progress of implementation thereof, operations, business risks, product and market developments, the Company's organization, management and financial structure, and performance, including further profitability improvements.

Other topics addressed by the Supervisory Board were the annual budget, the review of quarterly financial results and the preparation of the quarterly earnings press releases. The Supervisory Board also approved the dividend proposal as prepared by the Management Board and proposed (and approved) at the AGM in 2019. Furthermore the Supervisory Board also approved the interim dividend of €1.00 per common share to the holders of common shares, which was announced on November 1, 2019.

One of the meetings was specifically earmarked to discuss with the Management Board the long-term strategy of the company, the planned implementation of it, and the risks attached to its realization.

In the long-term strategy meeting the Board discussed the semiconductor and semiconductor equipment market and outlook, the development of ASMI's market share, the development of the competitive environment, technology and market trends, the progress with ASMI's strategic priorities and ASMI's long-term revenue and profit or loss forecasts. Also, strategic initiatives to be considered to improve the

Company's long-term value creation strategy were discussed. Certain topics discussed during the long-term strategy discussion will be followed up in subsequent meetings of the Board during 2020.

In addition, the Supervisory Board reviewed and discussed the functioning of the Supervisory

Board, its committees, and its individual members through an internal assessment as conducted by the members of the Supervisory Board. The composition, competencies and functioning of the Supervisory Board, as also described in the Supervisory Board profile, and its committees were part of the assessment, as well as the composition of the Management Board, their performance, and the performance of its individual members, and the relationship between the Supervisory Board and the Management Board. The conclusion of the assessment was that both the Supervisory Board and the Management Board function properly and effectively.

CORPORATE GOVERNANCE

Included in the responsibilities of the Supervisory Board is to oversee the Company's compliance with corporate governance standards and best practices. The Supervisory Board is of the opinion that the Company complies with the Dutch Corporate Governance Code.

SHAREHOLDERS

During the AGM of May 20, 2019, shareholders voted in favor of the proposed cancellation of 5 million common shares. The proposal for the cancellation followed the intention that ASMI earlier expressed to reduce its issued share capital by withdrawing the shares repurchased as part of the 2018 share buyback program, save for such number of treasury shares as maybe necessary to fund ongoing share and option programs for employees and board members.

Also during the AGM of May 20, 2019, shareholders approved a dividend of €1.00 per common share, an increase of 25% compared to the dividend paid in 2018.

On July 23, 2019, ASMI announced that the cancellation of the 5 million treasury shares had become effective as of that date, which brought the number of issued shares to 51,297,394 as of that day.

Also on July 23, 2019, ASMI authorized the repurchase of up to €100 million of the Company's common shares within the 2019-2020 time frame, in line with ASMI's commitment to use excess cash for the benefit of its shareholders. The share buyback program started on November 1, 2019, and was completed on February 17, 2020. In total, ASMI repurchased 984,279 shares at an average price of €101.60, under the 2019-2020 program. ASMI has the intention to reduce its capital by withdrawing the shares repurchased as part of the 2019-2020 share buyback program. This withdrawal of shares is intended to be proposed to the AGM in 2020.

On November 1, 2019, ASMI announced an interim dividend of €1.00 per common share. Payment date of the interim dividend was November 12, 2019. The final dividend proposal, which will be in line with ASMI's policy to pay a sustainable dividend, was announced as part of the fourth quarter 2019 and full year results 2019.

SUPERVISORY BOARD COMPOSITION

The Supervisory Board is composed of five members. All five members are independent, in line with the Corporate Governance Code.

MANAGEMENT BOARD COMPOSITION

The Management Board is composed of two members. On September 30, 2019 ASMI announced that Mr. Chuck del Prado, Chief Executive Officer, Chairman of the Management Board and President of the Company had notified the Supervisory Board that he wishes to retire from the Company at the Annual General Meeting of Shareholders to be held in May 2020. ASMI also announced on that day that a search to find a successor to Mr. del Prado had started.

DIVERSITY

The Supervisory Board recognizes the value of diversity amongst the members of the Supervisory Board and the members of the Management Board as stated in the ASMI diversity policy. Diversity is considered in any event to consist of gender, specific knowledge, work background, nationality, age and ethnic diversity, (technical) experience, and skills.

We strive to have a composition with at least 30% of the seats in the Management Board and Supervisory Board held by either gender. At the same time we aim for the best candidate taking into account the realization on the diversity criteria and match with the Supervisory Board profile. Currently we have a 20% female representation in the Supervisory Board. During 2019, there were no changes in the composition of the Management Board and Supervisory Board.

In case of open positions in the Supervisory Board or Management Board, the Supervisory Board prepares a profile based on the required educational and professional background and in the search will actively seek for candidates that support the realization of diversity on the earlier mentioned criteria.

EDUCATION AND TRAINING

As every year, also in 2019 the Management Board and Supervisory Board discussed their education and training needs. The discussions involved several topics which are of use. A focus for this year was on Corporate Governance (including the Corporate Governance Code). Both boards -in addition to their regular meetings- committed one day to a Corporate Governance training. The training was given by legal experts in the field of Corporate Governance.

INDEPENDENCE

The Supervisory Board is of the opinion that its current members are all independent as defined by the Dutch Corporate Governance Code. Neither the Chairman nor any other member of the Supervisory Board is a former member of ASMI's Management Board, or has another relationship with ASMI which can be judged 'not independent' of ASMI.

SUPERVISORY BOARD COMMITTEES

Audit Committee

The role of the Audit Committee is described in its charter, which is available on the Company's website (www.asm.com). The Audit Committee is composed of three members. The composition of the Audit Committee remained unchanged in 2019. During the year, the Audit Committee met with the Management Board and KPMG Accountants, the Company's independent auditors, on four occasions. Audit Committee discussions included: the Company's financial reporting including the application of accounting principles; the Company's financial position and financing programs, and tax structure; the Company's internal risk management systems; effectiveness of internal controls; the audit performed and its findings, the Annual Report and financial statements; and the budget and the quarterly progress reports prepared by the Management Board. The internal auditor participated in all four Audit Committee meetings, presenting her own actions and findings.

On several occasions, the Audit Committee met with KPMG Accountants, without the members of the Management Board present, to discuss several audit related topics. Furthermore, the Audit Committee discussed the auditor's performance with the Management Board without KPMG Accountants present.

Nomination, Selection and Remuneration Committee

The role of the Nomination, Selection and Remuneration Committee (NSR) is described in its charter, which is available on the Company's website, www.asm.com. In general, the NSR Committee advises the Supervisory Board on matters relating to the selection and nomination of new Management Board members, as well as the remuneration of the members of the Management Board. This Committee consists of Messrs. van Pernis (Chairman), Lobbezoo and Schumacher.

In 2019, the NSR Committee held four meetings. The topics discussed included the remuneration of the individual members of the Management Board. During the meetings of the Committee, the Chief Executive Officer was present, except when his own remuneration or functioning was discussed.

Given the announcement that Mr. Chuck del Prado will retire, the NSR is also steering and active in the selection process for the succession of the new CEO as per the coming AGM. Given the impact of this matter for the company, also non-NSR members were involved in this process.

Given the upcoming end of the third term of appointment for Mr. Schumacher, the NSR also set out to search a successor for him. Given the required skills within the Supervisory Board, and in light of the knowledge and experience that would be lost with the departure of Mr. Schumacher, the Committee set out to search for a candidate with a strong industrial background profile.

The remuneration of the members of the Management Board is disclosed in Note 25 to the consolidated financial statements of the Annual Report. The remuneration of the members of the Management Board during 2019 is fully in accordance with the remuneration policy.

WORD OF THANKS

We extend gratitude and appreciation to ASMI employees worldwide for their many contributions and enduring commitment to the Company. It is their commitment and determination that enabled us to make substantial progress in 2019. We recognize that the cumulative efforts of our workforce are truly creating real value for all of our stakeholders.

SUPERVISORY BOARD

J.C. Lobbezoo, Chairman
M.J.C. de Jong
S. Kahle-Galonske
M.C.J. van Pernis
U.H.R. Schumacher

Almere, the Netherlands
March 5, 2020

REMUNERATION REPORT

This remuneration report is based on the remuneration policy of ASM International N.V. (ASMI), dated May 21, 2014. The remuneration policy was adopted by the 2014 Annual General Meeting of Shareholders.

INTRODUCTION

ASM International N.V. (ASMI) is a leading supplier of semiconductor wafer processing equipment and process solutions. Our customers include all of the top semiconductor device manufacturers in the world.

ASMI's strategic objective is to realize profitable, sustainable growth by capitalizing on our innovative strength in deposition technologies and our strong relationships with key customers. We act thereby as a responsible citizen.

To realize our strategy, we focus on three key elements: innovative strength, leadership in deposition and operational excellence.

The year 2019 has been a very successful year for ASMI. In 2019, the total wafer fab equipment market declined 9% (VLSI Research, January 2020), where ASMI showed a sales growth of 57%.

Detailed information regarding the results of 2019 can be found in this Annual Report.

The remuneration report complies with the requirements as included in the Corporate Governance Code (provision 3.4.1). The remuneration policy of ASMI, dated May 21, 2014, and adopted by the 2014 Annual General Meeting of Shareholders (AGM) has been consistently implemented in all remuneration elements in 2019.

The 2019 remuneration report refers to the Remuneration Policy of ASMI, dated May 21, 2014 and adopted by the AGM 2014. See this link.

TOTAL REMUNERATION OF MANAGEMENT BOARD AND SUPERVISORY BOARD

Table 1 provides an overview of the 2019 remuneration elements in thousands of Euro of both CEO and CFO, as well as all members of the Supervisory Board.

		1			2		3	4	5	6
		Fixed Remuneration (K€)			Variable remuneration (K€)					
Name of Director, Position	Years	Base Salary	Fees	Fringe Benefits	Short-term cash incentive (STI)	Share-based payment expenses)***	Extraordinary items	Pension expense (K€)	Total Remuneration (K€)	Proportion of fixed and variable remuneration
C.D. del Prado, CEO	**2019**	702		77	1.053	855		123	2.810	47%
	2018	669		78	511	883		119	2.260	62%
P.A.M. van Bommel, CFO	**2019**	441		40	551	413		91	1.536	59%
	2018	426		37	257	437		89	1.246	80%
J.C. Lobbezo, Chairman Supervisory Board, member Audit Committee (AC) and Nomination, Selection and Remuneration Committee (NSR)	**2019**		84						84	
	2018		79						79	
M.J. C. de Jong, member Supervisory Board and AC	**2019**		58						58	
	2018)*		34						34	
S. Kahle-Galonske, member Supervisory Board and Chairman AC	**2019**		60						60	
	2018		56						56	
M.C.J. van Pernis, member Supervisory Board and Chairman NSR	**2019**		59						59	
	2018		56						56	
U.H.R. Schumacher, member Supervisory Board and NSR	**2019**		56						56	
	2018		54						54	
H.W. Kreutzer, member of Supervisory Board and AC	**2019**		0						0	
	2018)**		21						21	

)* Period as of May 28, 2018
)** Period January 1 to May 28, 2018
)*** These amounts represent the vesting expenses (1/3) related to the financial year

1. Fixed remuneration
Base Salary fixed annual gross base salary
Fees paid due to participation in the supervisory board
Fringe Benefits value of benefits and perquisites awarded, such as company car, social security, representation & expense allowance and health & disability insurance

2. Variable remuneration
Short-term cash incentive (STI). Each year, a short-term incentive can be earned, based on achieving specific challenging targets. The short-term incentive recognizes three levels: threshold, on target and stretch. Threshold levels are set at 70% of the on-target level, while stretch targets are set at 140% of the on-target level. If the actual realization is between threshold and on target or between on-target and stretch, payout will be based upon the relative deviation against these levels. The targets are for 75% based on company financial targets (equally divided between sales, EBIT and free cash flow) and for 25% based on non-financial targets. The on-target bonus percentage for the CEO is 100% of base salary, with a maximum payout of 150% of base salary. For 2019, all targets are realized at stretch level, leading to a total payout of €1,053,000. The on-target bonus percentage for the CFO is 75% of base salary, with a maximum payout of 125% of base salary. For 2019, all targets are realized at stretch, leading to a total payout of €551,000.
Share-based payment. This is a multi-year variable payment of which the value is the value of a performance share award that has become unconditional after a performance period of three years. The unconditional award is the result of targets on sales growth compared to market and average EBIT.

3. Extraordinary items
Non-recurring remuneration, e.g. sign-on fee, retention bonus, redundancy payment, compensation for relocation and indemnity for non-competition or severance payment

4. Pension expense
Fixed pension contributions and variable upon performance. As of 2015, the members of the Management Board no longer participate in the industry wide pension fund. They opt to participate in a defined contribution plan for their salary up to €107,593. The Company reimburses an amount, equal to the employer pension contribution for their salary above €107,593. The CEO and CFO opt either to participate in a net pension plan offered by the Company or to have the cost for participating paid out directly. The pension contributions vary from 7.2% to 28.4% of the pensionable salary depending on age. The members of the Management Board contribute 4.6% of the pensionable salary and ASMI pays the remaining part. There are no arrangements regarding early retirement.

5. Total remuneration
Value equal sum of 1, 2, 3 and 4

6. Proportion of fixed and variable remuneration
Relative proportion of fixed remuneration
The sum of fixed components: column 1 and the fixed part of pension expense presented in column 4 by the amount of total remuneration (column 5), multiplied by 100%
Relative proportion of variable remuneration
The sum of the variable components (column 2, 3 and the variable part of the pension expense in column 4, if any) by the amount of total remuneration, multiplied by 100%

EMPLOYMENT CONTRACTS

CEO and CFO have a written contract with ASMI or one of its related subsidiaries, in accordance with Dutch law, for a four-year period:

- Mr. C.D. del Prado, started May 18, 2006; in May 2018 Mr. del Prado was reappointed for a new term of 4 years; and
- Mr. P.A.M. van Bommel, started July 1, 2010; in May 2018 Mr. van Bommel was reappointed for a new term of 4 years.

For future new appointments to the Management Board, the term of the appointment will also be set at four years.

As is mentioned in the contracts of the members of the Management Board, in case of termination of the contract on behalf of the company, the members of the Management Board are eligible for a severance payment of maximum one-year annual gross base salary.

Any recommended changes to the remuneration of the members of the Supervisory Board will be submitted to the AGM for approval. Shareholders in the AGM 2018 approved the remuneration of the Supervisory Board.

SHARE-BASED REMUNERATION OF MANAGEMENT BOARD

The long-term incentive scheme has the following main features.

STOCK OPTIONS

- Options will be unconditional. 100% of the options which have been granted will become exercisable after three years;
- the options have a term of seven years;
- the exercise price will be equal to the average closing price on Euronext of ASMI shares during the five trading days preceding the granting of the option and including the date of granting; and
- ASMI uses a fair-value approach to calculate the number of options granted.

Table 2 below shows the outstanding options to purchase ASMI common shares held by the CEO and CFO and changes in such holdings during 2019.

	The main conditions of share option plans							Information regarding 2019						
								Opening balance	During the year		Closing balance			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Name of Director, Position	Specification of plan	Performance period	Award Date	Vesting Date	End of holding period	Exercise period	Share price of the share	Share options awarded at the beginning of the year	Share options awarded	Share options vested	Share options subject to a performance condition	Share options excercised in 2019	Share options awarded and unvested	Share options subject to a holding period
C.D. del Prado, CEO	ASMI NV 2011 Stock Option Plan Management Board	3 years	31-12-12	31-12-15	31-12-19	4 years	21,05	77.062	0	0	0	(77.062)	0	0
		3 years	31-12-13	31-12-16	31-12-20	4 years	21,79	81.680	0	0	0	0	0	0
		3 years	24-04-15	24-04-18	24-04-22	4 years	40,62	30.548	0	0	0	0	0	0
		3 years	22-04-16	22-04-19	22-04-23	4 years	34,06	45.293	0	45.293	0	0	0	0
		3 years	21-04-17	21-04-20	21-04-24	4 years	47,33	18.249	0	0	0	0	18.249	0
								252.832	**0**	**45.293**	**0**	**(77.062)**	**18.249**	**0**
P.A.M. van Bommel, CFO	ASMI NV 2011 Stock Option Plan Management Board	3 years	31-12-12	31-12-15	31-12-19	4 years	21,05	51.375	0	0	0	(51.375)	0	0
		3 years	31-12-13	31-12-16	31-12-20	4 years	21,79	57.721	0	0	0	(57.721)	0	0
		3 years	24-04-15	24-04-18	24-04-22	4 years	40,62	15.910	0	0	0	0	0	0
		3 years	22-04-16	22-04-19	22-04-23	4 years	34,06	22.833	0	22.833	0	0	0	0
		3 years	21-04-17	21-04-20	21-04-24	4 years	47,33	8.937	0	0	0	0	8.937	0
								156.776	**0**	**22.833**	**0**	**(109.096)**	**8.937**	**0**

The CEO exercised 77,062 options on October 31, 2019 at a share price of €91.68
The CFO exercised 109,096 options on October 31, 2019 at a share price of €92.74

The total number of exercised options by the Management Board in 2019 to purchase ASMI common shares is 186,158 and an equal number of treasury shares sold for the exercise of these options.

PERFORMANCE SHARES

The number of performance shares granted for on target performance will be determined after the performance year by the Supervisory Board and relates to a sales growth compared to market and average EBIT percentage measured over a three-year performance period. ASMI applies a fair value approach in order to define the number of shares to be granted. The award date is immediately following the date of announcement of the first quarter financial results in April for the year in which the award takes place.

The target level of the LTI is set at 133% of base salary for the CEO and at 100% for the other MB members. The maximum number of shares that will be granted in case of outperformance of the predetermined performance indicators is 150% of the number on target performance. The number of shares granted will be zero in case none of the targets is met.

In order to show commitment to ASMI and align with shareholder interest, the CEO and CFO are required to hold the vested performance shares for two years ('Holding Period') after the vesting date.

In 2019, the three-year performance period of the performance shares granted to the members of the Management Board on April 21, 2017, has been completed. Based on the achievement of the performance criteria, the realization percentage is 128.7% This leads to the following vesting of the performance shares on April 21, 2020.

	Performance Shares Granted	Performance Shares Vested
Chuck del Prado	12,730	16,386
Peter A.M. van Bommel	6,234	8,024

Table 3 below shows the outstanding performance shares granted to the CEO and CFO and held per December 31, 2019.

	The main conditions of share award plans						Information regarding 2019						
							Opening balance	During the year			Closing balance		
	1	2	3		4	5	6	7	8	9	10	11	12
Name of Director, Position	Specification of plan	Perfor-mance period	Award Date	Fair value at Award Date	Vesting Date	End of holding period	Share options awarded at the beginning of the year	Shares awarded	Performance adjustment	Shares vested	Shares subject to a performance condition	Shares awarded and unvested at year end	Shares subject to a holding period
C.D. del Prado, CEO	ASMI NV 2014 Long Term Incentive Plan Management Board	3 years	22-04-16	31,84	22-04-19	22-04-21	12.056	0	(4.304)	(7.752)	0	0	0
		3 years	21-04-17	47,52	21-04-20	21-04-22	12.730	0		0	12.730	12.730	12.730
		3 years	20-04-18	45,71	20-04-21	20-04-23	18.843	0		0	18.843	18.843	18.843
		3 years	25-04-19	57,84	25-04-22	25-04-24	0	15.582		0	15.582	15.582	15.582
							43.629	**15.582**	**(4.304)**	**(7.752)**	**47.155**	**47.155**	**47.155**
P.A.M. van Bommel, CFO	ASMI NV 2014 Long Term Incentive Plan Management Board	3 years	22-04-16	31,84	22-04-19	22-04-21	6.078	0	(2.170)	(3.908)	0	0	0
		3 years	21-04-17	47,52	21-04-20	21-04-22	6.234	0		0	6.234	6.234	6.234
		3 years	20-04-18	45,71	20-04-21	20-04-23	9.008	0		0	9.008	9.008	9.008
		3 years	25-04-19	57,84	25-04-22	25-04-24	0	7.343		0	7.343	7.343	7.343
							21.320	**7.343**	**(2.170)**	**(3.908)**	**22.585**	**22.585**	**22.585**

The CEO and CFO are eligible to receive performance shares under the 'ASMI N.V. 2014 Long Term Incentive Plan for Members of the Management Board' in order to focus on the long-term interest of the Company.

For 2020, the Supervisory Board awarded the following amounts:

- The current CEO, Mr. del Prado, decided to step down per May 2020 and therefore no value has been awarded.
- The Supervisory Board decided to award the following value to Mr. van Bommel: €567,996, based on the renewed Remuneration Policy 2020 - 2023.

CLAW BACK AND ULTIMUM REMEDIUM

In exceptional circumstances the Supervisory Board will have the discretionary authority to recover any amount of paid bonus and awarded shares, if evidence shows payments and awards have been awarded based on incorrect financial or other data (claw back).

If a variable component conditionally awarded in a previous financial year would, in the opinion of the Supervisory Board, produce an unfair result due to extraordinary circumstances during the period in which the predetermined indicators have been or should have been achieved, the Supervisory Board has the authority to adjust the value of bonus and shares downwards or upwards (ultimum remedium).

The NSR Committee concluded for 2019 that no circumstances have been identified that result in any adjustments or claw back of variable remuneration.

COMPLIANCY TO REMUNERATION POLICY AND LONG-TERM PERFORMANCE

The Supervisory Board reviewed the remuneration policy in 2014. The policy is in 2019 applicable to members of the Management Board of ASMI.

An analysis of different scenarios was included in this review.

The purpose of the remuneration policy for the members of the Management Board and the Supervisory Board of ASMI is to provide compensation that:

- Motivates and rewards executives in both Management Board and Supervisory Board with a balanced and competitive remuneration, in sync with role and responsibilities;
- Allows ASMI to attract, reward and retain highly qualified executives with the required background, skills and experience to implement the strategy of ASMI in a highly competitive global industry;
- Ensures that short-term operational results and long-term sustainable value creation are balanced; and
- Is transparent, fair and reasonable and aligns the interests of ASMI, shareholders and other stakeholders in the medium and long-term to deliver sustainable performance in line with the strategy, purpose and values of ASMI.

DEROGATIONS FROM REMUNERATION POLICY

The Supervisory Board has not derogated or deviated from the remuneration policy.

Remuneration peer group: NXP Semiconductor N.V. acquired Freescale Semiconductor Ltd. The latest therefore is no longer part of the remuneration peer-group for future reviews.

ASMI does not provide any loans, deposits or related guarantees to the CEO or other Members of the Management Board or Supervisory Board.

COMPARATIVE INFORMATION ON THE CHANGE OF REMUNERATION AND COMPANY PERFORMANCE

Table 4 Comparative table over the remuneration and company performance over the last five reported financial years (RFY)

Annual Change	2015/2014	2016/2015	2017/2016	2018/2017	2019/2018	Information regarding 2019
Management Board Remuneration						
C.D. del Prado, CEO	98%	93%	112%	105%	124%	The increase 2019/2018 is the result of performance on all targets above stretch
P.A.M. van Bommel, CFO	90%	89%	107%	101%	123%	The increase 2019/2018 is the result of performance on all targets above stretch
Company Performance						
Front-end Sales	123%	89%	123%	111%	157%	
Front-end EBIT	119%	79%	133%	119%	171%	
Free Cash flow	119%	8%	463%	125%	488%	
Qualitative/Non-Financial Strategic Objectives/Targets	98%	96%	113%	103%	128%	
Average remuneration on a full-time equivalent basis of employees (K€)						
	2015	**2016**	**2017**	**2018**	**2019**	
Average remuneration of employees	76	75	78	76	85	Increase % average remuneration: 121% and increase # of employees: 107%
CEO Pay ratio	25	23	25	27	31	

The ratio of the CEO remuneration and the average remuneration of all other employees (the pay ratio) is calculated by dividing the remuneration of the CEO by the average remuneration of all employees. The remuneration of the CEO is the total of base salary, bonus and share based payments, as published in Note 25 to the consolidated financial statements of this report. The average remuneration of all employees is calculated by dividing the total personnel costs (wage and salaries and share based payments) as published in Note 23 to the consolidated financial statements minus the remuneration of the CEO, by the total number of employees.

The increase of the CEO pay ratio from 27 to 31 in 2019 is caused by the following:

- the higher relative weight of the variable remuneration for the CEO than for the average employee; and
- the realization at stretch level for the STI in 2019.

The 2019 ASMI remuneration report follows the guidelines to specify the standardized presentation of the remuneration report as stated in the Directive 2007/36EC of the European Parliament, and amended by Directive (EU) 2017/828, in particular Article 9b (6).

This report is the remuneration report required in accordance with article 2:135b of the Dutch Civil Code and the Dutch Corporate Governance Code.

EXTERNAL AUDITOR

In accordance with Dutch law, ASMI's external auditor is appointed by the Annual General Meeting of Shareholders and is nominated for appointment by the Supervisory Board upon advice from the Audit Committee and the Management Board. Our current external auditor, KPMG, was reappointed as external auditor by the 2019 Annual General Meeting of Shareholders (AGM) for the reporting year 2019.

The external auditor is present at our AGM to respond to questions, if any, from the shareholders about the auditor's report on the financial statements.

The Audit Committee has determined that the provision of services by KPMG and its member firms is compatible with maintaining KPMG's independence. All audit and permitted non-audit services provided by KPMG and its member firms during 2019 were pre-approved by the Audit Committee.

AUDIT COMMITTEE POLICIES AND PROCEDURES

The Audit Committee has adopted the following policies and procedures for pre-approval of all audit and permitted non-audit services provided by our external auditor.

AUDIT SERVICES

Management submits to the Audit Committee for pre-approval the scope and estimated fees for specific services directly related to performing the independent audit of our statutory and consolidated financial statements for the current year.

AUDIT-RELATED SERVICES

The Audit Committee may pre-approve expenditures up to a specified amount for services included in identified service categories that are related extensions of audit services and are logically performed by the auditors. Additional services exceeding the specified pre-approved limits require specific Audit Committee approval.

TAX SERVICES

The Audit Committee may pre-approve expenditures up to a specified amount per engagement and in total for identified services related to tax matters. Additional services exceeding the specified pre-approved limits, or involving service types not included in the pre-approved list, require specific Audit Committee approval.

OTHER SERVICES

In the case of specified services for which utilizing our external auditor creates efficiencies, minimizes disruption or preserves confidentiality, or for which management has determined that our external auditor possesses unique or superior qualifications to provide such services, the Audit Committee may pre-approve expenditures up to a specified amount per engagement and in total. Additional services exceeding the specified pre-approved limits, or involving service types not included in the pre-approved list, require specific Audit Committee approval.

DECLARATIONS

COMPLIANCE WITH DUTCH CORPORATE GOVERNANCE CODE

The Dutch Corporate Governance Code was last amended on December 8, 2016. As of 2018, Dutch listed companies are required to report on compliance with the revised Code. The full text of the Dutch Corporate Governance Code can be found on the website of the Monitoring Commission Corporate Governance Code (www.mccg.nl).

ASMI applies the relevant principles and best practices of the revised Code applicable to the Company, to the Management Board, and to the Supervisory Board, in the manner set out in the Corporate Governance section, as long as it does not entail disclosure of commercially sensitive information, as accepted under the Code.

ASMI agrees with principle 3.2.3 of the Code that in most circumstances a maximum severance payment of one year for Management Board members is appropriate. However, we want to reserve the right to agree to different amounts in case we deem this to be required by the circumstances. Any deviations will be disclosed.

