DRIVE INNOVATION · DELIVER EXCELLENCE >

ASM INTERNATIONAL

GROWING OUR POTENTIAL

SHAPING TOMORROW

ANNUAL REPORT 2020

NOTES TO THE READER

PDF/PRINTED VERSION

This document is the PDF/printed version of ASM International N.V.'s 2020 Annual Report and has been prepared for ease of use. The 2020 Annual Report in European Single Electronic Reporting format (the ESEF reporting package) is the official version. The ESEF reporting package is available on the company's website. In any case of discrepancies between this PDF version and the ESEF reporting package, the latter prevails.

UNROUNDED FIGURES

Amounts in the Annual Report may not add up due to rounding differences. The total amounts may therefore deviate from the sum of the parts. Percentage changes are based on the unrounded figures.

GROWING OUR POTENTIAL, **SHAPING TOMORROW**

IN A YEAR UNDERSCORED BY COVID-19, ASMI DELIVERED A STRONG FINANCIAL PERFORMANCE AND MADE IMPORTANT PROGRESS IN MANY STRATEGIC AREAS.

Our focus on the health and safety of our people has always been our key priority. The commitment and focus of our employees in challenging operating conditions created by COVID-19 enabled us to continue serving our customers in the best possible ways. Demand remained strong as our customers continued to invest in the most advanced technologies that will shape tomorrow's advances in trends such as 5G, cloud computing, and autonomous driving. ASMI delivered its fourth consecutive year of double-digit revenue growth. We further strengthened our position as we significantly expanded our R&D engagements.

Looking ahead, we will continue to invest in the potential of our company.

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ABOUT

In a year underscored by the COVID-19 pandemic, in which we prioritized the health and safety of our employees, their families, and our stakeholders, we also continued to help our customers focus on building faster, cheaper, and increasingly powerful chips.

PROPELLING DEMAND

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.

STRONG RESULTS

In 2020, we continued to further enhance our leading platforms and to grow the pipeline of new ALD applications, which represented more than half of our equipment revenue. Our spares & services business also delivered an outstanding performance, with a double-digit revenue increase compared to 2019. Together with our equipment business of our product lines, this contributed to a highly successful year, which included:

- Revenue of €1,328 million;
- Bookings of €1,314 million;
- Operating result of €327 million; and
- Free cash flow of €119 million.

MESSAGE FROM THE CEO

Benjamin Loh
President and Chief Executive Officer

In a year underscored by COVID-19, our first priority was the safety of our employees, while we continued to serve our customers in the best possible ways. ASMI again delivered strong financial results and achieved progress in key strategic areas.

"OUR KEY PRIORITY IS THE HEALTH AND SAFETY OF OUR EMPLOYEES."

INTRODUCTION

2020 was an unprecedented year as the COVID-19 pandemic severely affected our lives, our communities, and world economies. The health and safety of our employees, their families, and of the employees working for our customers and other business partners has always been our key priority. From the onset of the pandemic, we implemented all necessary measures, government guidelines and industry best practices to minimize the risks for our people and partners. Measures included working from home for our employees wherever possible, implementation of split-shift work in essential areas, enhanced cleaning protocols, and of course, restriction of non-essential travel. During the year, demand for our products remained strong as our customers continued to invest in advanced node capacity and in new technology development. I am impressed by the way ASMI's employees, while putting the health of all of us first, showed their commitment and creativity to make sure we continue to serve our customers in the best possible ways, such as the use of smart technologies to work remotely on our customers' tools. I want to thank all our employees for their great commitment and teamwork during this unprecedented year.

For me personally, it has also been a challenging time, having assumed the role of CEO in mid-May, in the midst of the pandemic. Though it was difficult, I have been able to adapt to an entirely new way of working, meeting many ASMI colleagues remotely and also having most of my first customer interactions remotely. As vaccinations start to happen worldwide, I am cautiously optimistic that the pandemic will be under control sometime this year and I look forward to being able to meet our colleagues, shareholders, and partners in person.

MARKET DEVELOPMENT

As markets were upended by the impact of lockdown measures and border closures, the global economy showed a sharp drop in 2020. Certain parts of the semiconductor market, such as the automotive and industrial end markets, were negatively affected, but the overall semiconductor market showed a resilient performance. Key drivers were investments in for instance PCs, data centers and communications infrastructure to support demand related to work-from-home and remote learning. In the broader society, the pandemic accelerated the trend of digitalization. We are proud to be part of an industry that contributed to the key technologies that have helped people stay connected with family and friends during these periods of lockdown, schools continuing online lessons, and businesses maintaining operations.

The semiconductor market finished the year with a robust growth of 7%. The wafer fab equipment (WFE) market grew at mid-to-high teens percentage year-on-year. Our customers continued to invest in leading edge manufacturing capacity. Logic/foundry demand showed a solid increase, driven by spending on the most advanced nodes of 10nm and below. While the outlook for the memory market was initially impacted by weakness and inventory corrections in parts of the end markets, equipment spending showed a healthy increase for the full year.

LOGIC/FOUNDRY AGAIN THE KEY DRIVER IN 2020

Our revenue increased by 18% in 2020, the fourth consecutive year of double-digit growth. The logic/foundry sector continued to be the key driver for us in 2020. Demand was geared towards the most advanced nodes. This benefited ASMI as the number of ALD layers in the most advanced logic/foundry nodes has increased substantially compared to the previous nodes, fueling strong share of wallet gains. By customer segment, revenue was again led by foundry, followed by logic. After already doubling in 2019, our revenue in the foundry segment grew again strongly by double digits in 2020. In memory – the third largest segment – our revenue showed a healthy double-digit increase, driven primarily by a strong increase in our DRAM revenue, where we benefited from the first meaningful adoption of new non-patterning ALD solutions.

In terms of product lines, revenue was led by very strong double-digit growth in our ALD business, which continued to represent more than half of our equipment revenue in 2020. After strong increases in previous years, momentum in our combined other products – epitaxy, PECVD and vertical furnaces – slowed down in 2020. This is explained by the relatively higher exposure of these product lines to the analog/power markets, which were in turn impacted by the weakness in the automotive and industrial markets earlier in 2020. Recently, demand in analog/power has shown the first signs of recovery.
In 2020, our spares & services business delivered an outstanding performance, increasing revenue by 29%. To a smaller extent, this growth was driven by customers increasing inventories in response to the COVID-19-related supply chain challenges, especially in the second quarter of the year. For the most part, we benefited from the solid increase in our installed base in recent years as well as the first contribution from our investments in new outcome-based services. Spares & services accounted for 21% of total revenue in 2020.

“A STRONG AREA OF GROWTH THIS YEAR HAS BEEN THE CHINESE MARKET.”

CHINA

A strong area of growth this year has been the Chinese market, for the broader WFE market and for ASMI. Our sales in China grew strongly in 2020 and contributed for the first time a double-digit percentage of our total revenue. We benefited from the investments we made in recent years to strengthen our position in this market. In addition, the portion spent by domestic chip manufacturers on the more advanced nodes, albeit still the smaller part of total spending in China, showed a strong increase in 2020, playing to the strengths of our company. Despite the uncertainty related to new US export restrictions, our sales in China remained solid throughout the year. More importantly, we further broadened our customer base of domestic Chinese customers and booked new tool wins which we expect to contribute in 2021 and beyond.

NEW MANUFACTURING FACILITY IN SINGAPORE

An important highlight in 2020 was the completion of our new state-of-the-art manufacturing facility in Singapore. After a delay caused by COVID-19, the facility was completed in the fourth quarter. In December we shipped our first tool from this facility and in the first quarter of 2021 we continue to further transfer production to the new facility. Using the first phase of the new facility will increase our manufacturing capacity substantially. It will also provide us with increased flexibility to deliver on our customer commitments.

FINANCIAL PERFORMANCE

ASMI delivered strong financial results in 2020. Revenue (excluding the settlement proceeds in 2019) increased 18% and reached a new record of €1.3 billion in 2020. For the fourth consecutive year, we increased our revenue by a double-digit percentage. Gross margins improved from 43% to 47%, in part driven by efficiency improvements, and for another part due to positive mix effects, particularly in the second and third quarters of the year. With operating expenses under control, operating result increased by nearly 50% in 2020.