RESPONSIBILITY STATEMENT

The members of the Management Board state that, to the best of their knowledge, the statutory financial statements prepared in accordance with IFRS-EU and Title 9 of part 2 of the Dutch Civil Code as included in this Annual Report 2019 provide a true and fair view of the assets, liabilities, financial position, and results of the Company and its subsidiaries included in the consolidated statements and that the management report provides a true and fair view of the position and the business of the Company and its subsidiaries, and the Annual Report 2019 provides a description of the principal risks and uncertainties that the Company faces.

CORPORATE GOVERNANCE STATEMENT

ASMI complies with the Corporate Governance Code. All required information is part of this Annual Report.

Corporate governance-related documents are available on our website. These include, amongst others, the Supervisory Board profile, Supervisory Board rules, Management Board rules, the Audit Committee charter, the Nomination, Selection and Remuneration Committee charter, the Code of Ethics, the whistleblower policy, the anti-fraud policy, the rules concerning Insider Trading, the remuneration policy, diversity policy and policy regarding communications and bilateral contacts with shareholders.

ARTICLE 10 EU TAKEOVER DIRECTIVE DECREE

The Management Board states that the information required under Article 10 of the EU Takeover Directive Decree is disclosed herein to the extent that it is applicable to ASMI.

FINANCIAL STATEMENTS

In 2019, sales grew to record levels, topping €1,284 million. The company strongly outperformed the WFE market, benefiting from our strong position in the foundry and logic segments. ALD continued to be our key driver, although the other product lines also made a strong contribution. Operating profit increased to €378.7 million from €124.3 million in 2018.

OTHER DEVELOPMENTS

New bookings increased by 41% in 2019 to €1,329 million, with equipment bookings for ASMI as a whole led by foundry, followed by logic and then memory. Total research and development (R&D) expenses, excluding impairment charges, increased by 22% in 2019 compared to the previous year, mainly as a result of higher development activities.

CONSOLIDATED STATEMENT OF PROFIT OR LOSS

		Year ended December 31,	
(EUR thousand, except per share data)	Notes	2018	2019
Revenue	21	818,081	1,283,860
Cost of sales	23	(483,784)	(645,396)
Gross profit		**334,297**	**638,464**
Operating expenses:			
Selling, general and administrative	23	(121,442)	(148,929)
Research and development	23	(88,588)	(110,846)
Total operating expenses		**(210,030)**	**(259,775)**
Result from operations		**124,267**	**378,689**
Finance income		1,056	1,639
Finance expense		(2,466)	(1,766)
Foreign currency exchange gain (loss), net	17	1,276	(146)
Share in income of investments in associates	6	48,436	4,247
Result before income taxes		**172,569**	**382,663**
Income taxes	22	(15,436)	(53,650)
Net earnings from operations, attributable to common shareholders		**157,133**	**329,013**
Per share data	24		
Basic net earnings per share (EUR):			
From operations		**3.00**	**6.66**
Diluted net earnings per share (EUR):			
From operations		**2.96**	**6.58**
Weighted average number of shares (thousand):			
Basic		52,432	49,418
Diluted		53,110	49,999

The notes on the following pages are an integral part of these consolidated financial statements.

CONSOLIDATED STATEMENT OF COMPREHENSIVE INCOME

(EUR thousand)	Notes	Year ended December 31, 2018	Year ended December 31, 2019
Net earnings from operations, attributable to common shareholders		157,133	329,013
Other comprehensive income, net of income tax			
Items that will not be reclassified subsequently to profit or loss:			
Remeasurement of defined benefit obligation	13	242	(103)
Share of other comprehensive income (loss) investments in associates	6	(1,161)	(3,991)
		(919)	(4,094)
Items that may be subsequently reclassified to profit or loss:			
Foreign currency translation effect		46,772	31,427
		46,772	31,427
Other comprehensive income for the year, net of income tax		45,853	27,333
Total comprehensive income, attributable to common shareholders	12	202,986	356,346

The notes on the following pages are an integral part of these consolidated financial statements.

CONSOLIDATED STATEMENT OF FINANCIAL POSITION

(EUR thousand)	Notes	December 31, 2018	December 31, 2019
Assets			
Right-of-use assets	2	–	27,547
Property, plant and equipment	3	148,749	164,863
Goodwill	4	11,270	11,270
Other intangible assets	5	149,927	189,224
Investments in associates	6	789,588	778,268
Deferred tax assets	22	11,316	3,064
Other non-current assets	29	11,641	7,780
Evaluation tools at customers	7	44,634	47,247
Employee benefits (pension assets)	13	224	579
Total non-current assets		**1,167,349**	**1,229,842**
Inventories	8	171,826	173,189
Accounts receivable	9	173,450	199,535
Income taxes receivable	22	4,439	1,220
Other current assets	10	45,001	73,479
Cash and cash equivalents	11	285,907	497,874
Total current assets		**680,623**	**945,297**
Total assets		**1,847,972**	**2,175,139**
Equity and liabilities			
Equity	12	**1,641,551**	**1,818,651**
Accrued expenses and other payables (lease liabilities)		–	15,774
Deferred tax liabilities	22	12,170	20,136
Total non-current liabilities		**12,170**	**35,910**
Accounts payable		80,640	119,712
Provision for warranty	14	7,955	16,424
Income taxes payable	22	6,663	34,599
Accrued expenses and other payables	15	98,993	149,843
Total current liabilities		**194,251**	**320,578**
Total liabilities		**206,421**	**356,488**
Total equity and liabilities		**1,847,972**	**2,175,139**

The notes on the following pages are an integral part of these consolidated financial statements.

CONSOLIDATED STATEMENT OF CHANGES IN EQUITY

(EUR thousand except for share data)	Notes	Number of common shares outstanding	Common shares	Capital in excess of par value	Treasury shares at cost	Retained earnings	Other reserves [1]	Total equity
Balance as of January 1, 2018		**56,140,153**	**2,492**	**218,525**	**(304,654)**	**2,057,387**	**53,754**	**2,027,504**
Net earnings		–	–	–	–	157,133	–	157,133
Other comprehensive income	12	–	–	–	–	–	45,853	45,853
Total comprehensive income		–	–	–	–	**157,133**	**45,853**	**202,986**
Dividend paid to common shareholders		–	–	–	–	(43,644)	–	(43,644)
Capital repayment		–	–	(159,817)	–	(48,957)	–	(208,774)
Compensation expense share-based payments	13	–	–	8,215	–	–	–	8,215
Exercise stock options out of treasury shares	13	258,688	–	(7,966)	12,783	–	–	4,817
Vesting restricted shares out of treasury shares	13	162,791	–	(8,055)	8,055	–	–	–
Purchase of common shares	12	(7,242,734)	–	–	(350,042)	–	–	(350,042)
Cancellation of common shares out of treasury shares	12	–	(240)	–	305,848	(305,608)	–	–
Other movements in investments in associates:								
Dilution	6	–	–	–	–	489	–	489
Balance as of December 31, 2018		**49,318,898**	**2,252**	**50,902**	**(328,010)**	**1,816,800**	**99,607**	**1,641,551**
Adjustment on initial application IFRS 16, net of tax		–	–	–	–	141	–	141
Balance January 1, 2019		**49,318,898**	**2,252**	**50,902**	**(328,010)**	**1,816,941**	**99,607**	**1,641,692**
Net earnings		–	–	–	–	329,013	–	329,013
Other comprehensive income	12	–	–	–	–	–	27,333	27,333
Total comprehensive income		–	–	–	–	**329,013**	**27,333**	**356,346**
Dividend paid to common shareholders		–	–	–	–	(99,299)	–	(99,299)
Capital repayment		–	–	(1,144)	–	–	–	(1,144)
Compensation expense share-based payments	13	–	–	10,538	–	–	–	10,538
Exercise stock options out of treasury shares	13	316,028	–	(8,056)	14,823	–	–	6,767
Vesting restricted shares out of treasury shares	13	182,196	–	(8,564)	8,564	–	–	–
Purchase of common shares	12	(950,902)	–	–	(100,131)	–	–	(100,131)
Cancellation of common shares out of treasury shares	12	–	(200)	–	235,047	(234,847)	–	–
Other movements in investments in associates:								
Dilution	6	–	–	–	–	3,882	–	3,882
Balance as of December 31, 2019		**48,866,220**	**2,052**	**43,676**	**(169,707)**	**1,815,690**	**126,940**	**1,818,651**

[1] Other reserves consist of the currency translation reserve, remeasurement on net defined benefit and the reserve for proportionate share in other comprehensive income investments in associates. See Note 12.

The notes on the following pages are an integral part of these consolidated financial statements.

CONSOLIDATED STATEMENT OF CASH FLOWS

		Year ended December 31,	
(EUR thousand)	Notes	2018	2019
Cash flows from operating activities			
Net earnings from operations		157,133	329,013
Adjustments to reconcile net earnings to net cash from operating activities			
Depreciation, amortization and impairments	2, 3, 5, 7, 29	55,352	78,321
Share-based compensation	13	8,215	10,538
Non-cash costs		(126)	4,884
Non-cash interest		45	593
Share in income of investments in associates	6	(48,436)	(4,247)
Income tax	22	15,436	53,650
Changes in assets and liabilities			
Accounts receivable		(9,189)	(23,937)
Inventories		(22,977)	3,058
Evaluation tools		(22,965)	(13,670)
Other assets		(25,011)	(24,280)
Accounts payable and accrued expenses		48,792	81,134
Income tax paid		(19,459)	(6,186)
Net cash from operating activities		**136,810**	**488,871**
Cash flows from investing activities			
Capital expenditures	3	(67,062)	(48,707)
Proceeds from sale of property, plant and equipment	3	3,758	28
Capitalized development expenditure	5	(49,688)	(60,202)
Purchase of intangible assets	5	(1,058)	(2,320)
Dividend received from associates	6	29,120	31,960
Net cash used in investing activities		**(84,930)**	**(79,241)**
Cash flows from financing activities			
Payment of lease liabilities	2	–	(12,048)
Purchase of treasury shares ASMI	12	(354,963)	(99,929)
Proceeds from issuance of treasury shares	13	4,817	6,767
Dividends to common shareholders of ASMI		(43,644)	(99,298)
Capital repayment		(208,774)	(1,144)
Net cash used in financing activities		**(602,564)**	**(205,652)**
Foreign currency translation effect on cash and cash equivalents		**130**	**7,989**
Net increase / (decrease) in cash and cash equivalents		**(550,554)**	**211,967**
Cash and cash equivalents at beginning of year	11	836,461	285,907
Cash and cash equivalents at end of year	11	**285,907**	**497,874**

The notes on the following pages are an integral part of these consolidated financial statements.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

NOTE 1. GENERAL INFORMATION/SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

GENERAL INFORMATION

ASM International N.V. (ASMI, or the Company) is a Dutch public liability company domiciled in the Netherlands with its principal operations in Europe, the United States of America, and Asia. The Company dedicates its resources to the research, development, manufacturing, marketing and servicing of equipment and materials used to produce mainly semiconductor devices. The Company is registered at Versterkerstraat 8, 1322 AP Almere, the Netherlands.

The Company's shares are listed for trading on the Euronext Amsterdam Stock Exchange (symbol ASM).

The accompanying consolidated financial statements include the financial statements of ASM International N.V. and its consolidated subsidiaries (together also referred to as ASMI, or the Company). ASMI's subsidiaries are listed in Note 28 and associates are listed in Note 6.

BASIS FOR ACCOUNTING

The consolidated financial statements for the year ended December 31, 2019 have been prepared in accordance with International Financial Reporting Standards (IFRS) as adopted by the European Union and also comply with the financial reporting requirements included in Section 362(9) of Part 9, Book 2 of the Dutch Civil Code.

The consolidated financial statements have been prepared by the Management Board of the Company and authorized for issue on March xxx, 2020 and will be submitted for adoption to the Annual General Meeting of Shareholders (AGM) on May 18, 2020.

The consolidated financial statements will be filed with the AFM and at the Trade Register of the Chamber of Commerce in Almere, the Netherlands within eight days of adoption by the 2020 AGM.

This is the first set of the Company's consolidated financial statements in which IFRS 16 Leases have been applied. Changes to significant accounting policies are described in section Changes in Accounting Policies.

FUNCTIONAL AND PRESENTATION CURRENCY

The consolidated financial statements are presented in Euro (EUR), which is the Company's functional currency. All amounts have been rounded to the nearest thousand, unless otherwise indicated.

BASIS OF PREPARATION

The consolidated financial statements have been prepared under the historical cost convention, unless otherwise indicated. The Company applies the going concern basis in preparing its consolidated financial statements.

Historical cost is generally based on the fair value of the consideration given in exchange for goods and services.

A number of the Company's accounting policies and disclosures require the measurement of fair values, for both financial and non-financial assets and liabilities.

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, regardless of whether that price is directly observable or estimated using another valuation technique.

The Company has an established approach with respect to the measurement of fair values. If third-party information, such as broker quotes or pricing services, is used to measure fair values, the Company assesses and documents the evidence obtained from the third parties to support the conclusion that such valuations meet the requirements of IFRS, including the level in the fair value hierarchy in which such valuations should be classified.

Fair values are categorized into different levels in a fair value hierarchy based on the inputs used in the valuation techniques as follows:

- **Level 1:** quoted prices (unadjusted) in active markets for identical assets or liabilities.
- **Level 2:** inputs other than quoted prices included in Level 1 that are observable for the asset or liability, either directly (i.e. as prices) or indirectly (i.e. derived from prices).
- **Level 3:** inputs for the asset or liability that are not based on observable market data (unobservable inputs).

If the inputs used to measure the fair value of an asset or a liability fall into different levels of the fair value hierarchy, then the fair value measurement is categorized in its entirety in the same level of the fair value hierarchy as the lowest level input that is significant to the entire measurement.

Further information about the assumptions made in measuring fair values is included in the following Notes:

- Note 13 - Employee benefits; and
- Note 17 - Financial instruments and financial risk management.

USE OF ESTIMATES AND JUDGMENTS

In preparing these consolidated financial statements, management has made judgments, estimates and assumptions about the carrying amounts of assets and liabilities that are not readily apparent from other sources. The estimates and associated assumptions are based on historical experience and other factors that are considered to be relevant. Actual results may differ from these estimates.

Estimates and underlying assumptions are reviewed on an ongoing basis. Revisions to estimates are recognized prospectively.

Information about assumptions and estimation uncertainties that have a significant risk of resulting in a material adjustment to the carrying amounts of assets and liabilities within the year ended December 31, 2019 is included in the following Notes:

- Notes 3, 4, 5, 6 and 7 - Valuation of non-financial assets;
- Note 2 - Extension options lease term; and
- Note 22 - Valuation of deferred tax assets.

CRITICAL ACCOUNTING POLICIES

A critical accounting policy is defined as one that is both material to the presentation of ASMI's consolidated financial statements and that requires management to make difficult, subjective or complex judgments that could have a material effect on ASMI's financial condition or results of operations. Specifically, these policies have the following attributes: (1) ASMI is required to make assumptions about matters that are highly uncertain at the time of the estimate; and (2) different estimates ASMI could reasonably have used, or changes in the estimate that are reasonably likely to occur, could have a material effect on ASMI's financial condition or results of operations.

Estimates and assumptions about future events and their effects cannot be determined with certainty. ASMI bases its estimates on historical experience and on various other assumptions believed to be applicable and reasonable under the circumstances. These estimates may change as new events occur, as additional information is obtained, and as ASMI's operating environment changes. These changes have historically been minor and have been included in the consolidated financial statements as soon as they became known. In addition, management is periodically faced with uncertainties, the outcomes of which are not within its control and will not be known for prolonged periods of time. Based on a critical assessment of its accounting policies and the underlying judgments and uncertainties affecting the application of those policies, management believes that ASMI's consolidated financial statements are fairly stated in accordance with IFRS, and provide a meaningful presentation of ASMI's financial condition and results of operations. An analysis of specific sensitivity to changes of estimates and assumptions is included in the Notes to the (consolidated) financial statements.

Management believes that the following accounting policies are critical:

- revenue recognition;
- inventories;
- evaluation of long-lived assets for impairment;
- evaluation of investments in associates for impairment;
- intangible assets for capitalization and for impairment; and
- income taxes.

CHANGES IN ACCOUNTING POLICIES

Application of new and revised International Financial Reporting Standards (IFRS)

New and amended IFRS Standards that are effective for the current year

The Company has initially applied IFRS 16 Leases from January 1, 2019. A number of other new standards are effective from January 1, 2019 but they do not have a material effect on the Company's consolidated financial statements.

General impact of application of IFRS 16 Leases

IFRS 16 introduces a single, on-balance sheet lease accounting model for lessees. A lessee recognizes a right-of-use asset representing its right to use the underlying asset and a lease liability representing its obligation to make lease payments. Lessor accounting remains similar to the current accounting but is not applicable to the Company.

The Company has applied IFRS 16 using the modified retrospective approach, under which the cumulative effect of initial application is recognized in retained earnings at January 1, 2019. Accordingly, comparative information presented for 2018 has not been restated, therefore has been presented as previously reported, under IAS 17 and related interpretations. The details of the changes in accounting policies are disclosed below.

Definition of a lease

The Company assesses whether a contract is or contains a lease based on the new definition of a lease. Under IFRS 16, a contract is, or contains, a lease if the contract conveys a right to control the use of an identified asset for a period of time in exchange for consideration.

On transition to IFRS 16, the Company elected to apply the practical expedient to grandfather the assessment of which transactions are leases. It applies IFRS 16 only to contracts that were previously identified as a lease. Contracts that were not identified as a lease under IAS 17 and IFRIC 4 were not reassessed. Therefore, the definition of a lease under IFRS 16 has been applied only to contracts entered into or changed on or after January 1, 2019.

At inception or on reassessment of a contract that contains a lease component, the Company allocated the consideration in the contract to each lease and non-lease component on basis of their relative stand-alone prices. However, for car leases in which it is a lessee, the Company has elected not to separate non-lease components and will instead account for the lease and non-lease components as a single lease component.

Impact on lessee accounting

The Company leases many assets, including land, buildings, houses, motor vehicles, machinery and furniture.

As a lessee, the Company previously classified leases as operating or finance leases based on its assessment of whether the lease transferred substantially all of the risks and rewards of ownership. Under IFRS 16, the Company recognizes right-of-use assets and lease liabilities for most leases, which are on-balance sheet. The Company recognizes the lease payments associated with these leases as an expense on a straight-line basis over the lease term. When measuring lease liabilities for leases that were classified as operating leases, the Company discounted lease payments using its incremental borrowing rate at January 1, 2019. The weighted-average rate applied is 2.6%.

The Company has elected not to recognize right-of-use assets and lease liabilities for short-term leases (lease term of 12 months or less) and leases of low-value assets (up to the amount of €5 thousand asset value, such as water purifiers and air cleaners). The Company recognizes the lease payments associated with these leases as an expense on a straight-line basis over the lease term.

The Company presents right-of-use assets separately from other assets. The carrying amount of the right-of-use assets are set out below:

(EUR thousand)	Land and buildings	Motor vehicles	Other machinery and equipment	Total
Balance as at January 1, 2019	23,579	1,488	620	**25,687**
Balance as at December 31, 2019	25,049	2,142	356	**27,547**

The Company presents the short term part of the lease liabilities as part of the accrued expenses and the long term part as other non-current liabilities.

Significant accounting policies

The Company recognizes a right-of-use asset and a lease liability at the lease commencement date. The right-of-use asset is initially measured at cost, and subsequently at cost less any accumulated depreciation and impairment losses, and adjusted for certain remeasurement of the lease liability.

The lease liability is initially measured at the present value of the lease payments that are not paid at the commencement date, discounted using the Company's incremental borrowing rate. The lease liability is subsequently increased by the interest cost on the lease liability and decreased by the lease payment made. It is remeasured when there is a change in future lease payments arising from a change in a rate or changes in the assessment of whether a purchase or extension option is reasonably certain to be exercised or a termination option is reasonably certain not to be exercised.

The Company has applied judgment to determine the lease term for some of the lease contracts in which it is a lessee that includes renewal options. The assessment of whether the Company is reasonably certain to exercise such options impacts the lease term, which significantly affects the amount of lease liabilities and right-of-use assets recognized.

Transition

Previously, the Company classified property leases as operating leases under IAS 17. These include land, building, motor vehicles, company houses and other equipment. Leases typically run up to a period of 5 years, some with an option to renew the lease after the end of the non-cancelable period.

At transition, for leases classified as operating leases under IAS 17, lease liabilities were measured at the present value of the remaining lease payments, discounted for the Company's incremental borrowing rate as at January 1, 2019. Right-of use assets are measured at an amount equal to the lease liability.

When measuring the lease liabilities for leases that were classified as operating leases, the Company discounted the lease payments using its incremental borrowing rate at January 1, 2019. To determine the incremental borrowing rate, management used a risk free rate for all major areas and adjusted this rate using the Company's credit rating, and considered the term of the lease components.

The Company used the following practical expedients when applying IFRS 16 to leases previously classified as operating leases under IAS 17:

- Applied the exemption for leases for which the lease term ends within 12 months of the date of initial application in the same way as short term leases;
- Applied the exemption for right-of-use assets and liabilities for leases of low value assets (e.g.water purifiers and air cleaners);
- Excluded initial direct costs from measuring the right-of-use asset at the date of initial application; and
- Used hindsight when determining the lease term if the contract contains options to extend or terminate the lease.

The Company did not lease any assets classified as finance leases under IAS 17.

Impact on transition

(EUR thousand)	January 1, 2019
Right-of-use assets presented in property, plant and equipment	25,687
Lease liabilities	25,687
Retained earnings	141

(EUR thousand)	January 1, 2019
Operating lease commitments at December 31, 2018 as disclosed in the 2018 Annual Report	32,115
Discounted using the incremental borrowing rate	(1,854)
Commitments for leases not commenced at January 1, 2019	(4,275)
Recognition exemption for leases of low-value assets	(63)
Recognition exemption for leases with less than 12 months of lease term at transition	(236)
Lease liabilities recognized at January 1, 2019	**25,687**

Impact for the period

As a result of initially applying IFRS 16, in relation to the leases that were previously classified as operating leases, the Company recognized €27,547 of right-of-use assets and €22,776 of lease liabilities as at December 31, 2019.

Also in relation to those leases under IFRS 16, the Company has recognized depreciation and interest costs, instead of operating lease expenses. During the year ended December 31, 2019, the Company recognized €7,333 of depreciation charges and €586 of interest costs from these leases.

ACCOUNTING POLICIES

The Company has consistently applied the following accounting policies to all periods presented in these consolidated financial statements.

Consolidation

The consolidated financial statements include the accounts of ASMI and all of its subsidiaries where ASMI holds a controlling interest. Non-controlling interest is disclosed separately, where appropriate, in the consolidated financial statements.

Control is achieved when ASMI has:

- the power over an investee;
- exposure, or rights, to variable returns from its involvement with the investee; and
- the ability to use its power over the investee to affect the amount of the investor's returns.

ASMI reassesses whether or not it controls an investee if facts and circumstances indicate that there are changes to one or more of the three elements of control listed above.

As from the date these criteria are met, financial data of the relevant subsidiary are included in the consolidation and deconsolidated from the date on which ASMI's control ceases.

Loss of control

Upon loss of control, ASMI derecognizes the assets and liabilities of the subsidiary. Any surplus or deficit arising on the loss of control is recognized in profit or loss. If ASMI retains any interest in this subsidiary, then such interest is measured at fair value at the date on which control is lost. Subsequently, it is accounted for as an equity-accounted investee or as an available-for-sale financial asset, depending on the level of influence retained.

Subsidiaries

Subsidiaries are entities controlled by the Company. The financial statements of subsidiaries are included in the consolidated financial statements from the date on which control commences until the date on which control ceases.

Interests in equity-accounted investees

The Company's interests in equity-accounted investees comprise investments in associates.

Associates are those entities in which the Company has significant influence, but not control or joint control, over the financial and operating policies.

Interests in associates are accounted for using the equity method. They are initially recognized at cost, which includes transaction costs. Upon acquisition of the investment in an associate, any excess of the cost of the investment over the Company's share of the net fair value of the identifiable assets and liabilities of the investee is recognized as goodwill, which is included in the carrying amount of the investment.

Subsequent to initial recognition, the consolidated financial statements include the Company's share of the profit or loss and other comprehensive income (OCI) of equity-accounted investees, until the date on which significant influence ceases.

Transactions eliminated on consolidation

Intra-group balances and transactions, and any unrealized income and expenses arising from intra-group transactions, are eliminated. Unrealized gains arising from transactions with equity-accounted investees are eliminated against the investment to the extent of the Company's interest in the investee. Unrealized losses are eliminated in the same way as unrealized gains, but only to the extent that there is no evidence of impairment.

Foreign currency translation

The individual financial statements of each group entity are presented in their local functional currency. For the purpose of the consolidated financial statements, the results and financial position of each entity is expressed in euros, which is ASMI's functional currency and the presentation currency for the consolidated financial statements.

Foreign currency transactions

In preparing the financial statements of the individual entities, transactions in foreign currencies are recorded at the exchange rates on the date of the transactions. At each balance sheet date, monetary items denominated in foreign currencies are translated at the rates prevailing on the balance sheet date. Non-monetary items carried at fair value that are denominated in foreign currencies are translated at the rates prevailing on the date when the fair value was determined.

Exchange rate differences arising on the settlement of monetary items, and on the translation of monetary items, are recognized in the consolidated statement of profit or loss in the period in which they arise. Exchange rate differences arising on the translation of non-monetary items carried at fair value are recognized in the consolidated statement of profit or loss for the period except for differences arising on the translation of non-monetary items in respect of which gains and losses are recognized directly in equity.

Foreign operations

For the purpose of presenting consolidated financial statements, assets and liabilities of foreign operations are translated into euro at the exchange rates at the reporting date. The income and expenses of foreign operations are translated into euro at the exchange rates at the dates of the transactions.

Foreign currency differences are recognized in OCI and accumulated in the translation reserve, except to the extent that the translation difference is allocated to non-controlling interest.

When a foreign operation is disposed of in its entirety or partially such that control or significant influence is lost, the cumulative amount in the translation reserve related to that foreign operation is reclassified to profit or loss as part of the gain or loss on disposal. If the Company disposes of part of its interest in a subsidiary but retains control, then the relevant proportion of the cumulative amount is reattributed to non-controlling interest. When the Company disposes of only part of an associate while retaining significant influence, the relevant proportion of the cumulative amount is reclassified to profit or loss.

Segment reporting

The Back-end segment is still reported as a separate segment after the Company ceased control on March 15, 2013, since the full results of the Back-end segment are continued to be reviewed by our Chief Operating Decision Maker (CODM).

The Company organizes its activities in two operating segments, Front-end and Back-end. Operating segments are reported in a manner consistent with the internal reporting provided to the Chief Executive Officer (CEO), which is the CODM. Operating segments are in line with the reporting segments.

Accordingly, the asset and profit or loss information regarding the operations that comprise the segment are disclosed. The full financial results are reviewed by the CODM, the external reporting of the segment is on an equity method investment basis. The total of all segments' financial amounts are reconciled to the corresponding amounts reported in the consolidated financial statements, eliminations are reflected in the reconciling column for amounts reported in excess of those amounts reflected in the consolidated financial statements.

The Front-end segment manufactures and sells equipment used in wafer processing, encompassing the fabrication steps in which silicon wafers are layered with semiconductor devices. The segment is a product driven organizational unit comprised of manufacturing, service, and sales operations in Europe, the United States, Japan, South Korea and Southeast Asia.