"FOR THE FOURTH CONSECUTIVE YEAR, WE INCREASED OUR REVENUE BY A DOUBLE-DIGIT PERCENTAGE."

In 2020, we stepped up our capital expenditures (capex) to €95 million. Similar to 2019, a significant portion of spending was related to our new manufacturing facility in Singapore. In addition, we increased our spending as part of the initiatives we announced earlier in the year to expand and upgrade our lab capabilities. Free cash flow amounted to a healthy level of €119 million, even though it was down from the level in 2019 due to the higher capex and an increase in working capital requirements. Our financial position remained strong with €435 million in cash at the end of 2020.

Our policy to use excess cash for the benefit of our shareholder remained unchanged. In 2020, ASMI distributed €165 million in cash to shareholders. Over the last three years we returned almost €1 billion in cash to shareholders. During the AGM, we will propose a regular dividend of €2.00 per share to be paid over 2020, which is a 33% increase compared to the regular dividend of €1.50 per share paid over 2019.

STRATEGIC DIRECTION UNCHANGED

After I took over as CEO last May, it did not take me a lot of time to confirm, together with the rest of the management team, that the strategic direction of ASMI is the right one. However, we identified a number of areas where we need to further step up, to make sure we can capture the opportunities in front of us.

ALD continues to be a key growth market for ASMI. On the back of a significant double-digit revenue increase, we believe we maintained a strong leading position in 2020. We further expanded our R&D engagements with key logic/foundry customers. We expect the number of ALD layers and application in the upcoming nodes to grow again by double-digit percentages. In addition, we remain strongly focused on expanding our position in the memory ALD market. An important achievement in 2020 in this respect was the tool wins with leading memory customers for high-k metal gate applications in CMOS peripheral transistors in DRAM. This is a logic-like process in which we can leverage our significant experience built over the years in the logic/foundry sector. In addition, we successfully engaged many customers with new applications, enabling us to grow even more in the memory market in the coming years.

While growth in our epitaxy business slowed, we achieved solid progress in our R&D engagements with customers, working towards new tool-of-record selections for our Intrepid tool, which we expect will contribute to increased revenue and further market share gains in the coming years.

"WE REALIZED SOLID PROGRESS IN OUR R&D ENGAGEMENTS WITH CUSTOMERS."

In vertical furnaces and PECVD, we continue our strategy to invest in targeted niche opportunities, which we expect to drive additional revenue growth for our company in the coming years.

In spares & services we intend to further expand our offering of new outcome-based services, which will help us to further strengthen our customer relationships and to drive solid growth in this part of the business.

To make sure that ASMI is well prepared to tap into all the new opportunities, we will continue to invest in the growth of our company. After an increase of 14% in 2020, we will continue further spending on R&D to develop the many new ALD applications that are on the industry's roadmap. We expect capex to remain at a relatively higher level in 2021 on the back of continued R&D-related investments such as lab tools and advanced metrology equipment.

An important focus area is the reinforcement of our company culture. On the back of the recent substantial growth, approximately half of our workforce joined in the last three years. Nurturing our strengths such as our rich history, our technology focus and our global diversity, we will further build a unified culture, unique to ASMI and based on our core values: 'We care, We innovate, We deliver'. We took the first actions last year, including a company-wide engagement survey, and we will take the next steps this year, including further strengthening our employee communications. Our people are our key asset. We will only succeed when we create a workplace of inclusion and diversity in which our employees have the opportunity to maximize their potential.

ESG

Our focus is on long-term sustainable value creation for all our stakeholders. During 2020 we further stepped up our focus on environmental, social and governance (ESG). After many years of engagement and commitment, ASMI officially became a member of the Responsible Business Alliance (RBA) in 2020. We are a recognized leader in our industry in terms of our focus on health and safety. Over the last five years we significantly exceeded our targets for reduction in greenhouse gases and water consumption, and, while falling short of the target, we also achieved a substantial increase in our diversion of landfill waste. We have also adopted a philosophy where our latest products have been designed and developed with a reduction in consumption of gases and electrical power in mind as part of the overall industry trend towards making the manufacture of semiconductors more environmentally friendly. In addition to that we offer our customers refurbishment programs and upgrade kits to extend the lifetime of the existing tools.