The Back-end segment manufactures and sells equipment and materials used in assembly and packaging, encompassing the processes in which silicon wafers are separated into individual circuits and subsequently assembled, packaged and tested. The segment is organized in ASM Pacific Technology Ltd, in which the Company holds a 25.19% interest, whilst the remaining shares are listed on the Stock Exchange of Hong Kong.

Property, plant and equipment

Items of property, plant and equipment are measured at cost, less accumulated depreciation and any accumulated impairment losses.

If significant parts of an item of property, plant and equipment have different useful lives, then they are accounted for as separate items (major components) of property, plant and equipment.

Depreciation is calculated to write off the cost of items of property, plant and equipment less their estimated residual values using the straight-line method over their estimated useful lives, and is generally recognized in profit or loss. The estimated useful lives, residual values and depreciation method are reviewed at the end of each reporting period, with the effect of any changes in estimate accounted for on a prospective basis.

The estimated useful lives of property, plant and equipment for current and comparative periods are as follows:

Building and leasehold improvements	1-25 years
Machinery equipment	2-10 years
Furniture and fixtures and other equipment	2-10 years

An item of property, plant and equipment is recognized upon disposal or when no future economic benefits are expected to arise from the continued use of the asset. Any gain or loss on disposal of an item of property, plant and equipment is recognized in profit or loss.

Intangible assets

Goodwill

The Company accounts for business combinations using the acquisition method when control is transferred to the Company. The consideration transferred in the acquisition is generally measured at fair value, as are the identifiable net assets acquired. Any goodwill that arises is tested annually for impairment. Transaction costs are expensed as incurred.

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 cash generating units (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 tested for impairment annually and 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 recognized. An impairment loss recognized for goodwill is not reversed in a subsequent period. Goodwill is stated at cost less accumulated impairment losses.

The Company's goodwill arising on the acquisition of an associate is described in Note 6 'Investments in Associates'.

Other intangible assets

Other intangible assets include capitalized development expenses, software, purchased technology and remaining other intangible assets. Other intangible assets that are acquired by the Company with finite useful lives are measured at cost less accumulated amortization and any accumulated impairment losses.

Expenditure on research activities is recognized in profit or loss as incurred.

In determining the capitalization of development expenses, the Company makes estimates and assumptions based on expected future economic benefits generated by products that are the result of these development expenses. Other important estimates and assumptions are the required internal rate of return, the distinction between research, development and high-volume manufacturing and the estimated useful life.

Development expenses are capitalized when all of the following criteria are demonstrated:

- the technical feasibility of completing the intangible asset so that it will be available for use or sale;
- its intention to complete the intangible asset and use or sell it;
- its ability to use or sell the intangible asset;
- how the intangible asset will generate probable future economic benefits;
- the availability of adequate technical, financial and other resources to complete the development and to use or sell the intangible asset; and
- its ability to reliably measure the expenditure attributable to the intangible asset during its development.

The Company capitalizes development expenses that meet the above-mentioned criteria in its consolidated financial statements. Subsequent to initial recognition, internally-generated intangible assets are reported at cost less accumulated amortization and accumulated impairment losses, on the same basis as intangible assets that are acquired separately.

Amortization of capitalized development expenses is calculated using the straight-line method over the estimated useful lives of the developed product. Amortization starts when the developed product is ready for its intended use, which is when the product is transferred to high-volume manufacturing.

Amortization method, useful life and residual value are reviewed at each reporting date and adjusted if appropriate.

The estimated useful lives of other intangible assets for current and comparative periods are as follows:

Development cost	5 years
Software	3 years
Purchased technology and other intangible assets	5-7 years

Investments in associates

Investments in associates are investments in entities in which ASMI can exert significant influence but which ASMI does not control, generally having between 20% and 50% of the voting rights. These entities are accounted for using the equity method and are initially recognized at cost. Dividend income from the Company's associated companies is recognized when the right to receive payment is established. Their carrying value includes goodwill identified upon acquisition, net of any accumulated impairment.

When ASMI's share of losses in an associate equals or exceeds its interest in the associate, including any other receivables for which settlement is neither planned nor likely to occur in the foreseeable future, ASMI does not recognize further losses, unless ASMI has obligations to or made payments on behalf of the associate.

At each reporting date, the Company determines if there is any objective evidence that the associate is impaired. An impairment, being the difference between the recoverable amount of the associate and its carrying value, is recognized in the consolidated statement of profit or loss.

ASMI does not separately test associates' underlying assets for impairment. However, ASMI recognizes its share of any impairment charge recorded by an investee and considers the effect, if any, of the impairment on the basis difference in the assets giving rise to the investee's impairment charge. A loss in value of an investment which is significant or prolonged will be recognized. Significant is defined as at least 20% over an uninterrupted period of nine months, or more than 40% on the reporting date. Prolonged is defined as measured below cost for more than a year.

Equity method investments are tested for prolonged decline in value. If the fair value of an investment is less than its carrying value, the Company determines whether the decline in value is temporary or prolonged. A prolonged decline in value is measured as of a balance sheet date. If after a prior recognized impairment the fair value is more than its carrying value, this impairment is reversed. The determination of whether an investment is impaired is made at the individual security level in each reporting period.

Evaluation tools at customers

Evaluation tools at customers are systems generally delivered to customers under evaluation and include substantial customization by our engineers and R&D staff in the field. Evaluation tools are recorded at cost and depreciated using the straight-line method over their estimated useful life of five years, or their shorter economic life. The depreciation expenses are reported as cost of sales.

On final acceptance from the customer, the purchase consideration is recognized as revenue and the carrying value of the evaluation system is recognized as cost of sales. In the circumstance that the system is returned, at the end of the evaluation period, a detailed impairment review takes place, and future sales opportunities and additional costs are identified. It is only when the fair value is below the carrying value of the evaluation tool that an additional depreciation is recognized. The remaining carrying value is recognized as finished goods (inventory).

Inventories

Inventories are stated at the lower of cost or net realizable value. The cost of inventories is based on the first-in, first-out principle. Costs include net prices paid for materials purchased, charges for freight and custom duties, production labor costs and factory overhead. Allowances are made for slow-moving, obsolete or unsellable inventory.

Allowances for obsolescence of inventory are determined based on the expected demand as well as the expected market value of the inventory. We regularly evaluate the value of our inventory of components and raw materials, work in progress and finished goods, based on a combination of factors including the following: forecasted sales, historical usage, product end of life cycle, estimated current and future market values, service inventory requirements and new product introductions, as well as other factors. Purchasing requirements and alternative uses for the inventory are explored within these processes to mitigate inventory exposure. We record write-downs for inventory based on the above factors and take into account worldwide quantities and demand into our analysis.

Financial instruments

The Company classifies non-derivative financial assets into loans and receivables. The Company classifies non-derivative financial liabilities into other financial liabilities.

Non-derivative financial assets and financial liabilities - Recognition and derecognition

The Company initially recognizes receivables on the date when they are originated. Receivables comprise account (trade) and other receivables and cash and cash equivalents. Receivables are measured at amortized cost using the effective interest method, less any impairment. Financial assets and financial liabilities are initially recognized on the trade date when the entity becomes a party to the contractual provisions of the instrument.

The Company derecognizes a financial asset when the contractual rights to the cash flows from the asset expire, or it transfers the rights to receive the contractual cash flows in a transaction in which substantially all of the risks and rewards of ownership of the financial asset are transferred, or it neither transfers nor retains substantially all of the risks and rewards of ownership and does not retain control over the transferred asset. Any interest in such derecognized financial asset that is created or retained by the Company is recognized as a separate asset or liability.

The Company derecognizes a financial liability when its contractual obligations are discharged or cancelled, or expired.

Financial assets and financial liabilities are offset and the net amount presented in the statement of financial position when, and only when, the Company currently has a legally enforceable right to offset the amounts and intends either to settle them on a net basis or to realize the asset and settle the liability simultaneously.

Non-derivative financial assets - Measurement

Loans and receivables are initially measured at fair value plus any directly attributable transaction costs. Subsequent to initial recognition, they are measured at amortized cost using the effective interest method.

Accounts receivable

A significant percentage of our accounts receivable is derived from sales to a limited number of large multinational semiconductor device manufacturers located throughout the world. In order to monitor potential credit losses, we perform ongoing credit evaluations of our customers' financial condition. An allowance for doubtful accounts is maintained for potential credit losses based upon management's assessment of the expected collectability of all accounts receivable. The allowance for doubtful accounts is reviewed periodically to assess the adequacy of the allowance. In making this assessment, management takes into consideration any circumstances of which we are aware regarding a customer's inability to meet its financial obligations; and our judgments as to potential prevailing economic conditions in the industry and their potential impact on the Company's customers.

The allowance is based on historical experience, credit evaluations, specific customer collection history and any customer-specific issues ASMI has identified. Changes in circumstances, such as an unexpected adverse material change in a major customer's ability to meet its financial obligation to ASMI or its payment trends, may require us to further adjust our estimates of the recoverability of amounts due to ASMI, which could have an adverse material effect on ASMI's financial condition and results of operations.

Cash and cash equivalents

Cash and cash equivalents consist of deposits held at call with banks, investments in money market funds that invest in debt securities of financial institutions and other short-term highly liquid investments with original maturity of three months or less. Bank overdrafts are included in notes payable to banks in current liabilities.

Non-derivative financial liabilities - Measurement

Other non-derivative financial liabilities are initially measured at fair value less any directly attributable transaction costs. Subsequent to initial recognition, these liabilities are measured at amortized cost using the effective interest method.

Share capital

Ordinary shares

Ordinary shares are classified as equity. Incremental costs directly attributable to the issue of ordinary shares are recognized as a deduction from equity, net of any tax effects.

Preference share capital

Preference share capital is classified as equity if it is non-redeemable, or redeemable only at the Company's option, and any dividends are discretionary. Discretionary dividends thereon are recognized as distributions within equity upon approval by the Company's shareholders.

Preference share capital is classified as a financial liability if it is redeemable on a specific date or at the option of the shareholders, or if dividend payments are not discretionary. Non-discretionary dividends thereon are recognized as interest expense in profit or loss as accrued.

Repurchase and reissue of ordinary shares (treasury shares)

When shares recognized as equity are repurchased, the amount of the consideration paid, which includes directly attributable costs, is recognized as a deduction from equity. Repurchased shares are classified as treasury shares and are presented in the treasury share reserve. When treasury shares are sold or reissued subsequently, the amount received is recognized as an increase in equity and the resulting surplus or deficit on the transaction is presented in a non-distributable capital reserve.

Issuance of shares by an equity accounted investee

The associate ASMPT yearly issues common shares pursuant to their employee share incentive scheme. The effect of these issuances is a dilution of the Company's ownership in ASMPT. The Company recognizes the impact of these issuances directly into equity.

Comprehensive income

Comprehensive income consists of net earnings (loss) and other comprehensive income. Other comprehensive income includes gains and losses that are not included in net earnings, but are recorded directly in equity.

Provisions

Provisions are recognized when the Company has a present obligation (legal or constructive) as a result of a past event, it is probable that the Company will be required to settle the obligation, and a reliable estimate can be made of the amount of the obligation.

Provisions are determined by discounting the expected future cash flows at a pre-tax rate that reflects current market assessments of the time value of money and the risks specific to the liability. The unwinding of the discount is recognized as finance cost.

Impairment

Non-derivative financial assets

Financial assets not classified as at fair value through profit or loss, including an interest in an equity-accounted investee, are assessed at each reporting date to determine whether there is objective evidence of impairment.

Objective evidence that financial assets are impaired includes, default or delinquency by a debtor, restructuring of an amount due to the Company on terms that the Company would not consider otherwise, indications that a debtor or issuer will enter bankruptcy, adverse changes in the payment status of borrowers or issuers, the disappearance of an active market for a security because of financial difficulties, or observable data indicating that there is a measurable decrease in the expected cash flows from a group of financial assets.

Loans and receivables

The Company considers evidence of impairment for these assets at both an individual asset and a collective level. All individually significant assets are individually assessed for impairment. Those found not to be impaired are then collectively assessed for any impairment that has been incurred but not yet individually identified.

The impairment method for account receivables is described at Note 9 Accounts Receivable.

Equity-accounted investees

An impairment loss in respect of an equity-accounted investee is measured by comparing the recoverable amount of the investment with its carrying amount. An impairment loss is recognized in profit or loss, and is reversed if there has been a favorable change in the estimates used to determine the recoverable amount.

Non-financial assets

At each reporting date, the Company reviews the carrying amounts of its non-financial assets (other than inventories and deferred tax assets) to determine whether there is any indication of impairment. If any such indication exists, then the asset's recoverable amount is estimated. Goodwill is tested annually for impairment.

For impairment testing, assets are grouped together into the smallest group of assets that generates cash inflows from continuing use that are largely independent of the cash inflows of other assets or CGUs. Goodwill arising from a business combination is allocated to CGUs or groups of CGUs that are expected to benefit from the synergies of the combination.

The recoverable amount of an asset or CGU is the greater of its value in use and its fair value less costs to sell. Value in use is based on the estimated future cash flows, discounted to their present value using a pre-tax discount rate that reflects current market assessments of the time value of money and the risks specific to the asset or CGU.

An impairment loss is recognized if the carrying amount of an asset or CGU exceeds its recoverable amount.

Impairment losses are recognized in profit or loss. They are allocated first to reduce the carrying amount of any goodwill allocated to the CGU, and then to reduce the carrying amounts of the other assets in the CGU on a pro rata basis.

An impairment loss in respect of goodwill is not reversed. For other assets, an impairment loss is reversed only to the extent that the asset's carrying amount does not exceed the carrying amount that would have been determined, net of depreciation or amortization, if no impairment loss had been recognized.

Commitments and contingencies

The Company has various contractual obligations such as purchase commitments and commitments for capital expenditure. These obligations are generally not recognized as liabilities on the Company's statement of financial position but are disclosed in the Notes to the consolidated financial statements.

Revenue recognition

Revenue is measured based on the consideration specified in a contract with a customer and excludes amounts collected on behalf of third parties. The Company recognizes revenue when it transfers control over a product or service to a customer.

Revenue streams

The Company generates revenue primarily from the sales of equipment and sales of spares & services. The products and services described below by nature, can be part of both revenue streams. The revenue streams are disclosed in Note 21 Revenue.

Nature of goods and services

The following is a description of principal activities from which the group generates its revenue.

Products and services	Nature, timing of satisfaction of performance obligation and significant payment terms
Equipment	Revenue from equipment is recognized at a point in time when the performance obligation is satisfied, when control transfers. This is usually upon shipment. The amount of revenue recognized is based on the amount of the transaction price that is allocated to the performance obligation. Any customer discounts and credits, within volume purchase agreements or bundled agreements, are considered as a reduction of the transaction price.
Installation	The customer simultaneously consumes and receives the benefits provided by the performance of the installation. As such, transfer of control takes place over the period of installation from delivery through customer acceptance, measured on a straight-line basis, as our performance is satisfied evenly over this period of time.
Spares	Revenue from spares is recognized at a point in time when the performance obligation is satisfied, when the control transfers. This is usually upon shipment. The amount of revenue recognized is based on the amount of the transaction price that is allocated to the performance obligation. Any customer discounts and credits, within a volume purchase agreements, are considered as a reduction of the transaction price.
Revenue on royalties and licenses for technology included in equipment and/or spares	The fixed price royalty is a right to use the licenses and revenue is recognized at a point in time, with the point in time being the point that the license is transferred to the customer. For the sales-based royalty the performance obligation is satisfied when the license is transferred to the customer. Given this is earlier than when the sales occurs, revenue should be recognized when the sales occur.
Support services	The customer simultaneously consumes and receives the benefits provided by the performance of the support. As such, transfer of control takes place over the period of support.

Cost of sales

Cost of sales comprise direct costs such as labor, materials, cost of warranty, depreciation, shipping and handling costs and related overhead costs. Cost of sales also includes depreciation expenses of evaluation tools at customers, royalty payments and costs relating to prototype and experimental products, which the Company may subsequently sell to customers. Costs of warranty include the cost of labor and material necessary to repair a product during the warranty period.

Warranty

We provide maintenance on our systems during the warranty period, on average one year. Costs of warranty include the cost of labor and material necessary to repair a product during the warranty period. We accrue for the estimated cost of the warranty on products shipped in a provision for warranty, upon recognition of the sale of the product. The costs are estimated based on historical expenses incurred and on estimated future expenses related to current sales, and are updated periodically. Actual warranty costs are charged against the provision for warranty. The actual warranty costs may differ from estimated warranty costs, and we adjust our provision for warranty accordingly. Future warranty costs may exceed our estimates, which could result in an increase of our cost of sales.

Income tax

Income tax expense comprises current and deferred tax. It is recognized in the statement of profit or loss except to the extent that it relates to a business combination, or items recognized directly in equity or in other comprehensive income.

Current tax

The current corporate income tax charge recognized in the consolidated statement of profit or loss is calculated in accordance with the prevailing tax regulations and rates, taking into account non-taxable income and non-deductible expenses. The current income tax expense reflects the amount for the current reporting period that the Company expects to recover from or pay to the tax authorities. Current income tax related to items recognized directly in equity is recorded in equity and not in the consolidated statement of profit or loss. ASMI's management periodically evaluates positions taken in the tax returns regarding situations in which applicable tax regulations are subject to interpretation, and establishes provisions when deemed appropriate. The amount of current tax payable or receivable is the best estimate of the tax amount expected to be paid or received that reflects uncertainty related to income tax, if any. Measurement of the tax payable or receivable for uncertain tax positions is based on management's best estimate of the amount of tax benefit that will be lost. Current tax also includes any tax arising from dividends.

Current tax assets and liabilities are offset only if certain criteria are met (IAS 12).

Deferred tax

Deferred income tax positions are recognized for temporary differences between the tax basis of assets and liabilities and their carrying values in ASMI's consolidated statement of financial position.

Deferred tax assets are recognized for all deductible temporary differences, the carry forward of unused tax credits and any unused tax losses. Deferred tax assets are recognized only to the extent that it is probable that future taxable profits will be available against which the temporary differences can be utilized. Both the recognized and unrecognized deferred tax assets are reassessed at each reporting date. Deferred tax assets are recorded for deductible temporary differences associated with investments in subsidiaries and are recorded only to the extent that it is probable that the temporary differences will reverse in the foreseeable future and taxable profit will be available against which the temporary differences can be utilized.

Deferred tax liabilities are recognized for all taxable temporary differences except when they affect neither the profit or loss reported in the consolidated statement of profit or loss nor the taxable profit or loss. Also, no deferred tax liabilities are recorded for taxable temporary differences associated with investments in subsidiaries when the timing of the reversal of the temporary differences can be controlled and it is probable that the temporary differences will not reverse in the foreseeable future.

Deferred tax positions are stated at nominal value and are measured at the corporate income tax rates the Company expects to be applicable in the year when the asset is realized or liability is settled based on enacted or substantially enacted tax laws and reflects uncertainty related to income tax, if any.

Deferred income tax assets and liabilities are netted if there is a legally enforceable right to set off current tax assets against current tax liabilities, deferred income tax assets and deferred income tax liabilities relate to income taxes levied by the same taxation authority on the same taxable entity, and there is an intention to settle on a net basis.

Retirement benefit costs

The Company has retirement plans covering substantially all employees. The principal plans are defined contribution plans, except for the plans of the Company's operations in the Netherlands and Japan. The Company's employees in the Netherlands participate in a multi-employer defined benefit plan. Payments to defined contribution plans and the multi-employer plan are recognized as an expense in the consolidated statement of profit or loss as they fall due. The Company accounts for the multi-employer plan as if it were a defined contribution plan since the manager of the plan is not able to provide the Company with the required Company-specific information to enable the Company to account for the plan as a defined benefit plan.

The Company's employees in Japan participate in defined benefit plans. Pension costs in respect to this defined benefit plan are determined using the projected unit credit method. These costs primarily represent the increase in the actuarial present value of the obligation for pension benefits based on employee service during the year and the interest on this obligation in respect to employee service in previous years, net of the expected return on plan assets.

For the defined benefit plan the Company recognizes in its consolidated statement of financial position an asset or a liability for the plan's over-funded status or underfunded status respectively. Actuarial gains and losses are recognized when incurred.

Obligations for contributions to defined contribution plans are expensed as the related service is provided. Prepaid contributions are recognized as an asset to the extent that a cash refund or a reduction in future payments is available.

Share-based payments

The costs relating to employee stock options and shares (compensation expense) are recognized based upon the grant date fair value of the stock options or the shares. The fair value at grant date of employee stock options is estimated using a Black-Scholes option valuation model. This model requires the use of assumptions including expected stock 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 a euro government bond with a life equal to the expected life of the options. The estimated fair value at grant date of shares is based on the share price of the ASMI share at grant date minus the discounted value of expected dividends during the vesting period.

The grant date fair value of the stock options and shares is expensed on a straight-line basis over the vesting period, based on the Company's estimate of stock options and shares that will eventually vest. The impact of the true up of the estimates is recognized in the consolidated statement of profit or loss in the period in which the revision is determined. The total estimated share-based compensation expense, determined under the fair value based method is amortized proportionally over the option vesting periods.

NOTE 2. RIGHT-OF-USE ASSETS

The Company leases many assets, including land, buildings, houses, motor vehicles, machinery and equipment. Leases typically run up to a period of 5 years, some with an option to renew the lease after the end of the non-cancelable period. Lease payments are renegotiated on a periodic basis; timing is depending on the region and type of lease. The Company has not entered into any sub-lease arrangements.

Right-of-use assets

	Land and buildings	Motor vehicles	Other machinery and equipment	Total
Balance January 1, 2019	**23,579**	**1,488**	**620**	**25,687**
Additions	6,475	1,588	16	8,079
Transfer from property, plant and equipment	459	–	–	459
Modifications and reassessments	75	31	(24)	82
Retirements	–	–	–	–
Depreciation for the year	(6,057)	(1,008)	(268)	(7,333)
Foreign currency translation effect	518	43	12	573
Balance December 31, 2019	**25,049**	**2,142**	**356**	**27,547**

Amounts recognized in profit or loss

(EUR thousand)	2019
2019 - Leases under IFRS 16	
Interest on lease liabilities	586
Depreciation expenses	7,333
Expenses relating to short term leases	329
Expenses relating to low value leases	16
Total	**8,264**

(EUR thousand)	2018
2018 - Operating leases under IAS 17	
Lease expenses	8,169

Amounts recognized in statement of cash flows

(EUR thousand)	2019
Total cash out flow for leases	12,048

Extension options

The extension options held are exercisable only by the Company and not by the lessors. The Company assesses at lease commencement date whether it is reasonably certain to exercise the extension options. The Company reassesses whether it is reasonably certain to exercise the options at year-end for material lease components, if there is a significant event or significant changes in circumstances within its control.

NOTE 3. PROPERTY, PLANT AND EQUIPMENT

The changes in the amount of property, plant and equipment are as follows:

	Buildings and leasehold improvements	Machinery, equipment	Furniture and fixtures and other equipment	Assets under construction	Total
At cost					
Balance January 1, 2018	**44,772**	**186,053**	**20,892**	**18,896**	**270,613**
Capital expenditures	130	1,730	1,600	63,602	**67,062**
Retirements and sales	(1,408)	(13,304)	(466)	–	**(15,178)**
Transfer from assets under construction	1,064	26,442	1,786	(29,292)	**–**
Foreign currency translation effect	2,071	7,483	1,165	1,196	**11,915**
Balance December 31, 2018	**46,629**	**208,404**	**24,977**	**54,402**	**334,412**
Capital expenditures	492	2,667	1,126	44,422	**48,707**
Retirements and sales	(5)	(2,985)	(86)	–	**(3,076)**
Transfer from assets under construction	39,238	23,460	4,139	(66,837)	**–**
Transfer to right-of-use assets	–	–	–	(459)	**(459)**
Foreign currency translation effect	995	3,474	625	(154)	**4,940**
Balance December 31, 2019	**87,349**	**235,020**	**30,781**	**31,374**	**384,524**
Accumulated depreciation and impairment					
Balance January 1, 2018	**26,486**	**120,474**	**17,021**	**–**	**163,981**
Depreciation for the year	2,362	21,541	1,758	–	**25,661**
Impairment charges	–	–	–	–	**–**
Retirements and sales	(1,013)	(9,953)	(454)	–	**(11,420)**
Foreign currency translation effect	1,198	5,285	958	–	**7,441**
Balance December 31, 2018	**29,033**	**137,347**	**19,283**	**–**	**185,663**
Depreciation for the year	3,936	27,090	2,303	–	**33,329**
Impairment charges	–	–	–	–	**–**
Retirements and sales	(2)	(2,964)	(82)	–	**(3,048)**
Foreign currency translation effect	892	2,307	518	–	**3,717**
Balance December 31, 2019	**33,859**	**163,780**	**22,022**	**–**	**219,661**
Carrying amounts					
December 31, 2018	**17,596**	**71,057**	**5,694**	**54,402**	**148,749**
December 31, 2019	**53,490**	**71,240**	**8,759**	**31,374**	**164,863**
Useful lives in years	1-25	2-10	2-10		

NOTE 4. GOODWILL

The carrying amount of the goodwill is related to acquisitions in the following cash generating units:

	December 31,	
	2018	2019
ALD	2,611	**2,611**
PEALD	8,659	**8,659**
Total	**11,270**	**11,270**

We perform an annual impairment test in the fourth quarter of each year or if events or changes in circumstances indicate that the carrying amount of goodwill exceeds its recoverable amount. For the Front-end impairment test and the determination of the recoverable amount, a discounted future cash flow approach is used which makes use of our estimates of future revenues, driven by assumed market growth and estimated costs as well as appropriate discount rates.

The material assumptions used for the discounted future cash flows of the cash generating units (CGUs) are:

- an average discount rate of 13.3% (2018: 11.7%) representing the pre-tax weighted average cost of capital;
- external market segment data, historical data and strategic plans to estimate cash flow growth per product line; and
- cash flow calculations are limited to four years of cash flow; after these four years perpetuity growth rates are set based on the market maturity of the products. For a maturing product, the perpetuity growth rates used are 1% or less and for enabling technology products the rate used is 3% or less.

These estimates are consistent with the plans and estimated costs we use to manage the underlying business. Based on this analysis, management concluded that as per December 31, 2019 the recoverable amount of the CGUs exceeded the carrying value. The excess was over 100% for each of the CGUs. Sensitivity analysis demonstrated that no reasonable possible change in estimated cash flows or the discount rate used in calculating the fair value would cause the carrying value of goodwill to exceed the fair value.

For Back-end, goodwill is included in the investment value of ASMPT. For the impairment test, reference is made to Note 6.