“WE ARE A RECOGNIZED LEADER IN OUR INDUSTRY IN TERMS OF OUR FOCUS ON HEALTH AND SAFETY.”

OUTLOOK 2021

Our industry has started the year in good shape. General expectations are that the global economy will show a recovery this year even though the pandemic continues to pose risks and may delay this recovery. In the semiconductor market, the strong momentum at the end of 2020 has continued into the first part of 2021. The strength of the increase in demand has led to shortages in parts of the market. Against this backdrop, WFE spending is again expected to show a mid-teens percentage increase in 2021. Solid spending is expected for the logic/foundry segment, supported by strong demand for the current most advanced nodes. In addition, our customers in this segment continue to show a healthy appetite for investing in the development of the next nodes. In the memory market, a further recovery in spending is expected. A recovery in key end markets such as smartphones, combined with the fact that capacity additions in recent years have generally been limited, are likely to result in improving supply-demand conditions in the memory segment.

ASMI has also started 2021 on a strong footing. With the publication of our fourth quarter results at the end of February, we are on track for record revenue and bookings in the first quarter. Our guidance for the first and second quarters combined implies year-on-year revenue growth of 14% to 20% in the first half year.

LONG-TERM OUTLOOK

We believe that prospects for ASMI remain strong on a longer-term basis. Semiconductor demand is expected to be driven by key secular growth trends such as 5G, artificial intelligence, cloud and edge computing, and autonomous driving. Advanced semiconductor devices play a crucial role in enabling these multi-year industry drivers. 5G, for example, is expected to drive renewed growth in the smartphone market and new apps, driving a higher semiconductor content as compared to the 4G smartphones. Another example is artificial intelligence. With explosive growth in data, machine learning algorithms are ever more eager for faster, more powerful and power-efficient processors.

“WE EXPECT ALD TO TURN EVEN MORE INTO A CORE TECHNOLOGY.”

While ALD has already moved into the mainstream in recent years, we expect ALD to turn even more into a core technology that will help our industry to keep pace with Moore’s Law. Increasing device complexity, new materials, and ever thinner films with higher required conformality will drive substantially higher demand for ALD in the medium term.

Although I am still new in the company, I have been very impressed and excited by the opportunities that lie ahead and I am committed to continue to grow the company and build on the legacy that has been left for me by my predecessor, Chuck del Prado.

At the coming AGM, Jan Lobbezoo, after having served for three terms at the ASMI Supervisory Board will retire. I would like to thank him for his wisdom, guidance and continuous support in the past 12 years.

Finally, I want to thank Peter van Bommel for his excellent contributions to ASMI. After 11 years as CFO and Member of the Management Board, Peter will retire at the upcoming AGM. He provided our company with a robust financial framework and played an important role in driving the strategic direction of ASMI.

March 4, 2021

Benjamin Loh

Benjamin Loh
President and Chief Executive Officer

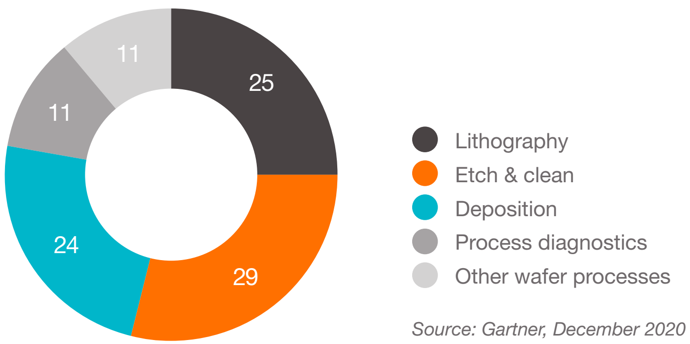
ASMI AT A GLANCE

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, and ASMI equipment is a key technology used to manufacture many of these chips.