NOTE 5. OTHER INTANGIBLE ASSETS

Other intangible assets include capitalized development expenditure, software developed or purchased (including licenses) for internal use and purchased technology from third parties. The changes in the amount of other intangible assets are as follows:

	Development costs	Software	Purchased technology and other intangible assets	Total
At cost				
Balance January 1, 2018	**173,687**	**29,827**	**11,500**	**215,014**
Additions	49,688	1,058	–	50,746
Reclassification	–	–	–	–
Disposals	–	–	(2,678)	(2,678)
Foreign currency translation effect	8,569	259	93	8,921
Balance December 31, 2018	**231,944**	**31,144**	**8,915**	**272,003**
Additions	60,202	2,320	–	62,522
Reclassification	–	–	–	–
Disposals	–	–	–	–
Foreign currency translation effect	3,722	187	(31)	3,878
Balance December 31, 2019	**295,868**	**33,651**	**8,884**	**338,403**
Accumulated amortization and impairment losses				
Balance January 1, 2018	**74,766**	**17,098**	**9,855**	**101,719**
Amortization for the year	12,039	5,240	670	17,949
Impairments	1,278	–	–	1,278
Disposals	–	–	(2,678)	(2,678)
Foreign currency translation effect	3,479	236	93	3,808
Balance December 31, 2018	**91,562**	**22,574**	**7,940**	**122,076**
Amortization for the year	15,597	4,521	670	20,788
Impairments	4,755	–	–	4,755
Disposals	–	–	–	–
Foreign currency translation effect	1,458	133	(31)	1,560
Balance December 31, 2019	**113,372**	**27,228**	**8,579**	**149,179**
Carrying amounts				
December 31, 2018	**140,382**	**8,570**	**975**	**149,927**
December 31, 2019	**182,496**	**6,423**	**305**	**189,224**

We perform an annual impairment test in the fourth quarter of each year or if events or changes in circumstances indicate that the carrying amount of development costs exceeds its recoverable amount. A discounted future cash flow approach is used which makes use of our estimates of future revenues, driven by assumed market growth and estimated costs as well as appropriate discount rates. For the impairment test, reference is made to Note 4.

Impairment charges on capitalized development costs are included in operating expenses under research and development. Impairment of capitalized development expenses primarily related to development of new hardware for which customer demand has shifted out in time, new process technologies that were not successful, and purchased technology which became obsolete. The impairment charges for 2018 and 2019 related to customer specific projects.

Capitalized development costs are amortized over their estimated useful lives of five years. Amortization starts when the developed asset is ready for its intended use. For the Company this occurs when the application is transferred to high-volume manufacturing. Other intangible assets are amortized over their estimated useful lives of three to seven years.

Estimated amortization expenses relating to other intangible assets are as follows:

	Development costs	Software	Purchased technology and other intangible assets	Total
2020	28,820	4,342	285	**33,447**
2021	36,069	1,219	10	**37,298**
2022	36,065	851	10	**36,926**
2023	34,597	11	–	**34,608**
2024	29,464	–	–	**29,464**
Years thereafter	17,481	–	–	**17,481**
Total	**182,496**	**6,423**	**305**	**189,224**

NOTE 6. INVESTMENTS IN ASSOCIATES

The location included below is the principal place of business of the specified associates. There is no difference between the principal place of business and country of incorporation.

		% Ownership December 31,	
Name	**LOCATION**	**2018**	**2019**
Associates			
Levitech BV	Almere, the Netherlands	26.64%	**26.64%**
ASM Pacific Technology Ltd	Kwai Chung, Hong Kong, People's Republic of China	25.33%	**25.19%**

Levitech BV is valued at nil (2018: nil).

The changes in the investment in associates are as follows:

	ASMPT			
	Net equity share	Other (in)tangible assets	Goodwill	Total ASMPT
Balance January 1, 2018	**305,671**	**53,740**	**371,141**	**730,552**
Share in net earnings of investments in associates	60,769	–	–	**60,769**
Other comprehensive income of investments in associates	(1,161)	–	–	**(1,161)**
Reclassification	–	14,587	–	**14,587**
Amortization recognized (in)tangible assets	–	(12,333)	–	**(12,333)**
Dividends	(29,120)	–	–	**(29,120)**
Dilution ASMPT share to 25.33%	489	–	–	**489**
Foreign currency translation effect	7,007	2,067	16,731	**25,805**
Balance December 31, 2018	**343,655**	**58,061**	**387,872**	**789,588**
Share in net earnings of investments in associates	18,035	–	–	**18,035**
Other comprehensive income of investments in associates	(3,991)	–	–	**(3,991)**
Amortization recognized (in)tangible assets	–	(13,788)	–	**(13,788)**
Dividends	(31,960)	–	–	**(31,960)**
Dilution ASMPT share to 25.19%	3,882	–	–	**3,882**
Foreign currency translation effect	5,249	1,479	9,774	**16,502**
Balance December 31, 2019	**334,870**	**45,752**	**397,646**	**778,268**

On March 15, 2013, the Company divested a controlling stake in its subsidiary ASM Pacific Technology Ltd (ASMPT). After the initial accounting of the sale transaction and related gains, future income from ASMPT was adjusted for the fair value adjustments arising from the basis differences as if a business combination had occurred under IFRS 3R, Business Combinations, i.e. a purchase price allocation (PPA).

The purchase of the associate has been recognized at fair value, being the value of the ASMPT shares on the day of closing of the purchase transaction. The composition of this fair value was determined through a PPA. The PPA resulted in the recognition of intangible assets for customer relationship, technology, trade name, product names and goodwill. For inventories and property, plant & equipment, a fair value adjustment was recognized.

The ASMPT investment is accounted for under the equity method on a go-forward basis. Equity method investments are tested for prolonged impairment. An investment is considered impaired if the fair value of the investment is less than its carrying value.

If the fair value of an investment is less than its carrying value at the balance sheet date, the Company determines whether the impairment is temporary or prolonged. The amount per share recognized as per December 31, 2019 under equity accounting amounts to HK$66.09, whereas the level 1 fair value per share (being the market price of a share on the Hong Kong Stock Exchange) was HK$108.10 as per December 31, 2019. Management concluded that based on quantitative analysis no impairment of its share in ASMPT existed as per December 31, 2019.

In December 2019, 2,224,200 common shares of ASMPT were issued, for cash at par value of HK$ 0.10 per share, pursuant to the Employee Share Incentive Scheme of ASMPT. The shares issued under the plan in 2019 have diluted ASMI's ownership in ASMPT to 25.19% as of December 31, 2019.

Per December 31, 2019, the book value of our equity method investment in ASMPT was €778 million. The historical cost basis of our 25.19% share of net assets on the books of ASMPT under IFRS was €335 million as of December 31, 2019, resulting in a basis difference of €443 million. €46 million of this basis difference has been allocated to property, plant and equipment, and intangible assets. The remaining amount was allocated to equity method goodwill. Each individual, identifiable asset will periodically be reviewed for any indicators of potential impairment. We amortize the basis differences allocated to the assets on a straight-line basis, and include the impact within the results of our equity method investments. Amortization and depreciation are adjusted for related deferred tax impacts. Included in net income attributable to ASMI for 2019 was after-tax expense of €14 million, representing the depreciation and amortization of the basis differences.

The market value of our 25.19% investment in ASMPT on December 31, 2019 approximates €1,273 million.

Summarized 100% earnings information for ASMPT equity method investment excluding basis adjustments (foreign currency exchange rate average 2019 1 HK$: €0.11387, for December 31, 2018: 1 HK$: €0.10816).

(HK$ million)	2018	2019
Net sales	19,551	**15,883**
Income before income tax	2,973	**976**
Net earnings	2,212	**622**
Other comprehensive income	(270)	**(169)**
Total comprehensive income	**1,942**	**453**

Summarized 100% statement of financial position information for ASMPT equity method investment excluding basis adjustments (foreign currency exchange rate per December 31, 2019 was 1 HK$: €0.11432 for December 31, 2018: 1 HK$: €0.11151).

	December 31,	
(HK$ million)	2018	2019
Current assets	15,168	**13,381**
Non-current assets	5,907	**7,464**
Current liabilities	7,792	**4,432**
Non-current liabilities	1,122	**4,781**
Equity	12,161	**11,632**

Equity of ASMPT per December 31, 2019 translated into euros at a rate of 0.11432 was €1,329 million (our 25.19% share: €335 million).

The ASMPT Board is responsible for ongoing monitoring of the performance of the Back-end activities. The actual results of the Back-end operating unit are discussed with the ASMPT Audit Committee, which includes the representative of ASMI. The ASMI representative reports to the ASMI Management Board and the Audit Committee of ASMI on a quarterly basis.

Our share of income taxes incurred directly by the associates is reported in result from investments in associates and as such is not included in income taxes in our consolidated financial statements.

NOTE 7. EVALUATION TOOLS AT CUSTOMERS

The changes in the amount of evaluation tools are as follows:

	December 31, 2018	December 31, 2019
At cost		
Balance at beginning of year	**44,414**	**63,851**
Evaluation tools shipped	35,613	30,567
Evaluation tools sold and returns	(19,499)	(22,327)
Foreign currency translation effect	3,323	1,546
Balance at end of year	**63,851**	**73,637**
Accumulated depreciation		
Balance at beginning of year	**14,704**	**19,217**
Depreciation for the year	10,277	12,117
Evaluation tools sold and returns	(6,851)	(5,431)
Foreign currency translation effect	1,087	487
Balance at end of year	**19,217**	**26,390**
Carrying amount at beginning of year	**29,710**	**44,634**
Carrying amount at end of year	**44,634**	**47,247**

Useful lives in years:	5

NOTE 8. INVENTORIES

Inventories consist of the following:

	December 31, 2018	December 31, 2019
Components and raw materials	127,113	111,609
Work in progress	36,064	53,673
Finished goods	22,013	20,434
Total inventories, gross	**185,190**	**185,716**
Allowance for obsolescence	(13,364)	(12,527)
Total inventories, net	**171,826**	**173,189**

The changes in the allowance for obsolescence are as follows:

	December 31, 2018	December 31, 2019
Balance at beginning of year	**(12,749)**	**(13,364)**
Charged to cost of sales	(2,958)	(4,748)
Reversals	723	915
Utilization of the provision	1,978	4,994
Foreign currency translation effect	(358)	(324)
Balance at end of year	**(13,364)**	**(12,527)**

On December 31, 2019, our allowance for inventory obsolescence amounted to €12,527, which is 6.7% of total inventory. The major part of the allowance is related to components and raw materials. The additions for the years 2018 and 2019 mainly relate to inventory items which ceased to be used due to technological developments and design changes which resulted in obsolescence of certain parts.

The cost of inventories recognized as costs and included in cost of sales amounted to €510.2 million (2018: €365.8 million).

NOTE 9. ACCOUNTS RECEIVABLE

A significant percentage of our accounts receivable is derived from sales to a limited number of large multinational semiconductor device manufacturers located throughout the world. In order to monitor potential expected credit losses, we perform ongoing credit evaluations of our customers' financial condition.

The carrying amount of accounts receivable is as follows:

	December 31, 2018	December 31, 2019
Current	154,607	171,866
Overdue <30 days	8,802	19,977
Overdue 31-60 days	2,258	2,076
Overdue 61-120 days	3,507	1,599
Overdue >120 days	4,276	4,017
Total	**173,450**	**199,535**

An allowance for doubtful accounts receivable is maintained for potential expected credit losses based upon management's assessment of the expected collectability of all accounts receivable. The allowance for doubtful accounts is reviewed periodically to assess the adequacy of the allowance. In making this assessment, management takes into consideration any circumstances of which we are aware regarding a customer's inability to meet its financial obligations, and our judgments as to potential prevailing economic conditions in the industry and their potential impact on the Company's customers.

The changes in the allowance for doubtful accounts receivable are as follows:

	December 31,	
	2018	2019
Balance at beginning of year	**–**	**(155)**
Charged to selling, general and administrative expenses	(155)	**(154)**
Utilization of the provision	–	**31**
Foreign currency translation effect	–	**–**
Balance at end of year	**(155)**	**(278)**

Accounts receivable are impaired and provided for on an individual basis. As of December 31, 2019, accounts receivable of €28 million were past due but not impaired. These balances are still considered to be recoverable because they relate to customers for whom there is neither recent history of default nor expectation that this will incur.

For further information on credit risk see Note 17.

NOTE 10. OTHER CURRENT ASSETS

Other current assets consist of the following:

	December 31,	
	2018	2019
Prepayments	12,585	**14,795**
VAT receivable	7,789	**15,067**
Amounts to be invoiced	24,366	**37,679**
Others	261	**5,938**
Total	**45,001**	**73,479**

NOTE 11. CASH AND CASH EQUIVALENTS

Cash and cash equivalents at December 31, 2019 include deposits with financial institutions that have good credit ratings of €4 million (2018: €39 million), investments in money market funds that invest in debt securities of financial institutions that have good credit rating and governments of €10 million (2018: €9 million) and interest-bearing bank accounts of €484 million (2018: €238 million). Our cash and cash equivalents are predominantly denominated in US dollars, and partly in Euros, Singapore dollars, South Korean won, and Japanese yen.

Bank guarantees exist for an amount of €9,733 at December 31, 2019 (€770 as per December 31, 2018). These guarantees mainly relate to lease and tax payments.

Cash and cash equivalents have insignificant interest rate risk and remaining maturities of three months or less at the date of acquisition. Except for an amount of €5.8 million (2018: €3.5 million), no restrictions on usage of cash and cash equivalents exist. The carrying amount of these assets approximates to their fair value. The Company has not recognized a provision for expected credit loss for cash and cash equivalents due to insignificance amount.

NOTE 12. EQUITY

Our Management Board has the power to issue ordinary shares and (financing) preference shares insofar as the Management Board has been authorized to do so by the Annual General Meeting of Shareholders (AGM). The Management Board requires the approval of the Supervisory Board for such an issue. The authorization by the AGM can only be granted for a certain period. In the case that the AGM has not authorized the Management Board to issue shares, the AGM shall have the power to issue shares.

Common shares, preferred and financing preferred shares

Following the amendment of the articles of association on August 3, 2018, the authorized capital of the Company amounts to 82,500,000 common shares of €0.04 par value, 88,500 preferred shares of €40 par value and 6,000 financing preferred shares of €40 par value.

The AGM of May 20, 2019, approved the cancellation of 5.0 million treasury shares. This became effective as per July 23, 2019.

As per December 31, 2019, 51,297,394 common shares with a nominal value of €0.04 each were issued and fully paid up, of which 2,431,174 common shares are held by us in treasury. All shares have one vote per €0.04 par value. Treasury shares held by the Company cannot be voted on. Of our 48,866,220 outstanding common shares at December 31, 2019, 48,583,340 are registered with our transfer agent in the Netherlands, ABN AMRO Bank N.V., and 282,880 are registered with our transfer agent in the United States, Citibank, NA, New York.

Financing preferred shares are designed to allow ASMI to finance equity with an instrument paying a preferred dividend, linked to EURIBOR loans and government loans, without the dilutive effects of issuing additional common shares.

Preferred and financing preferred shares are issued in registered form only and are subject to transfer restrictions. Essentially, a preferred or financing preferred shareholder must obtain the approval of the Company's Supervisory Board to transfer shares. If approval is denied, the Supervisory Board will provide a list of acceptable prospective buyers who are willing to purchase the shares at a cash price to be fixed by consent of the Supervisory Board and seller within two months after the approval is denied. If the transfer is approved, the shareholder must complete the transfer within three months, at which time the approval expires.

Preferred shares are entitled to a cumulative preferred dividend based on the amount paid up on such shares. Financing preferred shares are entitled to a cumulative dividend based on the par value and share premium paid on such shares.

As per December 31, 2019 no preferred shares and no financing preferred shares are issued.

PURCHASES OF EQUITY SECURITIES BY THE ISSUER AND AFFILIATED PURCHASERS

On May 20, 2019, the AGM authorized the Company, for an 18-month period, to be calculated from the date of the AGM, to repurchase its own shares up to 10% of the issued capital, at a price at least equal to the shares' nominal value and at most a price equal to 110% of the shares' average closing price according to the listing on the Euronext Amsterdam stock exchange during the five trading days preceding the purchase date.

On September 22, 2017, ASMI announced a share buyback program to purchase up to an amount of €250 million of its own shares within the 2017-2018 time frame. The program ended on March 29, 2018.

The following table provides a summary of shares repurchased by ASMI under this program:

Period	Total number of shares purchased	Average price paid per share (EUR)	Cumulative number of shares purchased
Share buyback program 2017-2018:			
September, 2017	240,237	€52.81	240,237
October, 2017	823,362	€55.69	1,063,599
November, 2017	714,716	€60.75	1,778,315
December, 2017	863,338	€56.83	2,641,653
January, 2018	703,383	€59.23	3,345,036
February, 2018	885,173	€56.21	4,230,209
March, 2018	123,083	€61.43	4,353,292
Total	**4,353,292**	**€57.43**	

On June 5, 2018, ASMI announced a share buyback program to purchase up to an amount of €250 million of its own shares within the 2018 time frame. The 2018 program started on June 6, 2018, and ended on October 11, 2018.

The following table provides a summary of shares repurchased by ASMI under this program:

Period	Total number of shares purchased	Average price paid per share (EUR)	Cumulative number of shares purchased
Share buyback program 2018:			
June, 2018	812,515	€51.77	812,515
July, 2018	1,086,008	€47.59	1,898,523
August, 2018	1,234,202	€46.51	3,132,725
September, 2018	1,388,126	€43.46	4,520,851
October, 2018	923,037	€41.74	5,443,888
Total	**5,443,888**	**€45.92**	

On July 23, 2019, ASMI announced a share buyback program to purchase up to an amount of €100 million of its own shares within the 2019-2020 time frame. The 2019 program started on November 1, 2019, and was completed on February 17, 2020.

Period	Total number of shares purchased	Average price paid per share (EUR)	Cumulative number of shares purchased
Share buyback program 2019:			
November, 2019	639,665	€100.95	639,665
December, 2019	313,237	€101.67	952,902
Total	**952,902**	**€101.19**	

The following table provides the change in number of treasury shares and outstanding shares:

Number of shares	Treasury shares	Outstanding shares
Balance at beginning of year	**6,978,496**	**49,318,898**
Purchase common shares	950,902	(950,902)
Exercise stock options out of treasury shares	(316,028)	316,028
Vesting restricted shares out of treasury shares	(182,196)	182,196
Cancellation treasury shares	(5,000,000)	–
Balance at end of year	**2,431,174**	**48,866,220**

ASMI intends to use part of the shares for commitments under the employee share-based compensation schemes and the option program for the management board.

The share buyback programs were executed by intermediaries through on-exchange purchases or through off-exchange trades. ASMI updated the markets on the progress of the share buyback programs on a weekly basis.

The repurchase programs are part of ASMI's commitment to use excess cash for the benefit of its shareholders.

TREASURY SHARES

On December 31, 2019, we had 48,866,220 outstanding common shares excluding 2,431,174 treasury shares. This compared to 49,318,898 outstanding common shares and 6,978,496 treasury shares at year-end 2018. Besides the cancellation of 5 million treasury shares in July 2019, the change in the number of treasury shares in 2019 was the result of approximately 950,000 repurchased shares and approximately 498,000 treasury shares that were used as part of share based payments.

	2018	2019
As per January 1:		
Issued shares	62,297,394	56,297,394
Treasury shares	6,157,241	6,978,496
Outstanding shares	**56,140,153**	**49,318,898**
Changes during the year:		
Cancellation of treasury shares	6,000,000	5,000,000
Share buybacks	7,242,734	950,902
Treasury shares used for share based performance programs	421,479	498,224
As per December 31:		
Issued shares	56,297,394	51,297,394
Treasury shares	6,978,496	2,431,174
Outstanding shares	**49,318,898**	**48,866,220**

RETAINED EARNINGS

Distributions to common shareholders are limited to the extent the total amount of shareholders' equity exceeds the amounts of nominal paid-in share capital (exclusive any share premium) and any reserves to be formed pursuant to law or the Company's Articles of Association. The amounts are derived from the Company financial statements of ASMI.

ASMI aims to pay a sustainable annual dividend. The Supervisory Board, upon proposal of the Management Board, will annually assess the amount of dividend that will be proposed to the AGM. The decision that a dividend be proposed to the AGM will be subject to the availability of distributable profits as well as retained earnings and may be affected by our potential future funding requirements. Accordingly, dividend payments may fluctuate and could decline or be omitted in any year.

In 2019, we paid in total a dividend of €2.00 per common share. The regular dividend was paid after the 2019 AGM in May 2019, and an interim dividend was paid in November 2019. We will propose to the forthcoming 2020 AGM to declare a regular dividend of €1.50 per share over 2019 and an extra-ordinary dividend of €1.50 per common share.

Results on dilution of investments in associates are accounted for directly in equity. For 2019 and 2018, these dilution results were €3,882 and €489 respectively.

OTHER RESERVES

The changes in the amount of other reserves are as follows:

	Proportionate share in other comprehensive income investments in associates [1]	Remeasurement on net defined benefit	Translation reserve	Total other reserves
Balance January 1, 2018	**(5,056)**	**(264)**	**59,074**	**53,754**
Proportionate share in other comprehensive income investments in associates	(1,161)	–	–	**(1,161)**
Remeasurement on net defined benefit	–	254	(12)	**242**
Foreign currency translation effect on translation of foreign operations	–	–	46,772	**46,772**
Balance December 31, 2018	**(6,217)**	**(10)**	**105,834**	**99,607**
Proportionate share other comprehensive income investments in associates	(3,991)	–	–	**(3,991)**
Remeasurement on net defined benefit	–	(103)	–	**(103)**
Foreign currency translation effect on translation of foreign operations	–	–	31,427	**31,427**
Balance December 31, 2019	**(10,208)**	**(113)**	**137,261**	**126,940**

[1] Proportionate share in other comprehensive income investments in associates, remeasurement on net defined benefit and translation reserve, items may be subsequently reclassified to profit or loss.

NOTE 13. EMPLOYEE BENEFITS

PENSION PLANS

The Company has retirement plans covering substantially all employees. The principal plans are defined contribution plans, except for the plans of the Company's operations in the Netherlands and Japan.

Multi-employer plan

There are 143 eligible employees in the Netherlands. These employees participate in a multi-employer union plan (Pensioenfonds van de Metalektro PME) determined in accordance with the collective bargaining agreements effective for the industry in which we operate. The current collective bargaining agreement ends on November 30, 2020. This multi-employer union plan, accounted for as a defined contribution plan, covers approximately 1,380 companies and approximately 160,000 contributing members. Our contribution to the multi-employer union plan was less than five percent of the total contribution to the plan. The plan monitors its risks on a global basis, not by participating company or employee, and is subject to regulation by Dutch governmental authorities. By 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. As of January 1, 2015, new pension legislation has been enacted. This legislation results in amongst others, an increase of legally required coverage levels. 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, 2019 of 98.7% (December 31, 2018: 97.6%) is calculated giving consideration to the pension legislation and is below the legally required level. We have however no obligation to pay off any deficits the pension fund may incur, nor do we have any claim to any potential surpluses.

Every company participating in the PME contributes a premium calculated as a percentage of its total pensionable salaries, with each company subject to the same contribution rate. The premium can fluctuate yearly based on the coverage ratio of the multi-employer union plan, for 2019 the contribution percentage was 25.02%. The pension rights of each employee are based upon the employee's average salary during employment.

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 minus the employee contribution.

Defined benefit plan

The Company's employees in Japan participate in a defined benefit plan. The Company makes contributions to defined benefit plans in Japan that provide pension benefits for employees upon retirement. These are average-pay plans, based on the employees' years of service and compensation near retirement.

The most recent actuarial valuations of plan assets and the present value of the defined benefit obligation were carried out on December 31, 2019. The present value of the defined benefit obligation and the related current service cost and past service cost were measured using the projected unit credit method. Significant actuarial assumptions for the determination of the defined obligation are discount rate, future general salary increases and future pension increases.

The net liability (asset) of the plan developed as follows:

	December 31,	
	2018	2019
Defined benefit obligations	10,502	11,446
Fair value of plan assets	10,726	12,025
Net liability (asset) for defined benefit plans	**(224)**	**(579)**

The changes in defined benefit obligations and fair value of plan assets are as follows:

	December 31,	
	2018	2019
Defined benefit obligations		
Balance January 1	**10,167**	**10,502**
Current service cost	735	828
Interest on obligation	50	53
Remeasurement result	(262)	277
Benefits paid	(914)	(552)
Foreign currency translation effect	726	338
Balance December 31	**10,502**	**11,446**
Fair value of plan assets		
Balance January 1	**9,781**	**10,726**
Interest income	51	57
Return on plan assets	(8)	175
Company contribution	1,098	1,273
Benefits paid	(914)	(552)
Foreign currency translation effect	718	346
Balance December 31	**10,726**	**12,025**

The defined benefit cost consists of the following:

	December 31, 2018	December 31, 2019
Current service cost	735	828
Net interest costs	(1)	(4)
Net defined benefit cost	**734**	**824**
Remeasurement on net defined benefit for the year	(254)	102
Remeasurement on net defined benefit	**(254)**	**102**
Total defined benefit cost	**480**	**926**

The assumptions in calculating the actuarial present value of benefit obligations and net periodic benefit cost are as follows:

	2018	2019
Discount rate for defined benefit obligations	0.50%	0.25%
Discount rate for defined benefit cost	0.50%	0.50%

Assumptions regarding life expectancy are based on mortality tables published in 2014 by the Ministry of Health, Labour and Welfare of Japan.

The main risk on the pension plan relates to the discount rate. The defined benefit obligation is sensitive to a change in discount rates, a relative change of the discount rate of 25 basis points would have resulted in a change in the defined benefit obligation of 2.5% to 2.7%.

The allocation of plan assets is as follows:

	December 31, 2018		December 31, 2019	
Cash and cash equivalent	149	1%	147	1%
Equity instruments	1,879	18%	1,938	16%
Debt instruments	1,007	9%	1,279	11%
Assets held by insurance company	7,691	72%	8,661	72%
Total	**10,726**	**100%**	**12,025**	**100%**

The investment strategy is determined based on an asset-liability study in consultation with investment advisors and within the boundaries given by the regulatory bodies for pension funds.

Equity instruments consist primarily of publicly traded Japanese companies and common collective funds. Publicly traded equities are valued at the closing prices reported in the active market in which the individual securities are traded (level 1). Common collective funds are valued at the published price (level 1) per share multiplied by the number of shares held as of the measurement date. Debt instruments consists of government bonds and are valued at the closing prices in the active markets for identical assets (level 1). Assets held by insurance company consist of bonds and loans, government securities and common collective funds. Corporate and government securities are valued by third-party pricing sources (level 2). Common collective funds are valued at the net asset value per share (level 2) multiplied by the number of shares held as of the measurement date.

The plan assets do not include any of the Company's shares.

Retirement plan costs

ASMI contributed €1,272 to the defined benefit plan in 2019 (€1,101 in 2018). The Company expects to pay benefits for years subsequent to December 31, 2019 as follows:

	Expected contribution defined benefit plan
2020	333
2021	388
2022	834
2023	774
2024	548
Aggregate for the years 2025-2029	4,857
Total	**7,734**

The Company does not provide for any significant post-retirement benefits other than pensions.

MANAGEMENT BOARD AND EMPLOYEE AND LONG-TERM INCENTIVE PLAN

The Company has adopted various share plans (e.g. stock option plans, a restricted share plan and a performance share plan) and has entered into share agreements with the Management Board and various employees. Under the stock option plans, the Management Board and employees may purchase per the vesting date a specific number of shares of the Company's common stock at a certain price. Options are priced at market value in euros or US dollars on the date of grant. Under the restricted share plan, employees receive per the vesting date a specific number of shares of the Company's common stock. Under the performance share plan, the Management Board receives per the vesting date, and provided the performance criteria have been met, a specific number of shares of the Company's common stock.

Authority to issue options and shares

By resolution of the Annual General Meeting of Shareholders (AGM) of May 20, 2019, the formal authority to issue options and shares was allocated to the Management Board subject to the approval of the Supervisory Board. This authority is valid for 18 months and needs to be refreshed by the 2020 AGM to allow the continued application of the long-term incentive (LTI) plans beyond November 20, 2020.