WHAT WE DO

ASMI supplies wafer processing equipment to the leading semiconductor manufacturers. The total market for wafer fab equipment (WFE) amounted to US$63 billion in 2020 (Gartner, December 2020). 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 2020

At ASMI we design, manufacture, sell and service our deposition tools to supply our customers with advanced technologies for the production of semiconductor devices, or integrated circuits (ICs). Semiconductor ICs, or chips, are a key technology enabling 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 that 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 that 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 used in a wide range of electronic systems for mobile products, automobiles, telecommunications, and other applications. Wafer manufacturing is another relatively small segment that we participate in, for the processing of bare silicon wafers before they are delivered to semiconductor fabs.

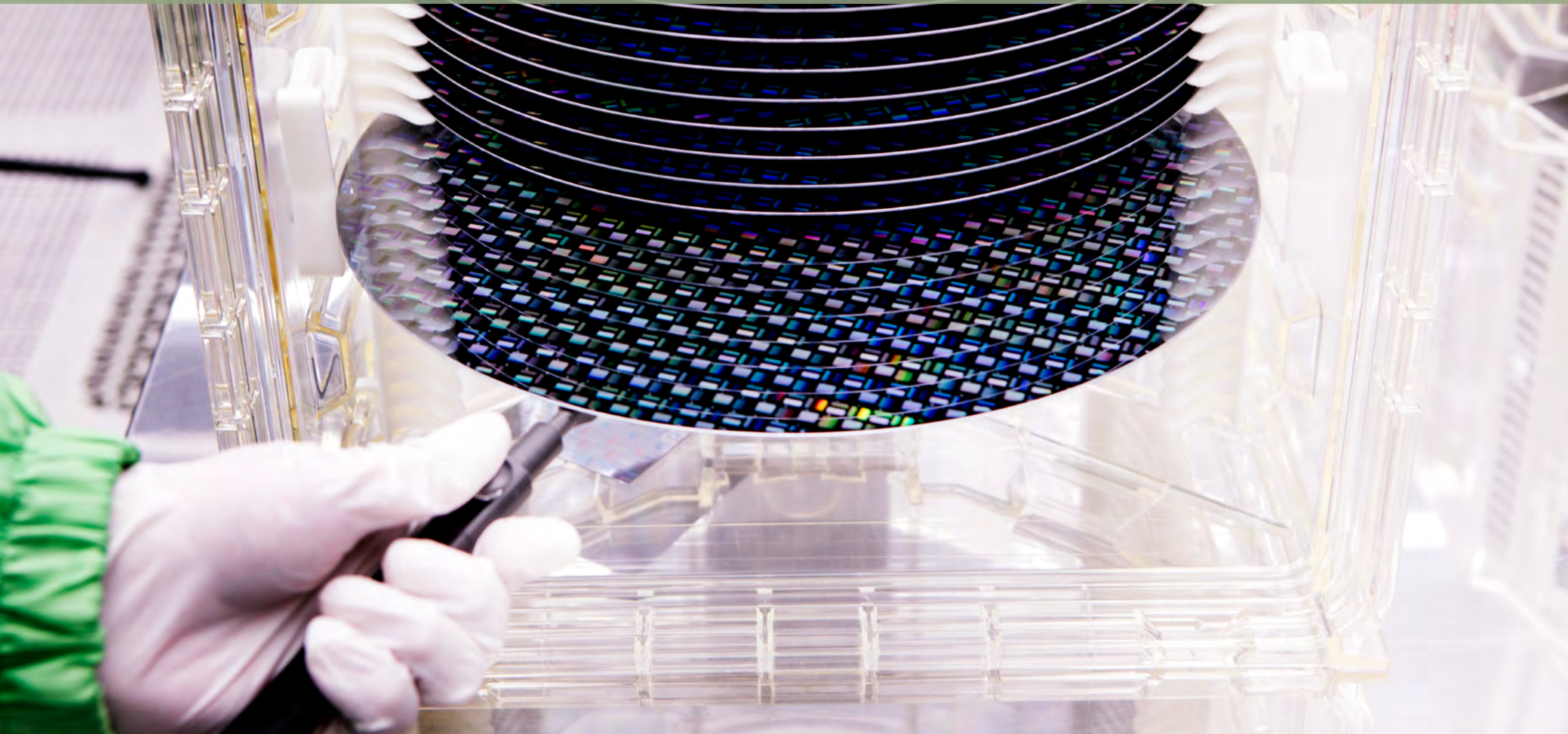
Our customers' goal is to build faster, cheaper, and increasingly more powerful semiconductors for each new technology node. We work closely with our customers to make this a reality, forging mutually beneficial partnerships to help develop their technology roadmap. Through our intensive R&D programs and customer co-development, we continuously improve and extend the capability of 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 and generates long-term value for all of our stakeholders. We serve 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. For example, increasingly complex processor chips are used for artificial intelligence applications and advanced chips used in 5G mobile phones require lower power usage, for which our high-k ALD process is beneficial.