The ASMI 2014 Long-Term Incentive Plan for employees (ELTI) is principally administered by the Management Board and the ASMI 2014 Long-Term Incentive Plan for members of the Management Board (MLTI) is principally administered by the Supervisory Board. This complies with applicable corporate governance standards. However, the Supervisory Board has no power to represent the Company. For external purposes the Management Board remains the competent body under both LTI plans. The LTI plans envisage that the Supervisory Board, or in the case of the ELTI the Management Board with the approval of the Supervisory Board, will determine the number of options and shares to be granted to the Management Board members and to employees.

Capital repayment

On August 10, 2018, ASMI distributed €4.00 per common share to its shareholders through a tax efficient repayment of capital. The ex-date of the distribution was August 7, 2018. This capital repayment was previously approved by the 2018 AGM. The Management Board of ASMI and the Supervisory Board of ASMI decided to apply a theoretical adjustment ratio of 0.91821713 to the outstanding options and restricted shares granted to employees including members of the Management Board.

2011 Long-Term Incentive Plan

In 2011 a stock option plan was adopted. In this plan to limit potential dilution, the amount of outstanding (vested and non-vested) options granted to the Management Board and to other employees will not exceed 7.5% of the issued ordinary share capital of ASMI. The stock option plan 2011 consists of two sub-plans: the ASMI stock option plan for employees (ESOP) and the ASMI stock option for members of the Management Board (MSOP).

For employees and existing Management Board members the grant date for all options granted is December 31 of the relevant year. In each of these situations, the three-year vesting period starts at the grant date. The exercise price in euros of all options issued under the ESOP and the MSOP is determined on the basis of the market value of the ASMI shares at (i.e. immediately prior to) the grant date.

The exercise period is four years starting at the third anniversary of the grant date.

The following table is a summary of changes in options outstanding under the 2011 and previous Long-Term Incentive Plan:

	Euro-plans	
	Number of options	Weighted average exercise price in €
Balance January 1, 2018	**666,509**	**22.09**
Adjustment following capital repayment	53,455	–
Options forfeited	–	–
Options expired	(8,037)	18.96
Options exercised	(260,757)	18.70
Balance December 31, 2018	**451,170**	**21.48**
Options forfeited	(7,120)	21.39
Options expired	(3,267)	21.79
Options exercised	(313,531)	21.36
Balance December 31, 2019	**127,252**	**21.79**

The total intrinsic value of options exercised was €6,767 for the year ended December 31, 2019 (2018: €4,817). In 2019 treasury shares have been sold for the exercise of 316,028 options.

On December 31, 2019, options outstanding and options exercisable classified by range of exercise prices are:

	Options outstanding			Options exercisable	
Range of exercise prices	Number outstanding	Weighted average remaining contractual life	Weighted average exercise price	Number exercisable	Weighted average exercise price
Euro plans		In years	In EUR		In EUR
€1.00-15.00	–	–	–	–	–
€15.01-20.00	–	–	–	–	–
€20.01-25.00	127,252	1.0	21.79	127,252	21.79
€1.00-25.00	**127,252**	**1.0**	**21.79**	**127,252**	**21.79**

At December 31, 2019, the aggregate intrinsic value of all options outstanding and exercisable under these plans is €12,744.

Under these plans, no more options to purchase shares can be issued. Under the various stock option plans a total of 127,252 options to purchase common stock were outstanding at December 31, 2019, expiring at various dates through 2020.

2014 Long-Term Incentive Plan

In 2014 a new Long-Term Incentive Plan was adopted. In the new plan to limit potential dilution, the amount of outstanding (vested and non-vested) options and shares granted to the Management Board and to other employees will not exceed 5% of the issued ordinary share capital of ASMI. The new Long-Term Incentive Plan 2014 consists of two sub-plans: the ELTI and the MLTI.

Options and performance shares are issued to Management Board members and restricted shares are issued to employees once per annum on the date following the publication of the first-quarter results of the relevant year. Possible grant to newly-hired employees can be issued once a quarter, on the date following the publication of the financial results of the relevant quarter. The number of options and shares outstanding under the Long-Term Incentive Plans or under any other plan or arrangement in aggregate may never exceed 5% of ASMI's share capital. In accordance with the ASMI remuneration policy, an exception is made for a transition period of four years, during which the dilution may exceed 5% but will not exceed 7.5%.

Performance and restricted shares outstanding

The following table is a summary of changes in performance shares and restricted shares outstanding under the 2014 Long-Term Incentive Plan.

	Number of performance shares	Number of restricted shares	Status	Fair value at grant date (weighted average)
Balance January 1, 2018	**47,058**	**306,535**		
Adjustment following capital repayment	5,312	28,582		
Shares granted, employees	–	174,951	Unconditional	€49.90
Shares granted, Management Board	25,573	–	Conditional	€49.78
Shares granted, Management Board	2,274	–	Unconditional	€43.21
Shares vested	(15,268)	(147,523)		
Shares forfeited	–	(21,357)		
Balance December 31, 2018	**64,949**	**341,188**		
Shares granted, employees	–	212,160	Unconditional	€58.47
Shares granted, Management Board	22,925	–	Conditional	€57.84
Shares vested	(11,660)	(170,536)		
Shares forfeited	(6,474)	(14,971)		
Balance December 31, 2019	**69,740**	**367,841**		

In 2019, treasury shares were sold for the vesting of 182,196 restricted shares.

Options outstanding

The following table is a summary of changes in options outstanding under the 2014 Long-Term Incentive Plan.

	Number of options	Exercise price in €	Fair value at grant date
Balance January 1, 2015	**–**		
Options granted, April 24, 2015	42,659	44.24	€17.33
Balance December 31, 2015	**42,659**		
Options granted, April 22, 2016	62,555	37.09	€12.64
Balance December 31, 2016	**105,214**		
Options granted, April 21, 2017	24,963	51.55	€14.57
Balance December 31, 2017	**130,177**		
Adjustment following capital repayment	11,593	–	–
Balance December 31, 2018	**141,770**		

In 2019 no options were granted.

At December 31, 2019, the aggregate intrinsic value of all options outstanding under the 2014 Long-Term Incentive Plan is €14,198.

Share-based payments expenses

The grant date fair value of the stock options, the restricted shares and the performance shares is expensed on a straight-line basis over the vesting period, based on the Company's estimate of stock options, restricted shares and performance shares that will eventually vest. The impact of the true up of the estimates is recognized in the consolidated statement of profit or loss in the period in which the revision is determined. We recorded compensation expenses of €10,538 for 2019 (2018: €8,215).

NOTE 14. PROVISION FOR WARRANTY

The changes in the amount of provision for warranty are as follows:

	December 31,	
	2018	2019
Balance January 1	**6,562**	**7,955**
Charged to cost of sales	18,408	**26,301**
Deductions	(8,985)	**(12,232)**
Releases of expired warranty	(8,214)	**(5,684)**
Foreign currency translation effect	184	**84**
Balance December 31	**7,955**	**16,424**

Costs of warranty include the cost of labor and materials to repair a product during the warranty period. The main term of the warranty period is one year. The Company accrues for the estimated cost of the warranty on its products shipped in the provision for warranty, upon recognition of the sale of the product. The costs are estimated based on actual historical expenses incurred and on estimated future expenses related to current sales, and are updated periodically. Actual warranty costs are charged against the provision for warranty.

NOTE 15. ACCRUED EXPENSES AND OTHER PAYABLES

Accrued expenses and other payables consist of the following:

	December 31,	
	2018	2019
Personnel-related items	32,636	**45,318**
Deferred revenue	28,255	**32,146**
Financing related items	–	**3,912**
Current portion of lease liabilities	–	**7,002**
Advanced payments from customers	25,382	**47,601**
Supplier related items	1,828	**2,175**
Marketing related items	1,049	**1,365**
R&D projects	1,209	**1,109**
Other	8,634	**9,215**
Total accrued expenses and other payables	**98,993**	**149,843**

Personnel-related items comprise accrued management bonuses, accrued vacation days, accrued wage tax, social securities and pension premiums. Deferred revenue consists of the revenue relating to the undelivered elements of the arrangements, see Note 21 for more information. This part of revenue is deferred at their relative selling prices until delivery of these elements. Other includes accruals for VAT, other taxes and invoices to be received for goods and services.

NOTE 16. CREDIT FACILITY

As per December 31, 2019, ASMI was debt-free. ASMI may borrow under separate short-term lines of credit with banks under an unsecured €150 million standby credit facility with a consortium of banks.

Total short-term lines of credit amounted to €150 million on December 31, 2019. The amount outstanding at December 31, 2019 was nil, so the undrawn portion totaled €150 million. The undrawn portion represents the Company's standby revolving credit facility of €150 million with a consortium of banks. The facility will be available through December 16, 2023. As per December 31, 2019, this facility was undrawn.

The credit facility of €150 million includes two financial covenants:

- minimum consolidated tangible net worth; and
- consolidated total net debt/total equity ratio.

These financial covenants are measured twice each year, at June 30 and December 31.

The minimum level of consolidated tangible net worth for the year ended December 31, 2019 required was €450 million, the consolidated tangible net worth as per that date was €1,175 million.

Consolidated tangible net worth is defined as the net assets, deducting any amount shown in respect of goodwill or other intangible assets (including any value arising from any valuation of ASMPT).

Total equity is defined as the aggregate of:

- the amounts paid up on the issued common shares;
- share capital in excess of par value;
- retained earnings;
- accumulated other comprehensive income and loss; and
- deducting any amount shown in respect of goodwill or other intangible assets.

The net debt/total equity ratio should not exceed 1.5. For the year ended December 31, 2019, net cash was €498 million and total equity amounted to €1,819 million. The Company is in compliance with these financial covenants as of December 31, 2019.

ASMI does not provide guarantees for borrowings of ASMPT and there are no guarantees from ASMPT to secure indebtedness of ASMI. Under the rules of the Stock Exchange of Hong Kong, ASMPT is precluded from providing loans and advances other than trade receivables in the normal course of business, to ASMI or its non-ASMPT subsidiaries.

NOTE 17. FINANCIAL INSTRUMENTS AND FINANCIAL RISK MANAGEMENT

FINANCIAL INSTRUMENTS

Financial instruments include:

	December 31,	
	2018	2019
Financial assets:		
Cash and cash equivalents	285,907	**497,874**
Accounts receivable	173,450	**199,535**
Financial liabilities:		
Accounts payable	80,640	**119,712**

The carrying amounts of cash and cash equivalents, accounts receivable and accounts payable equal their fair values because of the short-term nature of these instruments.

Gains or losses related to financial instruments are as follows:

	2018	2019
Interest income	1,056	**1,639**
Interest expense	(2,466)	**(1,766)**
Result from foreign currency exchange	1,276	**(146)**
Addition to allowance for doubtful accounts receivable	(155)	**(154)**

FINANCIAL RISK FACTORS

ASMI is exposed to a number of risk factors: market risks (including foreign exchange risk), credit risk, liquidity risk and equity price risk. The Company may use forward exchange contracts to hedge its foreign exchange risk. The Company does not enter into financial instrument transactions for trading or speculative purposes.

Foreign exchange risk

ASMI and its subsidiaries conduct business in a number of foreign countries, with certain transactions denominated in currencies other than the functional currency of the Company (Euro) or one of its subsidiaries conducting the business. The purpose of the Company's foreign currency management is to manage the effect of exchange rate fluctuations on income, expenses, cash flows and assets and liabilities denominated in selected foreign currencies, in particular denominated in US dollars.

We may use forward exchange contracts to hedge our foreign exchange risk of anticipated sales or purchase transactions in the normal course of business, which occur within the next twelve months, for which we have a firm commitment from a customer or to a supplier. The terms of these contracts are consistent with the timing of the transactions being hedged. The hedges related to forecasted transactions are designated and documented at the inception of the hedge as cash flow hedges, and are evaluated for effectiveness on a quarterly basis. The effective portion of the gain or loss on these hedges is reported as a component of accumulated other comprehensive income (loss) net of taxes in equity, and is reclassified into earnings when the hedged transaction affects earnings.

Changes in the fair value of derivatives that do not qualify for hedge treatment, as well as the ineffective portion of any hedges, are recognized in earnings. We record all derivatives, including forward exchange contracts, on the statement of financial position at fair value in accrued expenses and payables. Should contracts extend beyond one year, these are classified as long-term.

Furthermore, we might manage the currency exposure of certain receivables and payables using derivative instruments, such as forward exchange contracts (fair value hedges) and currency swaps, and non-derivative instruments, such as debt borrowings in foreign currencies. The gains or losses on these instruments provide an offset to the gains or losses recorded on receivables and payables denominated in foreign currencies. The derivative instruments are recorded at fair value and changes in fair value are recorded in earnings under foreign currency exchange gains (losses) in the consolidated statement of profit or loss. Receivables and payables denominated in foreign currencies are recorded at the exchange rate at the balance sheet date and gains and losses as a result of changes in exchange rates are recorded in earnings under foreign currency exchange gains (losses) in the consolidated statement of profit or loss.

We do not use forward exchange contracts for trading or speculative purposes. Financial assets and financial liabilities are recognized on the Company's consolidated statement of financial position when the Company becomes a party to the contractual provisions of the instrument.

To the extent that exchange rate fluctuations impact the value of the Company's investments in its foreign subsidiaries, they are not hedged. The cumulative effect of these fluctuations is separately reported in consolidated equity. Reference is made to Note 12.

Per December 31, 2018 and December 31, 2019, there were no forward exchange contracts outstanding.

The following table analyzes the Company's exposure to currency risk in our major currencies.

	December 31,							
	2018				2019			
(thousand)	USD	JPY	KRW	SGD	USD	JPY	KRW	SGD
Accounts receivable	118,198	5,138,417	5,028,459	337	170,904	2,902,585	11,754,832	357
Cash and cash equivalents	240,631	2,103,999	6,932,106	7,153	412,773	3,034,840	15,868,137	45,262
Accounts payable	(39,884)	(2,091,110)	(14,857,084)	(14,397)	(62,962)	(3,347,833)	(13,215,657)	(27,801)
Total	**318,945**	**5,151,306**	**(2,896,519)**	**(6,907)**	**520,715**	**2,589,592**	**14,407,312**	**17,818**

The following table analyzes the Company's sensitivity to a hypothetical 10% strengthening and 10% weakening of the US dollar, Singapore dollar, South Korean won and Japanese yen against the euro as of December 31, 2018 and December 31, 2019. This analysis includes foreign currency-denominated monetary items and adjusts their translation at year end for a 10% increase and 10% decrease against the euro.

	Impact on financial instruments	
(EUR thousand)	2018	2019
10% increase of US dollar versus euro	27,855	46,351
10% decrease of US dollar versus euro	(27,855)	(46,351)
10% increase of Singapore dollar versus euro	(443)	1,179
10% decrease of Singapore dollar versus euro	443	(1,179)
10% increase of South Korean won versus euro	(226)	1,109
10% decrease of South Korean won versus euro	226	(1,109)
10% increase of Japanese yen versus euro	4,095	2,123
10% decrease of Japanese yen versus euro	(4,095)	(2,123)

A hypothetical 10% strengthening or 10% weakening of any other currency against the euro as of December 31, 2018 and December 31, 2019, would not result in a material impact on net earnings.

Interest risk

We are exposed to interest rate risk through our cash deposits. The Company does not enter into financial instrument transactions for trading or speculative purposes or to manage interest rate exposure. As per December 31, 2019, the Company had no debt and was not exposed to interest rate risk on borrowings.

Credit risk

Financial instruments that potentially subject the Company to concentrations of credit risk consist primarily of cash and cash equivalents, accounts receivable and derivative instruments. These instruments contain a risk of counterparties failing to discharge their obligations. We monitor credit risk and manage credit risk exposure by type of financial instrument by assessing the creditworthiness of counterparties. We do not anticipate non-performance by counterparties given their high creditworthiness.

Our customers are semiconductor device manufacturers located throughout the world. We perform ongoing credit evaluations of our customers' financial condition. We take additional measures to mitigate credit risk when considered appropriate by means of down payments or letters of credit. We generally do not require collateral or other security to support financial instruments with credit risk.

Concentrations of credit risk (whether on- or off-balance sheet) that arise from financial instruments exist for groups of customers or counterparties when they have similar economic characteristics that would cause their ability to meet contractual obligations to be similarly affected by changes in economic or other conditions.

We derive a significant percentage of our revenue from a small number of large customers. The ten largest customers accounted for approximately 82.2% of net sales in 2019 (2018: 79.2%). The three largest customers accounted for approximately 61.6% of net sales in 2019 excluding the proceeds of the patent litigation and arbitration settlement (2018: 51.5%). In 2019 we had three customers (2018: two customers) who contributed more than 10% of total net sales. Sales to these large customers also may fluctuate significantly from time to time depending on the timing and level of purchases by these customers. Significant orders from such customers may expose the Company to a concentration of credit risk and difficulties in collecting amounts due, which could harm the Company's financial results.

We invest our cash and cash equivalents in short-term deposits, money market funds and derivative instruments with high-rated financial institutions. We only enter into transactions with a limited number of major financial institutions that have high credit ratings and we closely monitor the creditworthiness of our counterparties. Concentration risk is mitigated by not limiting the exposure to a single counter party.

The maximum credit exposure is equal to the carrying values of cash and cash equivalent, and accounts receivable.

Liquidity risk

Our policy is to maintain a strong capital base so as to maintain investor, creditor and market confidence and to sustain future development of the business.

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 principal sources of liquidity are sufficient to satisfy our current requirements, including our expected capital expenditures in 2020.

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.

The following table summarizes the Company's contractual and other obligations as at December 31, 2019.

	Total	Less than 1 year	1-5 years	More than 5 years
Accounts payable	**119,712**	119,712	–	–
Income tax payable	**34,599**	34,599	–	–
Accrued expenses and other payables	**149,843**	149,843	–	–
Lease liabilities	**24,261**	6,977	14,726	2,558
Pension liabilities	**7,734**	333	2,544	4,857
Purchase obligations:				
Purchase commitments to suppliers	**100,694**	99,546	1,148	–
Capital expenditure and other commitments	**43,692**	40,745	2,947	–
Total contractual obligations	**480,535**	**451,755**	**21,365**	**7,415**

Total short-term lines of credit amounted to €150 million at December 31, 2019. The amount outstanding at December 31, 2019 was nil and the undrawn portion totaled €150 million. The standby revolving credit facility of €150 million with a consortium of banks will be available through December 16, 2023.

For the majority of purchase commitments, the Company has flexible delivery schedules depending on the market conditions, which allows the Company, to a certain extent, to delay delivery beyond originally planned delivery schedules.

Equity price risk

The shares of ASMPT, our 25.19% equity investment, are listed on the Hong Kong Stock Exchange. If the fair value of an investment is less than its carrying value at the balance sheet date, the Company determines whether the impairment is temporary or prolonged. The amount per share recognized as per December 31, 2019 under equity accounting amounts to HK$66.09 whereas the level 1 fair value per share (being the market price of a share on the Hong Kong Stock Exchange) was HK$108.10. Management concluded that, based on quantitative analysis no impairment of its share in ASMPT existed as per December 31, 2019.

NOTE 18. COMMITMENTS AND CONTINGENCIES

Per December 31, 2019, the Company had entered into purchase commitments with suppliers in the amount of €99,546 for purchases within the next 12 months. Commitments for capital expenditures and other commitments per December 31, 2019 were €40,745 within the next 12 months and €2,947 after 12 months.

NOTE 19. LITIGATION

In 2007, ASMI licensed Hitachi Kokusai Electric Inc (now called Kokusai Electric Company and hereafter referred to (including its affiliates) as Kokusai) under certain of its patents in the field of Atomic Layer Deposition. The license agreement was renewed in 2012.

On August 30, 2017, ASMI initiated an arbitration with the American Arbitration Association against Kokusai for breach of the license agreement between the parties. Following the expiration of the parties' patent license agreement, ASMI filed, on December 1, 2017, a suit for patent infringement against Kokusai and its US subsidiary in the US District Court for the Northern District of California, which was followed by a suit by Kokusai in the same district and a suit in the District of Oregon. Subsequently suits were started by both parties in the Tokyo District Court in Japan.

Both the arbitration and the law suits were settled by the parties. As announced on July 1, 2019 in our press release, under the patent law suit settlement the parties resolved and ended all lawsuits, and Kokusai paid ASMI an amount of US$115 million (€103 million), and furthermore parties agreed to provide each other a portfolio wide cross-license until July 1, 2021, and a license for any litigated patents (or counterparts thereof). Furthermore on October 29, 2019, ASMI announced the settlement of the arbitration by means of which the arbitration ended and ASMI received US$ 61 million (€56 million). Please refer to Note 21 Revenue for more information.

With these settlements all pending disputes between ASMI and Kokusai with respect to the patent licenses have been resolved.

ASMI is and may become a party to various legal proceedings incidental to its business. As is the case with other companies in similar industries, the Company faces exposure from actual or potential claims and legal proceedings. Although the ultimate result of legal proceedings cannot be predicted with certainty and in many events cannot be reasonably estimated, it is the opinion of the Company's management that the outcome of any claim which is currently pending, either individually or on a combined basis, will not have a material effect on the financial position of the Company, its cash flows and result of operations.

NOTE 20. SEGMENT DISCLOSURE

The Company organizes its activities in two operating segments, Front-end and Back-end. Operating segments are reported in a manner consistent with the internal reporting provided to the Chief Executive Officer (CEO), which is the Chief Operating Decision Maker (CODM).

The Front-end segment manufactures and sells equipment used in wafer processing, encompassing the fabrication steps in which silicon wafers are layered with semiconductor devices. The segment is a product-driven organizational unit comprised of manufacturing, service, and sales operations in Europe, the United States, Japan, South Korea and Southeast Asia.

The Back-end segment manufactures and sells equipment and materials used in assembly and packaging, encompassing the processes in which silicon wafers are separated into individual circuits and subsequently assembled, packaged and tested. The segment is organized in ASM Pacific Technology Ltd, in which the Company holds a substantial share of 25.19% interest, whilst the remaining shares are listed on the Stock Exchange of Hong Kong. The segment's main operations are located in Hong Kong, the People's Republic of China, Singapore, Malaysia and Germany.

The Back-end segment remains reported as a separate segment since the cease of control per March 15, 2013. Since that date, the segment is reported as an equity method investment as the CEO reviews this information as part of his CODM package.

Accordingly, the asset and result information regarding the operations that comprise the segment are disclosed. The full financial results are reviewed by the CODM, the external reporting of the segment are on an equity method investment basis. The total of all segments' financial amounts are reconciled to the corresponding amounts reported in the consolidated financial statements, eliminations are reflected in the reconciling column for amounts reported in excess of those amounts reflected in the consolidated financial statements.

	Year ended December 31, 2018			
	Front-end	Back-end 100%	Deconsoli-dated	Total
Revenue	818,081	2,114,627	(2,114,627)	**818,081**
Gross profit	334,297	804,375	(804,375)	**334,297**
Result from operations	124,267	346,773	(346,773)	**124,267**
Interest income	1,056	3,353	(3,353)	**1,056**
Interest expense	(2,466)	(19,227)	19,227	**(2,466)**
Foreign currency exchange gains (losses), net	1,276	(9,318)	9,318	**1,276**
Result on investments in associates	–	–	48,436	**48,436**
Income tax expense	(15,436)	(82,357)	82,357	**(15,436)**
Net earnings	108,697	239,224	(190,788)	**157,133**
Cash flows from operating activities	136,810	210,087	(210,087)	**136,810**
Cash flows from investing activities	(114,050)	(150,698)	179,818	**(84,930)**
Cash flows from financing activities	(602,564)	(37,190)	37,190	**(602,564)**
Cash and cash equivalents	285,907	249,793	(249,793)	**285,907**
Goodwill	11,270	117,961	(117,961)	**11,270**
Other intangible assets	149,927	145,595	(145,595)	**149,927**
Investments in associates	–	–	789,588	**789,588**
Other identifiable assets	611,280	1,836,849	(1,836,849)	**611,280**
Total assets	1,058,384	2,350,198	(1,560,610)	**1,847,972**
Total debt	–	407,814	(407,814)	**–**
Headcount [1]	2,181	14,800	(14,800)	**2,181**

[1] Headcount includes employees with a fixed contract, and excludes temporary workers.

	Year ended December 31, 2019			
	Front-end	Back-end 100%	Deconsoli-dated	Total
Revenue	1,283,860	1,808,530	(1,808,530)	**1,283,860**
Gross profit	638,464	628,979	(628,979)	**638,464**
Result from operations	378,689	143,402	(143,402)	**378,689**
Interest income	1,639	2,694	(2,694)	**1,639**
Interest expense	(1,766)	(24,495)	24,495	**(1,766)**
Foreign currency exchange gains (losses), net	(146)	(10,499)	10,499	**(146)**
Result on investments in associates	–	–	4,247	**4,247**
Income tax expense	(53,650)	(40,235)	40,235	**(53,650)**
Net earnings	324,766	70,867	(66,620)	**329,013**
Cash flows from operating activities	488,871	322,659	(322,659)	**488,871**
Cash flows from investing activities	(111,201)	(58,667)	90,627	**(79,241)**
Cash flows from financing activities	(205,652)	(220,373)	220,373	**(205,652)**
Cash and cash equivalents	497,874	264,944	(264,944)	**497,874**
Goodwill	11,270	119,791	(119,791)	**11,270**
Other intangible assets	189,224	136,050	(136,050)	**189,224**
Investments in associates	–	–	778,268	**778,268**
Other identifiable assets	698,503	1,862,303	(1,862,303)	**698,503**
Total assets	1,396,871	2,383,088	(1,604,820)	**2,175,139**
Total debt	–	377,802	(377,802)	**–**
Headcount [1]	2,337	13,900	(13,900)	**2,337**

[1] Headcount includes employees with a fixed contract, and excludes temporary workers.

The accounting policies used to measure the net earnings and total assets in each segment are consistent to those used in the consolidated financial statements. The measurement methods used to determine reported segment earnings are consistently applied for all periods presented. There were no asymmetrical allocations to segments.

Geographical information is summarized as follows:

	Year ended December 31,			
	2018		2019	
(EUR thousand)	Revenue	Property, plant and equipment	Revenue	Property, plant and equipment
United States	175,855	51,254	339,463	52,453
Europe	165,602	8,468	126,203	10,516
Asia	476,624	89,027	818,194	101,894
Total	818,081	148,749	1,283,860	164,863

NOTE 21. REVENUE

Geographical information is summarized as follows:

	Year ended December 31,	
	2018	2019
(EUR thousand)	Revenue	Revenue
United States	175,855	339,463
Europe	165,602	126,203
Asia	476,624	818,194
Total	818,081	1,283,860

For geographical reporting, the revenue is attributed to the geographical location in which the customer's facilities are located.

Revenue stream

The Company generates revenue primarily from the sales of equipment and sales of spares & service. The products and services described by nature in Note 1, can be part of all revenue streams.

	Year ended December 31,	
(EUR thousand)	2018	2019
Equipment revenue	631,504	1,068,645
Spares & service revenue	186,577	215,215
Total	818,081	1,283,860

The proceeds resulting from the patent litigation & arbitration settlements (€159 million) are included in the equipment revenue stream.

Contract balances

	2018	2019
Accrued revenue	20,201	28,184
Deferred revenue	28,255	32,146

The increase in the contract balances is the result of the higher activity level of the Company.

The accrued revenue included in the 'Amounts to be invoiced' primarily relate to the Company's right to consideration for work completed and revenue recognized but not billed at the reporting date. The accrued revenue are transferred to account receivables when the rights become unconditional. This usually occurs when the Company issues an invoice to the customer.

Deferred revenue relate to the advance consideration received from customers for which revenue is not yet recognized because the performance obligation has not been satisfied yet. Deferred revenue consists of the revenue relating to undelivered elements of the arrangement with customers. This part of the revenue is deferred at the transaction price allocated to the performance obligations until shipment.

NOTE 22. INCOME TAXES

Amounts recognized in profit or loss

The components of the result before income taxes consist of:

	Year ended December 31,	
	2018	2019
The Netherlands	75,833	**261,942**
Other countries	96,736	**120,721**
Result before income taxes	**172,569**	**382,663**

The income tax expense consists of:

	Year ended December 31,	
	2018	2019
Current:		
The Netherlands	(4,128)	**(28,409)**
Other countries	(6,374)	**(9,011)**
	(10,502)	**(37,420)**
Deferred:		
The Netherlands	1,944	**(6,860)**
Other countries	(6,878)	**(9,370)**
Income tax expense	**(15,436)**	**(53,650)**

Reconciliation of effective tax rate

The provisions for income taxes as shown in the consolidated statements of profit or loss differ from the amounts computed by applying the Dutch statutory income tax rate to earnings before taxes. A reconciliation of the provisions for income taxes and the amounts that would be computed using the Dutch statutory income tax rate is set forth as follows:

	Year ended December 31,			
	2018		2019	
Result before income taxes from continuing operations	**172,569**	**100.0%**	**382,663**	**100.0%**
Income tax provision based on Dutch statutory income tax rate	(43,142)	25.0%	**(95,666)**	**25.0%**
Non-deductible expenses	(5,432)	3.1%	**(1,527)**	**0.4%**
Foreign taxes at a rate other than the Dutch statutory rate	3,738	(2.2%)	**5,365**	**(1.4%)**
Recognition of net operating losses	(27)	–	**–**	**–**
Utilization of net operating losses, previously not recognized	7,587	(4.4%)	**22,569**	**(5.9%)**
Tax incentives and non-taxable income [1]	20,612	(11.9%)	**21,626**	**(5.7%)**
Adjustments in respect of prior years' current taxes	(191)	0.1%	**(307)**	**0.1%**
Other [2]	1,419	(0.8%)	**(5,710)**	**1.5%**
Tax income / (expense)	**(15,436)**	**8.9%**	**(53,650)**	**14.0%**

1 Non-taxable income consists of revenues deriving from the share in income of investments and associates which are exempted under the Dutch participation exemption.
2 Other mainly consists of tax credits, withholding taxes, changes in (enacted) tax laws and revaluation of certain assets.

Tax incentives relate to the Netherlands (Innovation Box), Singapore (Pioneer Certificate) and South Korea. On June 8, 2009, the Singapore Economic Development Board (EDB) granted a Pioneer Certificate to ASM Front-end Manufacturing Singapore Pte Ltd (FEMS), a principal subsidiary of the Group, to the effect that profits arising from certain manufacturing activities by FEMS of Front-end equipment will in principle be exempted from tax for a period of 10 years effective from July 1, 2008, subject to fulfillment of certain criteria during the period. This exemption has been extended for a period of five years, until July 2023.

Since 2011 the Dutch statutory tax rate is 25%. Taxation for other jurisdictions is calculated at the rates prevailing in the relevant jurisdictions. The Company's deferred tax assets and liabilities have been determined in accordance with these statutory income tax rates.

Movement in deferred tax balances

	Net balance at January 1, 2018	Consolidated statement of profit and loss	Equity	Exchange differences	Net balance at December 31, 2018	Deferred tax assets at December 31, 2018	Deferred tax liabilities at December 31, 2018
Property plant and equipment	(346)	749	–	(41)	362	984	(622)
Other intangible assets	(9,958)	(17,594)	–	(623)	(28,175)	(10,217)	(17,958)
Evaluation tools	3,219	363	–	233	3,815	–	3,815
Employee benefits	118	(251)	–	2	(131)	–	(131)
Inventories	586	739	–	18	1,343	1,098	245
Provision for warranty	841	466	–	42	1,349	664	685
Accrued expenses	2,795	(3,352)	–	146	(411)	(2,207)	1,796
Tax losses carried forward	4,426	2,545	–	19	6,990	6,990	–
R&D tax credits	2,571	11,401	–	32	14,004	14,004	–
Total deferred tax	**4,252**	**(4,934)**	**–**	**(172)**	**(854)**	**11,316**	**(12,170)**

	Net balance at January 1, 2019	Consolidated statement of profit and loss	Equity	Exchange differences	Net balance at December 31, 2019	Deferred tax assets at December 31, 2019	Deferred tax liabilities at December 31, 2019
Right-of-use assets & lease liabilities	–	46		(1)	45	–	45
Property plant and equipment	362	415	–	(6)	771	(8)	779
Other intangible assets	(28,175)	(8,279)	–	(466)	(36,920)	2,896	(39,816)
Evaluation tools	3,815	(953)	–	131	2,993	–	2,993
Employee benefits	(131)	(187)	–	(2)	(320)	–	(320)
Inventories	1,343	(237)	–	37	1,143	114	1,029
Provision for warranty	1,349	1,889	–	(3)	3,235	–	3,235
Accrued expenses	(411)	1,782	(32)	(49)	1,290	62	1,228
Tax losses carried forward	6,990	(7,041)	–	51	–	–	–
R&D tax credits	14,004	(3,665)	–	352	10,691	–	10,691
Total deferred tax	**(854)**	**(16,230)**	**(32)**	**44**	**(17,072)**	**3,064**	**(20,136)**

ASMI and its individual subsidiaries fully utilized the net operating losses during 2019. The Company believes that realization of its deferred tax assets is partly dependent on the ability of the Company to generate taxable income in the future. Deferred tax assets and/or liabilities for temporary differences are recognized in the Netherlands, United States, Japan, South Korea and Singapore.

Unrecognized deferred tax assets

Deferred tax assets have not been recognized in respect of the following items, given the volatile nature of the semi-conductor equipment industry. Therefore it is not probable that future taxable profit will be available to offset deductible temporary differences.

	2019	
	Gross amount	Tax effect
Deductible temporary differences	20,642	4,842
Credits [1]	15,221	15,221
Unrecognized deferred tax assets	**35,863**	**20,063**

[1] These credits regards R&D credits generated in the US, in the state of Arizona. However, ASMI does not recognize these credits stemming from prior years due to the fact that utilization of prior year credits is only possibly if and when the credits generated in the current year are fully utilized. Given the level of R&D activity in the US, the company does not expect it could fully utilize the credits generated in the current year and, hence, does not expect to benefit from the available credits generated in prior years.

Tax losses carried forward

The Company has utilized all the available net operating losses during 2019.

Summary of open tax years

A summary of open tax years by major jurisdiction is as follows:

Jurisdiction	
Japan	2014 - 2019
The Netherlands	2014 - 2019
Singapore	2015 - 2019
United States of America	2000 - 2019
South Korea	2015 - 2019

The calculation of the Company's tax liabilities involves dealing with uncertainties in the application of complex tax laws. The Company's estimate for the potential outcome of any unrecognized tax benefits is highly judgmental. Settlement of unrecognized tax benefits in a manner inconsistent with the Company's expectations could have a material impact on the Company's financial position, net earnings and cash flows. The Company is subject to tax audits in its major tax jurisdictions, and local tax authorities may challenge the positions taken by the Company.

Other taxes

The Company has not provided for deferred foreign withholding taxes, if any, on undistributed earnings of its foreign subsidiaries. At December 31, 2019, the undistributed earnings of subsidiaries, subject to withholding taxes, were approximately €73,345. These earnings could become subject to foreign withholding taxes if they were remitted as dividends and/or if the Company should sell its interest in the subsidiaries.

NOTE 23. EXPENSES BY NATURE

Expenses by nature were as follows:

	Year ended December 31,	
	2018	2019
Materials and supplies	365,831	**510,211**
Personnel expenses	188,503	**227,727**
Depreciation, amortization and impairments	55,352	**78,321**
Other personnel related expenses	47,761	**53,128**
Professional fees	23,646	**25,443**
Other	12,721	**10,341**
Total cost of sales, selling, general and administrative and research and development expenses	**693,814**	**905,171**

Research and development consists of the following:

	Year ended December 31,	
	2018	2019
Research and development expenses	125,280	**150,745**
Capitalization of development expenses	(49,688)	**(60,202)**
Amortization of capitalized development expenses	12,039	**15,597**
Research and development grants and credits	(321)	**(49)**
Total research and development expenses	**87,310**	**106,091**
Impairment of research and development related assets	1,278	**4,755**
Total	**88,588**	**110,846**

The impairment expenses in 2018 and 2019 are related to customer specific projects.

The Company's operations in the Netherlands, Belgium and the United States receive research and development grants and credits from various sources.

Personnel expenses for employees were as follows:

	December 31, 2018	2019
Wages and salaries	158,371	**191,459**
Social security	14,802	**17,214**
Pension expenses	6,937	**8,408**
Share-based payment expenses	8,215	**10,538**
Restructuring expenses	178	**108**
Total	**188,503**	**227,727**

Personnel expenses are included in cost of sales and in operating expenses in the consolidated statement of profit or loss.

The number of employees, exclusive of temporary workers, by geographical area at year-end was as follows:

	December 31,	
Geographical location	**2018**	**2019**
Europe:		
- the Netherlands	151	**145**
- EMEA	189	**203**
United States	576	**639**
Japan	248	**271**
South Korea	273	**280**
Singapore	463	**474**
Asia, other	281	**325**
Total	**2,181**	**2,337**

The number of employees, exclusive of temporary workers, by function at year-end was as follows:

	December 31,	
Per function	**2018**	**2019**
Research and development	544	**612**
Manufacturing	456	**484**
Marketing and sales	277	**275**
Customer service	716	**779**
Finance and administration	188	**187**
Total	**2,181**	**2,337**

NOTE 24. EARNINGS PER SHARE

Basic net earnings per common share is calculated by dividing net income attributable to common shareholders by the weighted average number of common shares outstanding for that period. The dilutive effect is calculated using the treasury stock method. The calculation of diluted net income per share assumes the exercise of options issued under our stock option plans (and the issuance of shares under our share plans) for periods in which exercises (or issuances) would have a dilutive effect.

The calculation of basic and diluted net income per share attributable to common shareholders is based on the following data:

	December 31, 2018	2019
Net earnings used for purposes of calculating net income per common share		
Net earnings from operations	**157,133**	**329,013**
Basic weighted average number of shares outstanding during the year (thousands)	52,432	**49,418**
Effect of dilutive potential common shares from stock options and restricted shares	678	**580**
Dilutive weighted average number of shares outstanding	**53,110**	**49,999**
Basic net earnings per share:		
from operations	3.00	**6.66**
Diluted net earnings per share:		
from operations	2.96	**6.58**

NOTE 25. BOARD REMUNERATION

MANAGEMENT BOARD

The remuneration of members of the Management Board has been determined by the Supervisory Board.

During 2019, the Company considered the members of the Management Board and the Supervisory Board to be the key management personnel. Total remuneration for key management personnel in 2019 amounts to €4,663 (2018: €3,806).

The following table sets information concerning all remuneration from the Company (including its subsidiaries) for services in all capacities to all current members of the Management Board of the Company:

	Base compen-sation	Bonuses	Pensions [1]	Share-based payment expenses [2]	Fringe benefits	Total
Management Board:						
C.D. del Prado						
2019	**702**	**1,053**	**123**	**855**	**77**	**2,810**
2018	669	511	119	883	78	**2,260**
P.A.M. van Bommel						
2019	**441**	**551**	**91**	**413**	**40**	**1,536**
2018	426	257	89	437	37	**1,246**

[1] Including pension compensation due to maximum pensionable salary of €108 (2018: €105), C.D. del Prado €97 (2018: €92), P.A.M. van Bommel €68 (2018: €65).
[2] These amounts represent the vesting expenses related to the financial year.

SHORT-TERM INCENTIVE (CASH BONUS)

Each year, a short-term incentive can be earned, based on achieving specific challenging targets. These targets are for 75% based on company financial targets and for 25% based on non-financial targets. The on-target bonus percentage for the CEO is 100% of base salary, with a maximum pay-out of 150% of base salary. The on-target bonus percentage for the other members of the Management Board is 75% of base salary, with a maximum pay-out of 125% of base salary. For the year 2019, the Management Board realized stretch company financial targets and stretch non-financial targets.

Long-term incentive (stock options/performance shares)

The members of the Management Board are eligible to receive stock options and performance shares under the ASMI 2014 Long-Term Incentive Plan for members of the Management Board in order to focus on the long-term interest of the company. Stock options vest after three years subject to continued employment and expire after seven years. Performance shares vest after three years subject to meeting certain conditions. The members of the Management Board are required to hold the vested performance shares for an additional two years; however, they are allowed to sell a part of the unconditional shares after three years for tax purposes. The next grant of stock options and restricted shares will take place in April 2020.

Pension arrangement

As of 2015, the members of the Management Board no longer participate in the industry wide pension fund. They are offered participation in a defined contribution plan for their salary up to €107,593. For their salary above €107,593, the members of the Management Board are compensated with an amount equal to the employer pension contribution. The members of the Management Board have the option to participate in a net pension plan offered by the company or to have the compensation paid out in cash.

Fringe benefits

Fringe benefits cover compensation related to the use of a (company) car, a representation and expense allowance, social security premium and premium for health and disability insurance.

Outstanding options

The following table shows the outstanding options to purchase ASMI common shares held by current members of the Management Board, and changes in such holdings during 2019:

	Year of grant	Outstanding January 1, 2019	Granted in 2019	Exercised in 2019 [2]	Outstanding December 31, 2019	Exercise price	End date
C.D. del Prado [1]	2012	77,062	–	(77,062)	–	€ 21.05	Dec 31, 2019
C.D. del Prado [1]	2013	81,680	–	–	**81,680**	€ 21.79	Dec 31, 2020
C.D. del Prado [1]	2015	30,548	–	–	**30,548**	€ 40.62	Apr 24, 2022
C.D. del Prado [1]	2016	45,293	–	–	**45,293**	€ 34.06	Apr 22, 2023
C.D. del Prado [1]	2017	18,249	–	–	**18,249**	€ 47.33	Apr 21, 2024
P.A.M. van Bommel [1]	2012	51,375	–	(51,375)	–	€ 21.05	Dec 31, 2019
P.A.M. van Bommel [1]	2013	57,721	–	(57,721)	–	€ 21.79	Dec 31, 2020
P.A.M. van Bommel [1]	2015	15,910	–	–	**15,910**	€ 40.62	Apr 24, 2022
P.A.M. van Bommel [1]	2016	22,833	–	–	**22,833**	€ 34.06	Apr 22, 2023
P.A.M. van Bommel [1]	2017	8,937	–	–	**8,937**	€ 47.33	Apr 21, 2024
Total		**409,608**	**–**	**(186,158)**	**223,450**		

1 Options are granted for a term of seven years and become exercisable after a three-year vesting period.
2 Options of C.D. del Prado were exercised on October 31, 2019 at a share price of €91.68 and options of P.A.M. van Bommel were exercised on October 31, 2019 at a share price of €92.74.

In 2019, 186,158 options to purchase ASMI common shares were exercised and 186,158 treasury shares were sold for the exercise of these options.

Outstanding performance shares

The following table shows the outstanding performance shares granted to members of the Management Board in 2019 and held by members of the Management Board per December 31, 2019:

	Grant date	Status	Number of shares at grant date	Performance adjustment	Vested in 2019	Outstanding December 31, 2019	Fair value at grant date	Vesting date
C.D. del Prado	April 22, 2016	Conditional	12,056	(4,304)	(7,752)	–	€ 31.84	April 22, 2019
C.D. del Prado	April 21, 2017	Conditional	12,730	–	–	**12,730**	€ 47.52	April 21, 2020
C.D. del Prado	April 20, 2018	Conditional	18,843	–	–	**18,843**	€ 45.71	April 20, 2021
C.D. del Prado	April 25, 2019	Conditional	15,582	–	–	**15,582**	€ 57.84	April 25, 2022
P.A.M. van Bommel	April 22, 2016	Conditional	6,078	(2,170)	(3,908)	–	€ 31.84	April 22, 2019
P.A.M. van Bommel	April 21, 2017	Conditional	6,234	–	–	**6,234**	€ 47.52	April 21, 2020
P.A.M. van Bommel	April 20, 2018	Conditional	9,008	–	–	**9,008**	€ 45.71	April 20, 2021
P.A.M. van Bommel	April 25, 2019	Conditional	7,343	–	–	**7,343**	€ 57.84	April 25, 2022
Total			**87,874**	**(6,474)**	**(11,660)**	**69,740**		

The shares will become unconditional after three years, depending on the achievement of predetermined targets. The financial targets to be achieved are measured over a three-year performance period and relate to a sales growth compared to market and an average EBIT percentage performance measure. The Management Board members will hold the unconditional shares for at least an additional two years; however, they are allowed to sell a part of the unconditional shares after three years for tax purposes.

SUPERVISORY BOARD

The following table sets forth information concerning all remuneration (base compensation, no bonuses or pensions were paid) from the Company (including its subsidiaries) for services in all capacities to all current and former members of the Supervisory Board of the Company:

	Year ended December 31,	
	2018	2019
Supervisory Board:		
J.C. Lobbezoo	78.6	83.5
H.W. Kreutzer [1)]	21.4	0.0
M.C.J. van Pernis	56.0	58.5
U.H.R. Schumacher	53.5	56.0
S. Kahle-Galonske	55.9	60.0
M.J.C. de Jong [2)]	34.0	57.5
TOTAL	**299.4**	**315.5**

[1] Period January 1 to May 28, 2018
[2] Period as of May 28, 2018

The remuneration of members of the Supervisory Board has been determined by the 2018 Annual General Meeting of Shareholders.

No stock options or performance shares have been granted to members of the Supervisory Board.

NOTE 26. SHARE OWNERSHIP AND RELATED PARTY TRANSACTIONS

The ownership or controlling interest of outstanding common shares of ASMI by members of the Management Board and Supervisory Board or members of their immediate family are as follows:

	December 31, 2018		December 31, 2019	
	Shares owned	Percentage of Common shares outstanding	Shares owned	Percentage of Common shares outstanding
C.D. del Prado (member of the Management Board)	823,964	1.67%	827,696	1.69%
P.A.M. van Bommel (member of the Management Board)	20,256	0.04%	22,137	0.05%
M.J.C. de Jong (member of the Supervisory Board)	4,050	0.01%	4,050	0.01%

The Company has a related party relationship with its subsidiaries, equity accounted investees and members of the Supervisory Board and the Management Board. Related party transactions, if any, are conducted on an at arm's length basis with terms comparable to transactions with third parties.

NOTE 27. PRINCIPLE AUDITOR'S FEES AND SERVICES

KPMG Accountants N.V. has served as our external auditor for the years 2019 and 2018. The table sets out the aggregate fees for professional audit services and other services rendered by the external auditors and its member firms and/or affiliates in 2019 and 2018. The fees mentioned in the table for the audit of the financial statements 2019 (2018) relate to the total fees for the audit of the financial statements 2019 (2018), irrespective of whether the activities have been performed during the financial year 2019 (2018). The following fees were charged by KPMG Accountants N.V. to the Company, its subsidiaries and other consolidated companies, as referred to in Section 2:382a(1) and (2) of the Dutch Civil Code.

	2018			2019		
	KPMG Accountants NV	KPMG network	KPMG Total	KPMG Accountants NV	KPMG network	KPMG Total
Audit fees	478	176	654	489	211	700
Audit-related fees	–	–	–	–	–	–
Tax fees	–	–	–	–	–	–
Other fees	–	–	–	–	–	–
Total	**478**	**176**	**654**	**489**	**211**	**700**

AUDIT COMMITTEE PRE-APPROVAL POLICIES

The Audit Committee has determined that the provision of services by KPMG described in the preceding paragraphs is compatible with maintaining KPMG's independence. All audit and permitted non-audit services provided by KPMG during 2019 were pre-approved by the Audit Committee.

The Audit Committee has adopted the following policies and procedures for pre-approval of all audit and permitted non-audit services provided by our external auditor:

Audit services

Management submits to the Audit Committee for pre-approval the scope and estimated fees for specific services directly related to performing the independent audit of our consolidated financial statements for the current year.

Audit-related services

The Audit Committee may pre-approve expenditures up to a specified amount for services included in identified service categories that are related extensions of audit services and are logically performed by the auditors. Additional services exceeding the specified pre-approved limits require specific Audit Committee approval.

Tax services

The Audit Committee may pre-approve expenditures up to a specified amount per engagement and in total for identified services related to tax matters. Additional services exceeding the specified pre-approved limits, or involving service types not included in the pre-approved list, require specific Audit Committee approval.

Other services

In the case of specified services for which utilizing our external auditor creates efficiencies, minimizes disruption, or preserves confidentiality, or for which management has determined that our external auditor possesses unique or superior qualifications to provide such services, the Audit Committee may pre-approve expenditures up to a specified amount per engagement and in total. Additional services exceeding the specified pre-approved limits, or involving service types not included in the pre-approved list, require specific Audit Committee approval.

NOTE 28. SUBSIDIARIES

Unless otherwise indicated, these are, directly or indirectly, wholly-owned subsidiaries.

The location included below is the principal place of business of the specified subsidiaries. There is no difference between the principal place of business and country of incorporation.

Name	LOCATION	% Ownership December 31, 2018	2019
Subsidiaries (consolidated)			
ASM Europe BV [1]	Almere, the Netherlands	100%	**100%**
ASM IP Holding BV [1]	Almere, the Netherlands	100%	**100%**
ASM Pacific Holding BV [1] [2]	Almere, the Netherlands	100%	**100%**
ASM Netherlands Holding BV [1]	Almere, the Netherlands	100%	**100%**
ASM United Kingdom Sales BV [1]	Almere, the Netherlands	100%	**100%**
ASM Germany Sales BV [1]	Almere, the Netherlands	100%	**100%**
ASM France SARL	Crolles, France	100%	**100%**
ASM Italia Srl	Milano, Italy	100%	**100%**
ASM Belgium NV	Leuven, Belgium	100%	**100%**
ASM Services and Support Ireland Ltd	Dublin, Ireland	100%	**100%**
ASM Services and Support Israel Ltd	Kiryat Gat, Israël	100%	**100%**
ASM Microchemistry Oy	Helsinki, Finland	100%	**100%**
ASM America Inc	Phoenix, Arizona, United States of America	100%	**100%**
ASM NuTool Inc	Phoenix, Arizona, United States of America	100%	**100%**
ASM Japan KK	Tokyo, Japan	100%	**100%**
ASM Wafer Process Equipment Singapore Pte Ltd	Singapore	100%	**100%**
ASM Front-End Manufacturing Singapore Pte Ltd	Singapore	100%	**100%**
ASM Services & Support Malaysia SDN BHD	Kulim, Malaysia	100%	**100%**
ASM Korea Ltd	Dongtan, South Korea	100%	**100%**
ASM Front-End Sales & Services Taiwan Co Ltd	Hsin-Chu, Taiwan	100%	**100%**
ASM China Ltd	Shanghai, People’s Republic of China	100%	**100%**
ASM Wafer Process Equipment Ltd	Kwai Chung, Hong Kong, People’s Republic of China	100%	**100%**

[1] For these subsidiaries ASM International N.V. has filed statements at the Dutch Chamber of Commerce assuming joint and several liability in accordance with Article 403, Part 9 of Book 2 of the Dutch Civil Code.
[2] ASM Pacific Holding BV holds 25.19% of the shares in ASM Pacific Technology Ltd.

NOTE 29. OTHER NON-CURRENT ASSETS

	Year ended December 31,	
	2018	2019
Non-current receivables	4,292	**1,110**
Tax receivable	5,977	**5,977**
Other [1]	1,372	**693**
Total	**11,641**	**7,780**

[1] This amount includes amortization of €189 (2018: €187).

NOTE 30. SUBSEQUENT EVENTS

Subsequent events were evaluated up to March 5, 2020, which is the issuance date of this Annual Report 2019. There are no subsequent events to report.

SIGNING

Almere

March 5, 2020

SUPERVISORY BOARD

J.C. Lobbezoo

M.J.C. de Jong

S. Kahle-Galonske

M.C.J. van Pernis

U.H.R. Schumacher

MANAGEMENT BOARD

C.D. del Prado

P.A.M. van Bommel

COMPANY BALANCE SHEET

(before proposed appropriation of net earnings for the year)

		December 31,	
(EUR thousand)	Notes	2018	2019
Non-current assets			
Right-of-use assets	16	–	170
Property, plant and equipment	2	285	250
Goodwill	3	11,270	11,270
Other intangible assets	4	8,411	3,691
Investments in subsidiaries	5	1,602,871	1,662,442
Loans to subsidiaries	5	46,698	45,377
Other non-current assets		6,543	6,354
Deferred tax assets	6	11,066	5,709
Total non-current assets		**1,687,144**	**1,735,263**
Current assets			
Loans to subsidiaries	5	2,064	2,123
Amounts due from subsidiaries		528	73,098
Other current assets		490	526
Cash and cash equivalents	17	–	21,192
Total current assets		**3,082**	**96,939**
Total assets		**1,690,226**	**1,832,202**
Equity			
Common shares		2,252	2,052
Capital in excess of par value		50,902	43,676
Treasury shares		(328,010)	(169,707)
Legal reserves			
Translation reserve		99,607	126,940
Other legal reserves		886,151	925,040
Accumulated net earnings		773,516	561,637
Net earnings current year		157,133	329,013
Total equity	7	**1,641,551**	**1,818,651**
Non-current liabilities			
Accrued expenses and other payables		–	52
Current liabilities			
Accounts payable		404	428
Amounts due to subsidiaries	14	42,791	4,034
Accrued expenses and other payables	8	5,480	9,037
Total current liabilities		**48,675**	**13,499**
Total equity and liabilities		**1,690,226**	**1,832,202**

The notes on the following pages are an integral part of these company financial statements.

COMPANY STATEMENT OF PROFIT OR LOSS

		Year ended December 31,	
(EUR thousand)	Notes	2018	2019
Operating expenses:			
Selling, general and administrative		(37,463)	**(33,361)**
Research and development		(1,955)	**(2,122)**
Total operating expenses	**13**	**(39,418)**	**(35,483)**
Result from operations		**(39,418)**	**(35,483)**
Finance income		932	**1,631**
Finance expense		(2,215)	**(994)**
Foreign currency exchange gain (loss), net		(5,978)	**6,874**
Intercompany charging operating expenses		3,112	**2,922**
Result before income taxes		**(43,567)**	**(25,050)**
Income taxes		1,522	**(5,400)**
Net earnings from holding activities		**(42,045)**	**(30,450)**
Net earnings from subsidiaries and associates		199,178	**359,463**
Total net earnings		**157,133**	**329,013**

The notes on the following pages are an integral part of these company financial statements.

NOTES TO THE COMPANY FINANCIAL STATEMENTS

NOTE 1. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

ASM International N.V. (ASMI or the Company) is a Dutch public liability company. Statutory seat: Versterkerstraat 8, 1322 AP Almere, the Netherlands.

The description of our activities and our structure, as included in the Notes to the consolidated financial statements, also apply to the Company financial statements.

The accompanying Company financial statements are stated in thousands of euro unless otherwise indicated.

ACCOUNTING POLICIES APPLIED

The financial statements of the Company included in this section are prepared in accordance with Part 9 of Book 2 of the Dutch Civil Code. Section 362 (8), Book 2, Dutch Civil Code, allows companies that apply IFRS as endorsed by the European Union in their consolidated financial statements to use the same measurement principles in their Company financial statements. The Company has prepared these Company financial statements using this provision.