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 processing equipment to create a semiconductor chip, including photolithographic patterning, depositing thin-film layers, etching to remove material and thermal treatments. 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 to ensure 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.

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 described in the following pages.



ALD

ASMI has a leading position in ALD, which is our largest product line and continued to account for more than half of our equipment revenue in 2020. 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 at least the coming 3-5 years. As the industry moves to smaller geometries, more complex device structures, and new materials, 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 2020, 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.

Because we entered the ALD memory market at a later stage, the part of the addressable market we are serving is smaller. Despite this, 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. For example, technology challenges require ALD high-k layers for the control transistors in the most advanced DRAMs. In 3D-NAND, the device complexity is increasing as the industry moves to higher stacks, such as the transition from 96 layer to 128 layers. This in turn will gradually increase 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.

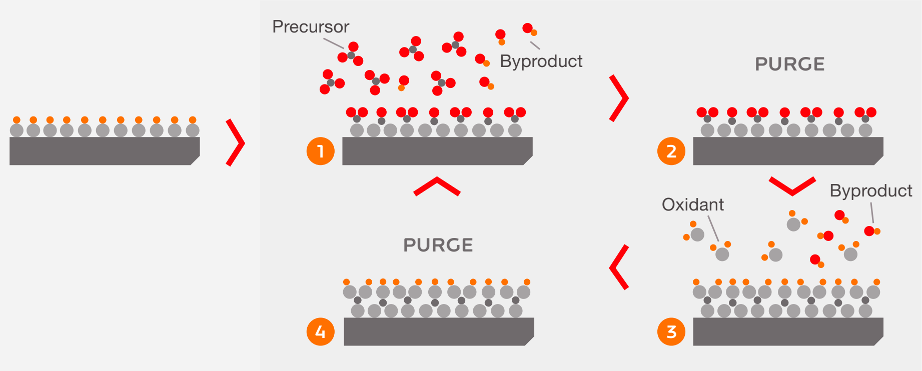
Atomic Layer Deposition

ASMI first started developing ALD in 1999 through the acquisitions of Microchemistry, and later Genitech (ASM Korea). 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 recent years we have introduced two new ALD products, the Synergis thermal ALD tool and the XP8 QCM tool for plasma enhanced ALD applications. Both products 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. Such precision enables us to 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



EPITAXY

We have a solid position in the market for epitaxy or Epi. Epitaxy is a process for depositing highly controlled silicon-based crystalline films. It 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. Our Intrepid ES 300mm epitaxy tool, for advanced-node CMOS logic and memory applications, offers an innovative closed-loop reactor temperature control system enabling precise process control, high productivity, and low cost per wafer.

Intrepid ES was selected by a leading foundry customer for an Epi layer at the 7nm node, and its use has expanded for multiple layers at the 5nm node. For improved epitaxy film performance, 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.

Epitaxy, alongside ALD, is an important growth engine in our portfolio.

PECVD AND VERTICAL FURNACES

We hold niche positions in the PECVD and vertical furnace market segments. The relatively large size of these markets makes this part of the market attractive to ASMI. 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 revenue increases in recent years.