Participating interests in group companies

Investments in subsidiaries are stated at net asset value as we effectively exercise influence of significance over the operational and financial activities of these investments. The net asset value is determined on the basis of the EU-IFRS as applied in the preparation of the consolidated financial statements. For a list of all subsidiaries see Note 28 to the consolidated financial statements.

NOTE 2. PROPERTY, PLANT AND EQUIPMENT

The changes in the amount of property, plant and equipment are as follows:

	Buildings and leasehold improvements	Furniture and fixtures	Total
At cost:			
Balance January 1, 2018	**47**	**629**	**676**
Additions	–	57	57
Balance December 31, 2018	**47**	**686**	**733**
Additions	–	–	–
Balance December 31, 2019	**47**	**686**	**733**
Accumulated depreciation:			
Balance January 1, 2018	**47**	**290**	**337**
Depreciation for the year	–	111	111
Balance December 31, 2018	**47**	**401**	**448**
Depreciation for the year	–	35	35
Balance December 31, 2019	**47**	**436**	**483**
Property, plant and equipment, net:			
December 31, 2018	**–**	**285**	**285**
December 31, 2019	**–**	**250**	**250**

Useful lives in years:	
Buildings and leasehold improvements	1-25
Furniture and fixtures	2-10

NOTE 3. GOODWILL

The carrying amount of the goodwill is related to acquisitions in the following cash generating units:

	December 31, 2018	December 31, 2019
ALD	2,611	2,611
PEALD	8,659	8,659
Total	**11,270**	**11,270**

NOTE 4. OTHER INTANGIBLE ASSETS

The changes in the carrying amount of other intangible assets are as follows:

	Software	Purchased technology and other intangible assets	Total
At cost:			
Balance January 1, 2018	26,748	6,397	33,145
Additions	242	–	242
Balance December 31, 2018	26,990	6,397	33,387
Additions	46	–	46
Balance December 31, 2019	27,036	6,397	33,433
Accumulated amortization:			
Balance January 1, 2018	14,502	4,802	19,304
Amortization for the year	5,012	660	5,672
Balance December 31, 2018	19,514	5,462	24,976
Amortization for the year	4,106	660	4,766
Balance December 31, 2019	23,620	6,122	29,742
Other intangible assets net:			
December 31, 2018	7,476	935	8,411
December 31, 2019	3,416	275	3,691

Other intangible assets are amortized over their useful lives of three to seven years. Estimated amortization expenses relating to other intangible assets are as follows:

	Software	Purchased technology and other intangible assets	Total
2020	3,219	275	3,494
2021	168	–	168
2022	29	–	29
2023	–	–	–
Years thereafter	–	–	–
Total	**3,416**	**275**	**3,691**

NOTE 5. INVESTMENTS AND LOANS TO SUBSIDIARIES

	Investments in subsidiaries	Loans to subsidiaries	Total
Balance January 1, 2018	1,373,070	48,755	1,421,825
Net result of subsidiaries and associates	199,178	–	199,178
Other comprehensive income investments	499	–	499
Dividend received	(29,649)	–	(29,649)
Reclassification	14,587	–	14,587
Repayment of loans	–	(2,114)	(2,114)
Dilution	489	–	489
Foreign currency translation effect	44,697	2,121	46,818
Balance December 31, 2018	1,602,871	48,762	1,651,633
Net result of subsidiaries and associates	359,463	–	359,463
Other comprehensive income investments	(3,954)	–	(3,954)
Dividend received	(330,399)	–	(330,399)
Reclassification	–	–	–
Repayment of loans	–	(2,164)	(2,164)
Dilution	3,882	–	3,882
Foreign currency translation effect	30,579	902	31,481
Balance December 31, 2019	1,662,442	47,500	1,709,942

	December 31,	
	2018	2019
Loans due from subsidiaries - non-current portion	46,698	45,377
Loans due from subsidiaries - current portion	2,064	2,123
Total	**48,762**	**47,500**

Interest relates mainly to a subsidiary and is based on the Bank of America's prime rate with a rise of two percent points. The repayment schedule of the loan is as follows: 24 annual installments of US$2 million, starting December 31, 2018, followed by a final installment of US$5.3 million on December 31, 2043.

NOTE 6. DEFERRED TAX ASSETS

ASMI has no operating losses available anymore at December 31, 2019 to reduce future income taxes. The Company believes that realization of its net deferred tax assets is dependent on the ability of the Company to generate taxable income in the future. Given the volatile nature of the semiconductor equipment industry and past experience, the Company believes that there is currently sufficient evidence to recognize a net deferred tax asset in the amount of €5,709 for temporary differences.

Reference is made to Note 22 to the consolidated financial statements.

NOTE 7. EQUITY

The changes in equity are as follows:

(EUR thousand)	Common shares	Capital in excess of par value	Treasury shares	Accumulated net earnings	Net earnings current year	Legal reserves: Translation reserve	Legal reserves: Other legal reserves	Total equity
Balance as of January 1, 2018	**2,492**	**218,525**	**(304,654)**	**826,377**	**452,402**	**53,754**	**778,608**	**2,027,504**
Appropriation of net earnings:	–	–	–	452,402	(452,402)	–	–	**–**
Components of comprehensive income								
Net earnings	–	–	–	–	157,133	–	–	**157,133**
Other comprehensive income	–	–	–	–	–	45,853	–	**45,853**
Total comprehensive income (loss)	**–**	**–**	**–**	**–**	**157,133**	**45,853**	**–**	**202,986**
Dividend paid to common shareholders	–	–	–	(43,644)	–	–	–	**(43,644)**
Capital repayment	–	(159,817)	–	(48,957)	–	–	–	**(208,774)**
Compensation expense share-based payments	–	8,215	–	–	–	–	–	**8,215**
Exercise stock options out of treasury shares	–	(7,966)	12,783	–	–	–	–	**4,817**
Vesting restricted shares out of treasury shares	–	(8,055)	8,055	–	–	–	–	**–**
Purchase of common shares	–	–	(350,042)	–	–	–	–	**(350,042)**
Cancellation of common shares out of treasury shares	(240)	–	305,848	(305,608)	–	–	–	**–**
Change in retained earnings subsidiaries	–	–	–	(45,032)	–	–	45,032	**–**
Fair value accounting investments	–	–	–	(21,051)	–	–	21,051	**–**
Capitalized development expenses subsidiaries	–	–	–	(41,460)	–	–	41,460	**–**
Other movements in investments in associates:								
Dilution	–	–	–	489	–	–	–	**489**
Balance as of December 31, 2018	**2,252**	**50,902**	**(328,010)**	**773,516**	**157,133**	**99,607**	**886,151**	**1,641,551**
Adjustment on initial application IFRS 16, net of tax	–	–	–	141	–	–	–	**141**
Balance January 1, 2019	**2,252**	**50,902**	**(328,010)**	**773,657**	**157,133**	**99,607**	**886,151**	**1,641,692**
Appropriation of net earnings	–	–	–	157,133	(157,133)	–	–	**–**
Components of comprehensive income:								
Net earnings	–	–	–	–	329,013	–	–	**329,013**
Other comprehensive income	–	–	–	–	–	27,333	–	**27,333**
Total comprehensive income (loss)	**–**	**–**	**–**	**–**	**329,013**	**27,333**	**–**	**356,346**
Dividend paid to common shareholders	–	–	–	(99,299)	–	–	–	**(99,299)**
Capital repayment	–	(1,144)	–	–	–	–	–	**(1,144)**
Compensation expense share-based payments	–	10,538	–	–	–	–	–	**10,538**
Exercise stock options out of treasury shares	–	(8,056)	14,823	–	–	–	–	**6,767**
Vesting restricted shares out of treasury shares	–	(8,564)	8,564	–	–	–	–	**–**
Purchase of common shares	–	–	(100,131)	–	–	–	–	**(100,131)**
Cancellation of common shares out of treasury shares	(200)	–	235,047	(234,847)	–	–	–	**–**
Change in retained earnings subsidiaries	–	–	–	(6,375)	–	–	6,375	**–**
Fair value accounting investments	–	–	–	2,535	–	–	(2,535)	**–**
Capitalized development expenses subsidiaries	–	–	–	(42,114)	–	–	42,114	**–**
Other movements in investments in associates:								
Dilution	–	–	–	3,882	–	–	–	**3,882**
Balance as of December 31, 2019	**2,052**	**43,676**	**(169,707)**	**554,572**	**329,013**	**126,940**	**932,105**	**1,818,651**

COMMON SHARES, PREFERRED AND FINANCING PREFERRED SHARES

Following the amendment of the articles of association on August 3, 2018, the authorized capital of the Company amounts to 82,500,000 common shares of €0.04 par value, 88,500 preferred shares of €40 par value and 6,000 financing preferred shares of €40 par value.

The AGM of May 20, 2019, approved the cancellation of 5.0 million treasury shares. This became effective as per July 23, 2019.

As per December 31, 2019, 51,297,394 common shares with a nominal value of €0.04 each were issued and fully paid up, of which 2,431,174 common shares are held by us in treasury. All shares have one vote per €0.04 par value. Treasury shares held by the Company cannot be voted on. Of our 48,866,220 outstanding common shares at December 31, 2019, 48,583,340 are registered with our transfer agent in the Netherlands, ABN AMRO Bank N.V., and 282,880 are registered with our transfer agent in the United States, Citibank, NA, New York.

As at December 31, 2019, no preferred shares and no financing preferred shares are issued.

TREASURY SHARES

With respect to treasury shares, reference is made to Note 12 to the consolidated financial statements.

OTHER LEGAL RESERVES

The other legal reserve for participating interests regarding retained earnings, which amounts to €749,609 (2018: €745,769), pertains to participating interests that are accounted for according to the equity accounting method. The reserve represents the difference between the participating interest' retained earnings and direct changes in equity, as determined on the basis of the Company's accounting policies, and the share thereof that the Company may distribute. As to the latter share, this takes into account any profits that may not be distributable by participating interests that are Dutch limited companies based on the distribution tests to be performed by the management of those companies. The legal reserve is determined on an individual basis.

In accordance with applicable legal provisions, a legal reserve for the carrying amount of €182,496 (2018: €140,382) has been recognized for capitalized development costs.

Changes in other legal reserves in 2018 and 2019 were as follows:

	Reserve for participating interests, regarding retained earnings	Reserve for participating interests, regarding capitalized development expenses	Other legal reserves
Balance as of January 1, 2018	**679,686**	**98,922**	**778,608**
Retained earnings subsidiaries and investments	45,032	–	**45,032**
Fair value accounting investments	21,051	–	**21,051**
Development expenditures	–	41,460	**41,460**
Balance as of December 31, 2018	**745,769**	**140,382**	**886,151**
Retained earnings subsidiaries and investments	6,375	–	**6,375**
Fair value accounting investments	(2,535)	–	**(2,535)**
Development expenditures	–	42,114	**42,114**
Balance as of December 31, 2019	**749,609**	**182,496**	**932,105**

For more detailed information, reference is made to Note 12 to the consolidated financial statements.

EMPLOYEE STOCK PLAN, OPTION PLAN AND EMPLOYEE RESTRICTED SHARES PLAN

The Company has adopted various stock option plans and restricted share plans and has entered into related agreements with various employees. For detailed information, reference is made to Note 13 to the consolidated financial statements.

APPROPRIATION OF RESULT

It is proposed that net earnings for the year 2019 are carried to the accumulated deficit/net earnings.

NOTE 8. ACCRUED EXPENSES AND OTHER PAYABLES

Non-current accrued expenses and other payables relate to the long term part of the lease liabilities (first application of IFRS 16). Accrued expenses and other payables consist of personnel related items €3,482 (2018: €3,824), financing related items €4,022 (2018: €0), the short term part of the lease liabilities €110 (2018: €0) and other €1,423 (2018: €1,656).

NOTE 9. SHARE OWNERSHIP OF THE MANAGEMENT BOARD AND SUPERVISORY BOARD

With respect to share ownership of the Management Board and Supervisory Board, reference is made to Note 26 to the consolidated financial statements.

NOTE 10. PERSONNEL

The average number of employees of ASMI during 2019 was 21.5 (2018: 21.5). All employees were based in the Netherlands. Salaries, social security charges and pension expenses amounted to €6,616, €290 and €609, respectively, for 2019 (2018: expenses of €5,422, €262 and €591, respectively). Further information concerning the number of employees can be found in Note 23 to the consolidated financial statements.

For information on the parent company's defined benefit pension plan, the remuneration of the Management Board and the Supervisory Board and the parent company's share-based compensation plans, see Notes 13 and 25 to the consolidated financial statements.

NOTE 11. COMMITMENTS AND CONTINGENCIES

With respect to certain Dutch subsidiaries, ASMI has assumed joint and several liability in accordance with Article 403, Part 9 of Book 2 of the Dutch Civil Code.

ASMI forms a fiscal unity (tax group for corporate income tax purposes) together with its Dutch subsidiaries for purposes of Dutch tax laws and is as such jointly and severally liable for the tax debts of the unity. The tax unity consists of ASM International N.V. and the following subsidiaries:

- ASM Europe BV (operational company);
- ASM IP Holding BV (operational company);
- ASM Pacific Holding BV (holding company);
- ASM Netherlands Holding BV (holding company);
- ASM United Kingdom Sales BV (operational company); and
- ASM Germany Sales BV (operational company).

All effects of the fiscal unity are accounted for in the stand alone financial statements of ASMI as head of the fiscal unity.

NOTE 12. AUDITOR'S FEES AND SERVICES

For information regarding auditor's fees and services we refer to Note 27 to the consolidated financial statements.

NOTE 13. EXPENSES BY NATURE

Expenses by nature were as follows:

	Year ended December 31,	
	2018	2019
Salaries and wages	(6,275)	**(7,515)**
Depreciation, amortization and impairments	(5,783)	**(4,918)**
Other personnel related expenses	(9,245)	**(5,195)**
Professional fees	(14,651)	**(14,835)**
Other	(3,464)	**(3,020)**
Total selling, general and administrative and research and development expenses	**(39,418)**	**(35,483)**

NOTE 14. AMOUNTS DUE TO SUBSIDIARIES

The amounts due to subsidiaries are mainly related to the cash pool and in-house bank operated by the Company.

NOTE 15. SUBSEQUENT EVENTS

Subsequent events were evaluated up to March 5, 2020, which is the issuance date of this Annual Report 2019. There are no subsequent events to report.

NOTE 16. RIGHT-OF-USE ASSETS

The Company leases relate to car leases (motor vehicles). Leases typically run up to a period of 5 years, some with an option to renew the lease after the end of the non-cancelable period. The Company has not entered into any sub-lease arrangements.

Right-of-use assets

	Motor vehicles	Total
Balance January 1, 2019	**269**	**269**
Additions	–	–
Modifications and reassessments	18	18
Depreciation for the year	(117)	(117)
Retirements	–	–
Balance December 31, 2019	**170**	**170**

Amounts recognized in profit or loss

(EUR thousand)	2019
2019 - Leases under IFRS 16	
Interest on lease liabilities	1
Depreciation expenses	117
Expenses relating to short term leases	4
Expenses relating to low value leases	–
Total	**122**

(EUR thousand)	2018
2018 - Operating leases under IAS 17	
Lease expenses	290

Amounts recognized in statement of cash flows

(EUR thousand)	2019
Total cash out flow for leases	169

EXTENSION OPTIONS

The extension options held are exercisable only by the Company and not by the lessors. The Company assesses at lease commencement date whether it is reasonably certain to exercise the extension options. The Company reassesses whether it is reasonably certain to exercise the options at year-end for material lease components, if there is a significant event or significant changes in circumstances within its control.

NOTE 17. CASH AND CASH EQUIVALENTS

The amounts of cash and cash equivalents are mainly related to the cash pool and in-house bank operated by the Company. In 2018 the amounts were part of amounts due to subsidiaries.

SIGNING

Almere

March 5, 2020

SUPERVISORY BOARD

J.C. Lobbezoo

M.J.C. de Jong

S. Kahle-Galonske

M.C.J. van Pernis

U.H.R. Schumacher

MANAGEMENT BOARD

C.D. del Prado

P.A.M. van Bommel

INDEPENDENT AUDITOR'S REPORT

To: the General Meeting of Shareholders and the Supervisory Board of ASM International N.V.

Report on the audit of the financial statements 2019 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 ASM International N.V. as at December 31, 2019 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 ASM International N.V. financial statements give a true and fair view of the financial position of ASM International N.V. as at December 31, 2019 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 2019 of ASM International N.V. ("ASMI") based in Almere, The Netherlands. The financial statements include the consolidated financial statements and ASMI's financial statements.

The consolidated financial statements comprise:

1. the consolidated statement of financial position as at December 31, 2019;
2. the following consolidated statements for 2019: the statement of profit or loss, the statement of comprehensive income, the statement of changes in equity and the statement of cash flows; and
3. the notes comprising a summary of the significant accounting policies and other explanatory information.

The ASMI financial statements comprise:

1. the company balance sheet as at December 31, 2019;
2. the company statement of profit or loss for 2019; and
3. the notes to the company financial statements comprising a summary of the significant 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 ASMI 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 10 million
4.5% of result before income taxes adjusted for non-recurring gain resulting from the Kokusai Settlements
Group audit
98% of total assets
97% of revenue
Key audit matters
Revenue recognition
Accounting for investment in ASMPT (associate)
Accounting for capitalized development costs
Opinion
Unqualified

Materiality

Based on our professional judgement we determined the materiality for the financial statements as a whole at EUR 10 million (2018: EUR 6.5 million). The materiality is determined with reference to result before income taxes adjusted for non-recurring gain resulting from the Kokusai Settlements, of which it represents 4.5% (2018: 3.8%). The increase of the materiality to the financial statements as a whole is primarily the result of increased business operations and profitability. We consider result before income taxes adjusted for non-recurring gain resulting from the Kokusai Settlements as the most appropriate benchmark because ASMI is a profit oriented company and the key users of the financial statements are focused on profit. 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 Supervisory Board that misstatements in excess of EUR 500,000 and classification misstatements in excess of EUR 2,500,000, 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

ASMI is at the head of a group of components. The financial information of this group is included in the financial statements of ASMI.

Our group audit mainly focused on significant components where account balances are of significant size, have significant risks of material misstatement to the group associated with them or are considered significant for other reasons.

- We selected components for which audit of the complete reporting package is performed and components of which audit of specific items is performed. Furthermore, we have determined the nature and extent of the audit procedures that we perform at group level and at ASMI's Shared Services Center ("SSC").
- Our procedures cover the significant operations in Japan, South Korea, the Netherlands, Singapore and the United States of America, all mainly through our audit procedures at the SSC, supplemented with local audits of specific items. Furthermore, our procedures cover the (results from) investments in associates, including the work performed by the non-KPMG member firm auditors on ASM Pacific Technology Ltd. ("ASMPT"). The remaining balances are covered by additional procedures at group level.
- We have sent detailed instructions to all component auditors, covering the significant areas that should be covered (which included the relevant risks of material misstatement detailed below) and set out the information required to be reported to the group auditor. We visited ASMI's SSC in Singapore for a site visit and performed file reviews of ASMPT and ASM Japan K.K. and held various telephone calls with the auditors of the components, to discuss the group audit, significant risks, audit approach and instructions, as well as the audit findings and observations reported to the group auditor.

By performing the procedures mentioned above at group components, together with additional procedures at group level, we have been able to obtain sufficient and appropriate audit evidence about the group's financial information to provide an opinion about the financial statements.

Our procedures as described above can be summarized as follows:

Total assets

96%	2%	2%
Audit of the complete reporting package	Audit of specific items	Covered by additional procedures at group level

Revenue

97%	0%	3%
Audit of the complete reporting package	Audit of specific items	Covered by additional procedures at group level

Audit scope in relation to fraud

In accordance with the Dutch standards on auditing, we are responsible for obtaining a high (but not absolute) level of assurance that the financial statements taken as a whole are free from material misstatement, whether caused by fraud or error.

As part of our risk assessment process we have evaluated events or conditions that indicate an incentive or pressure to commit fraud or provide an opportunity to commit fraud ('fraud risk factors') to determine whether fraud risks are relevant to our audit. During this risk assessment we made use of our own forensic specialist.

We communicated identified fraud risks throughout our team and remained alert to any indications of fraud throughout the audit. This included communication from the group to component audit teams of relevant fraud risks identified at group level.

In accordance with the auditing standard we evaluated the fraud risks that are relevant to our audit:

- fraud risk in relation to the revenue recognition of sales, concerning the existence of equipment sales in the cut-off period, within the financial year; and
- fraud risk in relation to management override of controls.

Our audit procedures included an evaluation of the design and implementation of internal controls relevant to mitigate these risks as well as substantive audit procedures, including detailed testing of high risk journal entries and evaluation of management bias. In determining the audit procedures we made use of ASMI's evaluation in relation to fraud risk management (prevention, detections and response), including the set-up of ethical standards to create a culture of honesty.

As part of our evaluation of any instances of fraud, we inspected the incident register/whistle blowing reports and follow up by management.

We communicated our risk assessment and audit response to 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 procedures to address fraud risks did result in the identification of a key audit matter. We refer to the key audit matter related to Revenue Recognition.

We do note that our audit is based on the procedures described in line with applicable auditing standards and is not primarily designed to detect fraud.

Audit scope in relation to non-compliance with laws and regulations

We have evaluated facts and circumstances in order to assess laws and regulation relevant to ASMI. In this evaluation we made use of our own forensic specialist.

We identified laws and regulations that could reasonably be expected to have a material effect on the financial statements based on our general understanding and sector experience, through discussion with relevant management and evaluating the policies and procedures regarding compliance with laws and regulations.

We communicated identified laws and regulations throughout our team and remained alert to any indications of non-compliance throughout the audit. This included communication from the group to component audit teams of relevant laws and regulations identified at group level. The potential effect of these laws and regulations on the financial statements varies considerably:

- Firstly, ASMI is subject to laws and regulations that directly affect the financial statements including taxation and the financial reporting. We assessed the extent of compliance with these laws and regulations as part of our procedures on the related financial statement items.
- Secondly, ASMI 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:

- Anti-bribery, anti-money laundering and corruption laws and regulations (reflecting the company's significant and geographically diverse operations);
- Data privacy legislation (reflecting the company's requirements to demonstrate that it has taken appropriate organizational and technical measures to protect personal data);
- Environmental regulation (reflecting environmental impact restrictions, waste and contamination related to the company's production and distribution processes); and
- Trade sanctions and export controls laws and regulations (reflecting the company's exposure to international trading restrictions).

Auditing standards limit the required audit procedures to identify non-compliance with laws and regulations that have an indirect effect to inquiring of relevant management and inspection of regulatory and legal correspondence, if any. Through these procedures, we did not identify any material actual or suspected non-compliance. We considered the effect of actual or suspected non-compliance as part of our procedures on the related financial statement items.

Our procedures to address compliance with laws and regulations did not result in the identification of a key audit matter.

We do note that our audit is not primarily designed to detect 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 matters

Key audit matters are those matters that, in our professional judgement, were of most significance in our audit of the financial statements. We have communicated the key audit matters to the Supervisory Board. The key audit matters are not a comprehensive reflection of all matters discussed.

These matters were 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 these matters.

Prior year the valuation of deferred tax assets was a key audit matter due to its significance and complexity. We consider this matter not to be relevant for the current year as ASMI no longer has significant unrecognized net operating losses.

Revenue recognition

Description

As disclosed in note 1 to the consolidated financial statements, equipment sales is measured taking into account multiple element arrangements, for example a single sales transaction that combines the delivery of goods and rendering of (installation) services, as contracts with customers typically include separately identifiable components that are recognized based on the relative selling price. Furthermore, equipment sales is recognized when the customer obtains control of the products and services. We consider revenue recognition a key audit matter, due to the thereto related risk of management override of controls, as well as the fraud risk concerning the existence of equipment sales in the cut-off period, within the financial year.

Our response

Our audit procedures to address this key audit matter included, among others:

- assessing the appropriateness of ASMI's revenue recognition accounting policies relating to revenue recognition and assessing compliance with IFRS 15 guidance;
- evaluating ASMI's internal control in the sales process that would identify a misstatement as a result of revenue recognition in the incorrect accounting period;
- assessing the existence and accuracy of the sales recorded by performing a three-way match of sales using data analytics tools;
- assessing the existence of sales by selecting samples during cut-off period to agree the details of the sales invoices to underlying supporting documents such as shipping documents;
- evaluating the design and implementation of the authorization of journal entries as part of the journal entry process;
- identification of high-risk journal entries from the population of journal entries from the local ERP system with the involvement of our IT auditors; and
- verification of the appropriateness of the identified high risk journal entries through verification of the supporting documentation.

Our observation

The results of our procedures related to the accounting for revenue recognition are satisfactory.

Accounting for investment in ASMPT (associate)

Description

ASMI holds approximately 25% of the shares in ASMPT, an entity listed on the Hong Kong Stock Exchange. The investment in ASMPT is accounted for under the equity method. The accounting for the result and investment in ASMPT is significant to our audit due to the significance of the carrying amount of the investment, the share in income of investments in associates for the financial statements. As at December 31, 2019 the book value of the Investments in associates amounted to EUR 778 million, whilst the Share in income of investments in associates amounted to EUR 4 million.

Our response

Our audit procedures to address this key audit matter included, among others:

- instructing the statutory auditor of ASMPT to perform an audit on the relevant financial information of ASMPT for the purpose of the financial statements of ASMI. We refer to the 'Scope of the group audit' section of our report for further details;
- performing an off-site audit file review subsequent to the ASMPT year-end audit. Due the Coronavirus outbreak we changed the planned on-site review (in Hong Kong) of the component work papers to an off-site audit file review and held additional inquiries (calls) with the component auditor;
- evaluating management considerations on the impairment indicators of the investment in ASMPT. We have audited the changes in the investment value during 2019 to determine that the effects of dilution and amortization of the PPA accounting are correctly reflected in the financial statements; and
- assessing the appropriateness of the approach applied in equity accounting for the investment in ASMPT.

Our observation

The results of our procedures related to the accounting for Investments in associates are satisfactory.

Accounting for capitalized developments costs

Description

Capitalized development costs are deemed significant to our audit, given the significance of the capitalized balances of EUR 182.5 million including additions of EUR 60.2 million in 2019, as well as the specific criteria that have to be met for capitalization. This involves management judgment with respect to technical feasibility, intention and ability to complete the intangible asset, the ability to use or sell the asset, the generation of future economic benefits and the ability to measure the costs reliably.

Our response

Our audit procedures to address this key audit matter included, among others:

- assessing the appropriateness of ASMI's accounting policies relating to internal and external cost capitalization;
- evaluating the company's internal control in the R&D process that would identify a misstatement as a result of incorrect capitalization of developments costs;
- challenging the key assumptions used or judgments made in capitalizing development costs, such as the technical feasibility, intention and ability to complete the intangible asset, the ability to use or sell the asset and the generation of future economic benefits, the accuracy of costs included and the useful economic life attributed to the asset based on development plans, pre-orders and customer communications;
- In addition, we considered whether any indicators of impairment were present by understanding the business rationale and by challenging management judgments and assumptions on future market or economic developments based on business forecasts and development progress; and
- performing detailed testing, such as sampling and specific item testing, of total R&D expenses (both capitalized and non-capitalized) to determine whether expenses were appropriately capitalized or expensed.

Our observation

The results of our procedures related to the accounting for capitalized development costs are 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.

The Management Board of ASMI 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 Annual General Meeting of Shareholders as auditor of ASMI on May 21, 2014, as of the audit for the year 2015 and have operated as statutory auditor ever since that financial 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 the Management Board and the Supervisory Board for the financial statements

The Management Board 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, the Management Board 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, the Management Board is responsible for assessing the ASMI's ability to continue as a going concern. Based on the financial reporting frameworks mentioned, the Management Board should prepare the financial statements using the going concern basis of accounting unless the Management Board either intends to liquidate ASMI, or to cease operations, or has no realistic alternative but to do so. The Management Board 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 ASMI'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.

Amstelveen, March 5, 2020
KPMG Accountants N.V.
R.P. Kreukniet RA

Appendix: Description of our responsibilities for the audit of the financial statements

Appendix

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 ASMI's internal control;
- evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by the Management Board;
- concluding on the appropriateness of the Management Board'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 ASMI'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 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 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 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.

GENERAL INFORMATION

Our products include wafer processing deposition systems for single-wafer ALD, PECVD, epitaxy and batch diffusion/furnace systems. We are active in two technology segments for Atomic Layer Deposition (ALD) tools: thermal ALD and plasma enhanced ALD (PEALD). We are the leader in the logic/foundry segment of the ALD market and serve nearly the whole addressable market.

Within Chemical Vapor Deposition (CVD) we also offer two types of tools: single-wafer plasma enhanced CVD (PECVD) and batch low pressure CVD (LPCVD). And we offer multiple types of tools for single-wafer Epitaxy and batch diffusion furnace applications.

PRODUCT DESCRIPTION

Our products include wafer processing deposition systems for single-wafer ALD, PECVD, epitaxy and batch diffusion/furnace systems.

PRODUCT APPLICATIONS AND DESCRIPTIONS

Atomic Layer Deposition (ALD)

ASMI offers ALD tools in two technology segments: thermal ALD and plasma enhanced ALD (PEALD).

Pulsar XP ALD system

Pulsar XP is a 300mm thermal ALD tool designed for depositing extremely thin high-k dielectric materials required for advanced transistor gates and other applications. Pulsar is the benchmark ALD high-k gate dielectric tool for the industry. Up to four Pulsar process modules can be configured on a Pulsar XP system.

EmerALD XP ALD system

EmerALD XP is a 300mm thermal ALD tool designed for depositing metal gate layers for advanced high-k metal gate transistors and other applications. Up to four EmerALD process modules can be configured on an EmerALD XP system.

Eagle XP8 PEALD system

Eagle XP8 is a high-productivity 300mm tool for PEALD applications. The system can be configured with up to four dual chamber modules (DCM), enabling eight chambers in high-volume production within a very compact footprint. The system is capable of a broad range of dielectric PEALD processes, including low-temperature spacers for multiple patterning applications.

Synergis ALD system

Synergis is a high-productivity 300mm tool for thermal ALD applications. The system can be configured with up to four dual chamber modules (DCM), enabling eight chambers in high-volume production

DEPOSITION APPLICATION	ASMI PRODUCT PLATFORM	ASMI PRODUCTS	PROCESS APPLICATION
ALD	XP[1]	Pulsar XP ALD system EmerALD XP ALD system	High-k gate dielectric Metal gate electrode
	XP8[1]	Synergis ALD system	Metal oxides, Metal nitrides, Dielectrics, Pure metals
PEALD	XP8[1]	Eagle XP8 PEALD system XP8 QCM PEALD system	Spacer for multipatterning Gale spacer Etch stop
PECVD	XP8[1]	Dragon XP8 PECVD system	Inter-layer dielectric Silicon nitride
Diffusion Oxidation LPCVD ALD	Advance Series	A400 DUO batch vertical furnace system Advance A412 Plus batch vertical furnace system	Furnace: > Diffusion, oxidation > Polysilicon > Silicon nitride
Epitaxy	XP[1]	Intrepid ES epitaxy	Silicon channel Strain layer
	Epsilon	Epsilon 2000 single-wafer epitaxy system Epsilon 3200 single-wafer epitaxy system	

1 The XP is our standard single-wafer processing platform designed to accommodate multiple process application modules with common platform standards. In 2012 ASM launched the XP8 high productivity platform for PECVD and PEALD, based on our common XP platform standard with an expanded configuration that enables integration of up to eight chambers on one wafer handling platform.

within a very compact footprint. The system is capable of depositing a broad range of thermal ALD films including metal oxides, metal nitrides, dielectrics, and pure metals.

XP8 QCM PEALD system

XP8 QCM is a 300mm tool for high-productivity PEALD applications. XP8 QCM allows for the integration of up to four modules each containing four process reactors, enabling 16 chambers in high-volume production within a compact footprint.

Advance series batch vertical furnace

The Advance is our batch vertical furnace tool, available as the A412 for 300mm wafers and as the A400 for smaller wafer sizes. Various thermal ALD films can be deposited on the batch furnace for high productivity.

Chemical Vapor Deposition (CVD)

We offer two types of CVD tools: single-wafer plasma enhanced CVD (PECVD) and batch low pressure CVD (LPCVD).

Dragon XP8 PECVD system

Dragon XP8 is a high-productivity 300mm tool for PECVD applications. The system can be configured with up to four dual chamber modules (DCM), enabling eight chambers in high-volume production within a very compact footprint. Processes include a broad range of dielectric PECVD films for applications such as interconnect dielectrics layers, passivation layers, and etch stop layers.

Advance series batch vertical furnace

The Advance is our batch vertical furnace tool, available as the A412 for 300mm thermal LPCVD and as the A400 for LPCVD on smaller wafer sizes. CVD applications on the furnace include polysilicon, silicon nitride, and silicon oxide.

Epitaxy

We offer two families of epitaxy tools: Intrepid and Epsilon.

Intrepid epitaxy system

Intrepid ES is a 300mm epitaxy tool using our XP platform, and is designed for depositing critical transistor strain and channel layers. Processes include silicon (Si), silicon-germanium (SiGe), silicon-carbon (SiC), and other silicon-based compounds. Up to four Intrepid process modules can be configured on an Intrepid ES system.

Epsilon epitaxy system

The Epsilon series is a single-wafer, single-chamber tool that deposits silicon-based materials for many applications, ranging from high-temperature silicon for wafer manufacturing, to low-temperature silicon, silicon-germanium (SiGe), silicon-carbon (SiC), and other silicon-based compounds. Epsilon is the market leader for epitaxy applications in the analog and power devices market.

Diffusion

We offer batch vertical furnace tools for diffusion and oxidation applications.

Advance series batch vertical furnace

The Advance is our batch vertical furnace tool series, available as the A412 for 300mm and as the A400 for smaller wafer sizes. Atmospheric thermal applications on the furnace include diffusion to introduce dopants in materials in controlled amounts, annealing to affect material properties by heating to a specific temperature and oxidation to form silicon oxide.

Service and spare parts

Service and spare parts are important product offerings for our business. We provide service support to our customers with technical service personnel who are trained to maintain our systems at customers' fabrication plants around the world. Our service team is located globally at regional and local service centers to assure prompt availability.

We sell spare parts for our equipment from parts stocks located at global distribution centers.

OTHER INFORMATION

The additional information below includes a brief summary of the most significant provisions of our Articles of Association.

INFORMATION ON THE PROVISIONS IN THE ARTICLES OF ASSOCIATION RELATING TO THE APPROPRIATION OF PROFIT

The Articles of Association of ASM International N.V. (the Company) provide the following with regard to distribution of profit and can be summarized as follows:

- From the profits, distributions shall in the first place, if possible, be made on the preferred shares equal to the EURIBOR-rate for six months' loans, increased by one and a half, on the paid-up amount which had to be paid on the preferred shares, weighted to the number of days to which this was applicable. If profits are insufficient, the dividend will be paid from the reserves with priority over any dividends. If the reserves are insufficient, the dividend deficit has to be made up in future years;
- Second, a dividend, if possible, is distributed on financing preferred shares. The dividend is a percentage of the par value, plus share premium paid, on the financing preferred shares. The percentage is determined by the Management Board, subject to approval of the Supervisory Board. The percentage is related to the average effective yield on government loans with a weighted average remaining term of no more than ten years, if necessary increased or decreased by no more than three percent, subject to the then prevailing market conditions. If profits are insufficient, the dividend shall be paid from the reserves. If the reserves are insufficient, the dividend deficit has to be made up in future years;
- With the approval of the Supervisory Board, the Management Board will determine which part of the profit remaining after adoption of the provisions of the previous paragraphs will be reserved. The profit after reserving will be at the disposal of the Annual General Meeting of Shareholders;
- The Company may only make distributions to the shareholders and other persons entitled to profit insofar as its equity exceeds the amount of the paid-up and called amounts of the share capital increased with the reserves that must be kept by virtue of law; and
- Article 33, para 3 of the Articles of Association provides that dividend claims expire after the lapse of five years.

For the full text, please see our website.

SPECIAL STATUTORY CONTROL RIGHTS

Article 27 of the Articles of Association provides that each common share gives the right to cast one vote, each preferred financing share to cast one thousand votes, and each preferred share to cast one thousand votes.

Article 29 of the Articles of Association provides that meetings of holders of preferred shares or of financing preferred shares shall be convened as often and insofar as a decision of the meeting of holders of preferred shares or financing shares desires this, and furthermore as often as the Management Board and or the Supervisory Board shall decide to hold such a meeting. At the meeting, resolutions will be passed with an absolute majority of the votes. In the event that there is a tie of votes, no resolution will take effect.

The following resolutions and actions can only be taken on a proposal by the Management Board and the Supervisory Board:

- the amendment of the Articles of the Company; and
- the dissolution of the Company.

For the complete text, please see our website.

STICHTING CONTINUÏTEIT ASM INTERNATIONAL

The objective of Stichting Continuïteit ASM International (Stichting) is to serve the interests of the Company. To that objective Stichting may, amongst others, acquire, own and vote on our preferred shares in order to maintain our independence and/or continuity and/or identity.

The members of the board of Stichting are:

- Dick Bouma, retired Chairman Board Pels Rijcken & Droogleever Fortuijn;
- Rob Ruijter, Chairman Supervisory Board Delta Loyd; and
- Rinze Veenenga Kingma, President Archeus Consulting BV.

SUBSEQUENT EVENTS

Subsequent events were evaluated up to March 5, 2020, which is the issuance date of this Annual Report 2019. There are no subsequent events to report.

ANNUAL REPORT

The Annual Report, prepared in accordance with International Financial Reporting Standards (IFRS), is available free of charge by writing to our corporate offices, sending an email to investor.relations@asm.com or downloading the file through our website.

DEFINITIONS

All boundary scopes are for ASMI Front-end unless noted

Indicators	Definitions	Section covered
STAFF (EMPLOYEE)	Employee is a person with a fixed contract, excluding temporary labor. Definition may be varied by country per local and country labor law. The number of employees at the last day of the reporting period	Employees
EMPLOYEES IN R&D	The number of employees on the last day of the reporting period whose work is directly related to the research and development of the product during the reporting year	Employees
PATENT FILINGS	The total number of patent applications filed and applied with patent offices globally by ASMI for the invention described	Customers
EMPLOYEES BASED ON NATIONALITIES	The number of nationalities of employees on the last reporting day of the period	Employees
EMPLOYEES COVERED BY COLLECTIVE BARGAINING AGREEMENTS	The percentage of employees that are covered by collective bargaining agreements per local labor requirement divided by the total number of employees at reporting year-end	Employees
REPORTED CONCERNS FROM ANONYMOUS GLOBAL REPORTING PROGRAM SPEAKUP!	The number of questions, remarks and/or concerns reported to the Ethics Office related to a potential violation of the Code of Conduct and Business Policies via reporting tool SpeakUp! in the reporting period	Society
VOLUNTARY TURNOVER RATE	The percentage of employees in a workforce that leave voluntarily during this reporting period	Employees
RECORDABLE INJURY RATE	The Recordable Injury Rate measures cases that require a response greater than first aid (or serious injuries) per 100 employees in reporting period	Employees
INJURY RATE	The Injury Rate is a measure of all first aid or greater injuries per every 100 employees in reporting period	Employees
NUMBER (#) OF EMPLOYEES COMPLETING BI-ANNUAL ETHICS TRAINING	All employees completing the online compliance training courses bi-annually during our compliance month within the reporting year. We track # of employees and % of the total that completed the training. It is applicable to all employees	Employees
ETHICS CONCERNS REPORTED FROM ANONYMOUS GLOBAL REPORTING PROGRAM SPEAKUP!	The number of any ethics concerns reported by employees through our anonymous employee reporting channel SpeakUp!; that may be related to a potential violation of the Code of Conduct and Business Principles or Policies in the reporting year	Society
ETHICS CONCERNS REPORTED THROUGH OTHER CHANNELS	The number of any ethics concerns reported by employees through other means including directly to management or the Compliance Officer, that may be related to a potential violation of the Code of Ethics and Business Principles or Policies in the reporting year	Society
RESPONSIBLE BUSINESS ALLIANCE (RBA)	We adopted the industry standard RBA Code of Conduct. More detail about the code can be find at http://www.responsiblebusiness.org/standards/code-of-conduct/	Suppliers
SELF-ASSESSMENT QUESTIONNAIRE (SAQ) RISK RATING/RESULT	We adopted the RBA standard tool for risk assessment Self-Assessment Questionnaire (SAQ) to assess our own and supply chain risk. This rate apply to our own operation SAQ results with our major sites	Suppliers

Indicators	Definitions	Section covered
CRITICAL AND STRATEGIC SUPPLIERS	Suppliers that are determined to be critical to our business either because the business spends, or critical components or critical materials, or strategic technical partnership	Suppliers
SUPPLY CHAIN SPEND BY REGION	Total amount of Euro spent with our global suppliers for the materials, components and services that are used to produce our products and services for our customers and for non-product related products services that enable our operations globally in the reporting period	Suppliers
CRITICAL SUPPLIER COMMITMENT %	The percent of critical suppliers that have acknowledged their commitment to RBA code or whose code of conduct is assessed to be acceptable as it covers the similar principles of the RBA Code of Conduct	Suppliers
CRITICAL SUPPLIERS' LOW MEDIUM RISK RANK BASED ON SELF-ASSESSMENT QUESTIONNAIRE (SAQ) RESULT	The percent of critical supplies who completed the required Supplier Self-Assessment Questionnaire and resulted with low and medium risks	Suppliers
SUPPLY CHAIN SPENDS PER REGION (IN EURO AND %)	Total Euro amount we spent and equivalent to the % of total spends with suppliers by each region	Suppliers
GREENHOUSE GAS (GHG) EMISSIONS	The number of metric tons of CO_2 equivalent emissions including both the direct CO_2 equivalent emissions (scope 1) and indirect CO_2 equivalent emissions (scope 2) in the reporting period	Society
WATER CONSUMPTION	The total amount of water consumption in cubic meters for the reporting period	Society
LANDFILL DIVERSION RATE	The percentage of solid waste diverted from landfill via recycling and reuse efforts in the reporting period as generated at ASMI major Manufacturing, Engineering and R&D sites.	Society

ABBREVIATIONS

AENEAS: AENEAS is an association, established in 2006, providing unparalleled networking opportunities, policy influence & supported access to funding to all types of RD&I participants in the field of micro- and nanoelectronics enabled components and systems.

AGM: Annual General Meeting of Shareholders is the annual general meeting of shareholders.

ALD: Atomic Layer Deposition is a surface-controlled layer-by-layer process that results in the deposition of thin films one atomic layer at a time. Layers are formed during reaction cycles by alternately pulsing precursors and reactants and purging with inert gas in between each pulse.

BCP: Business Continuity Plan

CAP: Corrective Action Plan

CMRT: The CFSI Conflict Minerals Reporting Template is an industry widely adopted standard template used by companies to collect conflict minerals due diligence data.

Conflict Minerals/3TG: Tin, tantalum, tungsten and gold.

CONNECT: ASMI's internal newsletter

COSO: The Committee of Sponsoring Organizations of the Treadway Commission is a joint initiative of five private sector organizations listed that is dedicated to providing thought leadership through the development of frameworks and guidance on enterprise risk management, internal control and fraud deterrence.

CR: Corporate Responsibility

CVD: Chemical Vapor Deposition is a chemical process used to produce high quality, high-performance, solid materials. The process is often used in the semiconductor industry to produce thin films. In typical CVD, the wafer (substrate) is exposed to one or more volatile precursors, which react and/or decompose on the substrate surface to produce the desired deposit. Frequently, volatile by-products are also produced, which are removed by gas flow through the reaction chamber.

DCM: Dual Chamber Module

DFX: Term used interchangeably, where the X is a variable which can have one of many possible values, such as design for manufacturability, power, variability, cost, yield, reliability, or sustainability (DFS).

DRAM: Dynamic Random Access Memory

DRC: The Democratic Republic of Congo

ECO: Engineering change order.

EHS: Environmental, Health & Safety

Epitaxy (EPI): Epitaxy is one of a portfolio of wafer processing technologies for which we provide equipment. The word comes from the Greek epi meaning above, and taxis meaning in an ordered manner. It involves the deposition of silicon or silicon compounds to form layers that help to continue and perfect the crystal structure of the bare silicon wafer below. Epitaxy improves the electrical characteristics of the wafer surface, making it suitable for highly complex microprocessors and memory devices. Selective Epitaxy is an Epitaxy process that only deposits silicon or a silicon compound on certain predetermined areas of the wafer.

FinFET: A Field Effect Transistor (FET) architecture that uses a raised channel, referred to as a fin, from source to drain. A finFET is a considered a 3D transistor since the channel is in a vertical orientation.

FLBL: Forced Labor/Bonded Labor

FMEA: Failure Mode Effects Analysis

GES: ASMI's Global Employment Standards

GRI: The Global Reporting Initiative is an international independent standards organization that helps businesses, governments and other organizations understand and communicate their impacts on issues such as climate change, human rights and corruption (www.globalreporting.org).

IC: Integrated Circuit

IFRS: International Financial Reporting Standards

ILO: International Labor Organization

imec: imec is an internationally renowned research institute that performs research in different fields of nanoelectronics. It is headquartered in Leuven, Belgium, and has offices in the Netherlands, Taiwan, US, China, India, Nepal and Japan.

IoT: Internet of Things

IP: Intellectual Property

ISO 14001: The ISO 14001 Environment Management System (EMS) standard is an internationally recognized environmental management standard.

LPCVD and oxidation/diffusion: Low Pressure Chemical Vapor Deposition (LPCVD) is a thermal process that deposits various films at low pressure. LPCVD processes include polysilicon, silicon nitride and silicon oxides. Diffusion (sometimes referred to as annealing) is a thermal treatment used to move dopants, or impurities, and make dopants introduced by ion implantation electrically active. Oxidation forms a silicon oxide layer on the wafer's surface, which acts as an insulating or protective layer over it.

NAND: A type of nonvolatile memory device technology which does not require power to retain its data. NAND flash memory is used in mobile phones, USB memory drives, solid state drives and other electronic products.

NCG: New College Graduate

NGOs: Non-Government Organizations

NWO: Nederlandse Organisatie voor Wetenschappelijk Onderzoek

OECD: Organization for Economic Cooperation and Development is an international organization helping governments tackle the economic, social and governance challenges of a globalized economy. It publishes guidance and frameworks such as OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas.

PEALD: Plasma Enhanced ALD uses specific chemical precursors just like in thermal ALD. However, it also makes use of cycling an RF-plasma to create the necessary chemical reactions in a highly controlled manner.

PECVD: Plasma Enhanced Chemical Vapor Deposition is the CVD that utilizes plasma to enhance chemical reaction rates of the precursors. PECVD processing allows deposition at lower temperatures, which is often critical in the manufacture of semiconductors. The lower temperatures also allow for the deposition of organic coatings, such as plasma polymers, that have been used for nanoparticle surface functionalization.

PLC: Product Life Cycle

R&D: Research and Development

RBA: Responsible Business Alliance - Industry coalition seeking to create a industry-wide standards on social, environmental and ethical issues in the industry supply chain. Rebranded from the Electronics Industry Citizenship Coalition (EICC) in October 2017.

RCOI: Reasonable Country of Origin Inquiries

RMI: Responsible Minerals Initiative - (http://www.conflictfreesourcing.org)

SAQ: Self-Assessment Questionnaire is one of the RBA's standardized risk assessment tools.

SDG: United Nations Sustainable Development Goals

SEAJ: Semiconductor Equipment Association Japan

SEMI: Semiconductor Equipment and Materials International is a global industry association of companies that provide equipment, materials and services for the manufacture of semiconductors, photovoltaic panels, LED and flat panel displays, micro-electromechanical systems (MEMS), and related micro and nanotechnologies.

TTW: Toegepaste en Technische Wetenschappen

VLAIO: Vlaams Agentschap Innoveren & Ondernemen

LOCATIONS WORLDWIDE

EUROPE

THE NETHERLANDS

ASM International NV (HEADQUARTERS)
Versterkerstraat 8
1322 AP Almere
T: +31 88 100 8810
F: +31 88 100 8820

ASM Europe BV
Versterkerstraat 8
1322 AP Almere
T: +31 88 100 8711
F: +31 88 100 8710

ASM IP Holding BV
Versterkerstraat 8
1322 AP Almere
T: +31 88 100 8810
F: +31 88 100 8820

BELGIUM

ASM Belgium NV
Kapeldreef 75
3001 Leuven
T: +32 16 28 1639

FINLAND

ASM Microchemistry Oy
Pietari Kalmin katu 3 F 2
00560 Helsinki
T: +358 9 525 540

FRANCE

ASM France SARL
223 Rue des Bécasses
38920 Crolles
T: +33 4 7692 2824
F: +33 4 3892 0472

GERMANY

ASM Germany Sales BV
Bretonischer Ring 16
85630 Grasbrunn
T: +49 89 462 3650
F: +49 89 462 36566

ASM Germany Sales BV
Hohenbusch Markt 1
01108 Dresden
T: +49 351 3238330
F: +49 351 3238332

IRELAND

ASM Services & Support Ireland Ltd
Unit 23, Hills Industrial Estate
Lucan, K78 P661
Co Dublin
T: +353 1 621 9100
F: +353 1 628 0206

ISRAEL

ASM Services & Support Israel Ltd
2 Hazaron St
Kiryat-Gat 82109
T: +972 8 612 3077

NORTH AMERICA

UNITED STATES

ASM America, Inc
3440 East University Drive
Phoenix, AZ 85034
T: +1 602 470 5700

Regional Sales/Service Office
2083 East Hospitality Lane
Suite 200
Boise, ID 83716
T: +1 208 424-9534

Regional Service Office
7235 NE Evergreen Parkway
Suite 200
Hillsboro, OR 97124
T: +1 503 629 1360

ASIA

CHINA

ASM China Ltd
A/N, 15F, No 720 Pudong Avenue
Shanghai 200120
T: +86 21 50 368 588
F: +86 21 50 368 878

JAPAN

ASM Japan KK
23-1, 6-chome Nagayama
Tama-shi
Tokyo 206-0025
T: +81 42 337 6311
F: +81 42 389 7555

Daini Technology Center
7-2, 2-chome, Kurigi
Asao-ku, Kawasaki-shi
Kanagawa 215-0033
T: +81 44 712 3681
F: +81 44 712 3682

Kumamoto Service Center
3F, Mayfair-Suizenji
21-30, 1-chome, Suizenji
Chuo-ku, Kumamoto-shi
Kumamoto, 862-0950
T: +81 96 387 7300

Nagaoka Factory
392-1 Mishimashimbo
Nagaoka-shi
Niigata 940-2311
T: +81 258 42 2400
F: +81 258 41 2490

Yokkaichi Service Center
3F, Kosco-Yokkaichi-Nishiura Building
5-10, 1-chome, Yasujima, Yokkaichi-shi
Mie 510-0075
T: +81 59 340 6100
F: +81 59 340 6099

Hiroshima Service Center
402, Higashi-Hiroshima Sea Place
10-30, Saijosakae-machi
Higashi-Hiroshima-shi
Hiroshima 739-0015
T: +81 42 315 0195

MALAYSIA

ASM Services & Support Malaysia Sdn Bhd
Suite 17 and 18, First Floor
Incubator Block, Kulim Techno Centre
Kulim Hi-Tech Park
09000, Kulim
Kedah Darul Aman
T: +604 403 9330
F: +604 403 9332

SINGAPORE

ASM Front-End Manufacturing Singapore Pte Ltd
543 Yishun Industrial Park A
Singapore 768765
T: +65 6512 2922
F: +65 6512 2966

ASM Wafer Process Equipment Singapore Pte Ltd
543 Yishun Industrial Park A
Singapore 768765
T: +65 6512 2962
F: +65 6512 2961

SOUTH KOREA

ASM Korea Ltd
Head Office
63-11, Dongtan Cheomdan Saneop 1-Ro
Hwaseong-Si
Gyeonggi-Do, 18469
T: +82 31-5176-0000

TAIWAN

ASM Front-End Sales & Services Taiwan Co, Ltd
Hsin-Chu Office
2F-5, No 1, Jinshan 8th St
East Dist, Hsinchu City 300
T: +886 3 666 7722
F: +886 3 564 8899

ASM Front-End Sales & Services Taiwan Co, Ltd
Lin-Kuo Office
2F, No 50, Fuxing 3rd Rd
Guishan Dist, Taoyuan City 333
T: +886 3 211 5279
F: +886 3 328 5358

ASM Front-End Sales & Services Taiwan Co, Ltd
Tai-Chung Office
Unit 6A, 6F, 168 Guoan Rd
Xitun Dist, Taichung City 407
T: +886 4 2465 1086
F: +886 4 2463 3707

ASM Front-End Sales & Services Taiwan Co, Ltd
Tai-Nan Office
3F-2, No 15 Building B, Guoji Rd
Xinshi Dist, Tainan City 744
T: +886 3 6667722 ext 22290

SAFE HARBOR STATEMENT

In addition to historical information, some of the information posted or referenced herein or on the website contains statements relating to our future business and/or results, including, among others, statements regarding future revenue, sales, income, expenditures, sufficiency of cash generated from operations, maintenance of interest in ASM Pacific Technology Ltd, business strategy, product development, product acceptance, market penetration, market demand, return on investment in new products, facility completion dates and product shipment dates, corporate transactions, restructurings, liquidity and financing matters, outlooks, and any other non-historical information. These statements include certain projections and business trends, which are 'forward-looking'. We caution readers that no forward-looking statement is a guarantee of future performance and that actual results could differ materially from those contained in the forward-looking statements.

You can identify forward looking statements by the use of words like 'may', 'could', 'should', 'project', 'believe', 'anticipate', 'expect', 'plan', 'estimate', 'forecast', 'potential', 'intend', 'continue', and variations of these words or comparable words.

Forward-looking statements do not guarantee future performance and involve risks and uncertainties. You should be aware that our actual results may differ materially from those contained in the forward-looking statements as a result of certain risks and uncertainties. These risks and uncertainties include, but are not limited to, economic conditions and trends in the semiconductor industry and the duration of industry downturns, currency fluctuations, the timing of significant orders, market acceptance of new products, competitive factors, litigation involving intellectual property, shareholder or other issues, commercial and economic disruption due to natural disasters, terrorist activity, armed conflict or political instability, epidemics and other risks indicated in our most recently filed Statutory Annual Report and other filings from time to time. The risks described are not the only ones. Some risks are not yet known and some that we do not currently believe to be material could later become material. Each of these risks could materially affect our business, revenues, income, assets, liquidity, and capital resources. All statements are made as of the date of posting unless otherwise noted, and we assume no obligation to update or revise any forward-looking statements to reflect future developments or circumstances.

ASM International N.V.
Versterkerstraat 8
1322 AP Almere
The Netherlands

ASM.COM