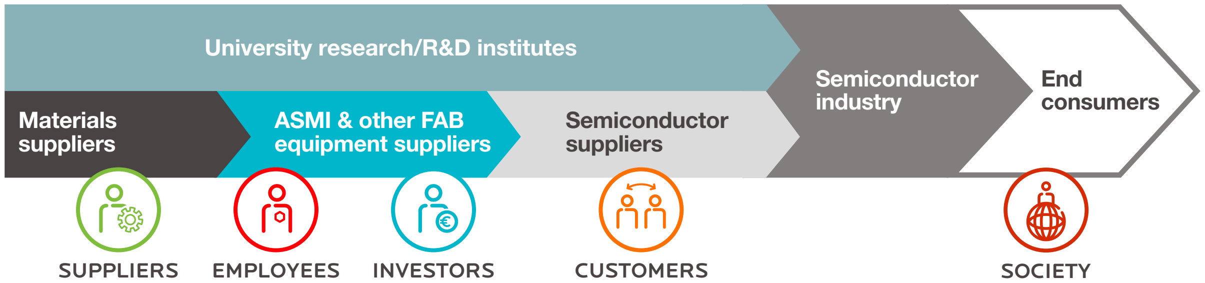
THE WORLD AROUND US

The world around us is digitalizing quickly, with our way of living and working 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 leading to a growing 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 a constant increase in 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 2020, the semiconductor industry was driven by a US$2.1 trillion global electronics industry (VLSI Research, December 2020) that required approximately US$381 billion of semiconductors ICs, which was up about 7% compared to 2019. The increased need for semiconductors was driven by growing demand for data processing in the work-from-home economy, and by higher prices in memory devices, as the supply and demand of the memory market began to achieve a balance. In turn, the semiconductor industry supported the approximately US$90 billion semiconductor capital equipment industry, which supplies the required production systems and services. Wafer fab equipment spending was up about 18% in 2020, reaching US$62.7 billion (VLSI Research, December 2020), due to increased spending for advanced logic and foundry, as leading customers stepped up their spending on the most advanced nodes. China, in particular, showed solid spending growth in 2020.

The constant drive for smaller, more powerful and more energy-efficient 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 are driving more ALD and epitaxy process steps.

Consequently, we see that each new technology node requires increasing process equipment investments. Because the semiconductor production market is so capital intensive, only a limited number of companies are able to participate, meaning that our customer base has become smaller over time. It is only more recently that we have seen some new customers from China enter 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, we maintain a close, mutually beneficial business relationship with our customers, 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, which 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 continue to increase our investment in people and support infrastructure in China. In 2020, our equipment revenue in China increased significantly, more than doubling from 2019.

The world is more focused than ever on Environmental, Social and Corporate Governance (ESG) and the way companies conduct business. Expectations across our landscape of stakeholders are increasing. From our customers and shareholders, to our employees, our ESG conduct is increasingly important. These topics have our full attention and we are engaged with external stakeholders so that we have understood and incorporated them appropriately into what we do.

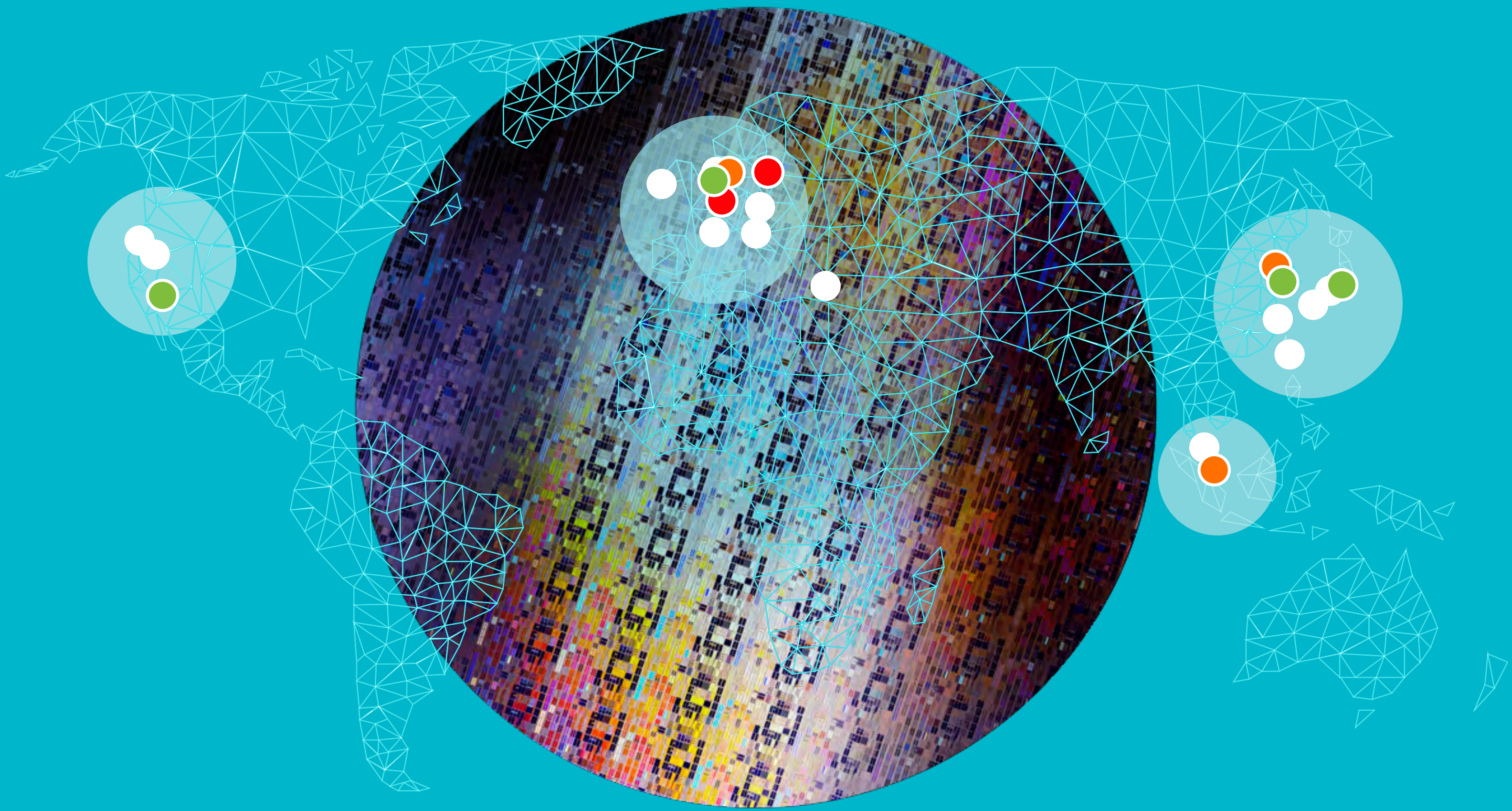
OUR PURPOSE

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 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 way, aligned with the priorities of our stakeholders.

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. And our value-added innovations create attractive possibilities for our suppliers and attractive returns for our shareholders.

THE WORLD IN WHICH WE OPERATE



RESEARCH FACILITIES

- **Belgium** - Leuven
- **Finland** - Helsinki

BUSINESS UNIT AND PRODUCT RESEARCH AND DEVELOPMENT FACILITIES

- **Japan** - Tokyo
- **The Netherlands** - Almere
- **South Korea** - Dongtan
- **US** - Phoenix

MANUFACTURING FACILITIES

- **The Netherlands** - Almere
- **Singapore** - Singapore
- **South Korea** - Dongtan

CORPORATE, SALES AND SERVICE OFFICES

- **China**
- **France**
- **Germany**
- **Ireland**
- **Israel**
- **Japan**
- **Malaysia**
- **The Netherlands**
- **Singapore**
- **Taiwan**
- **US**

For a complete overview of all our locations, please visit our corporate website: www.asm.com.

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, other stakeholders, and society overall. This enables us to act as a responsible citizen.

MISSION | **VISION** | **STRATEGY**

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

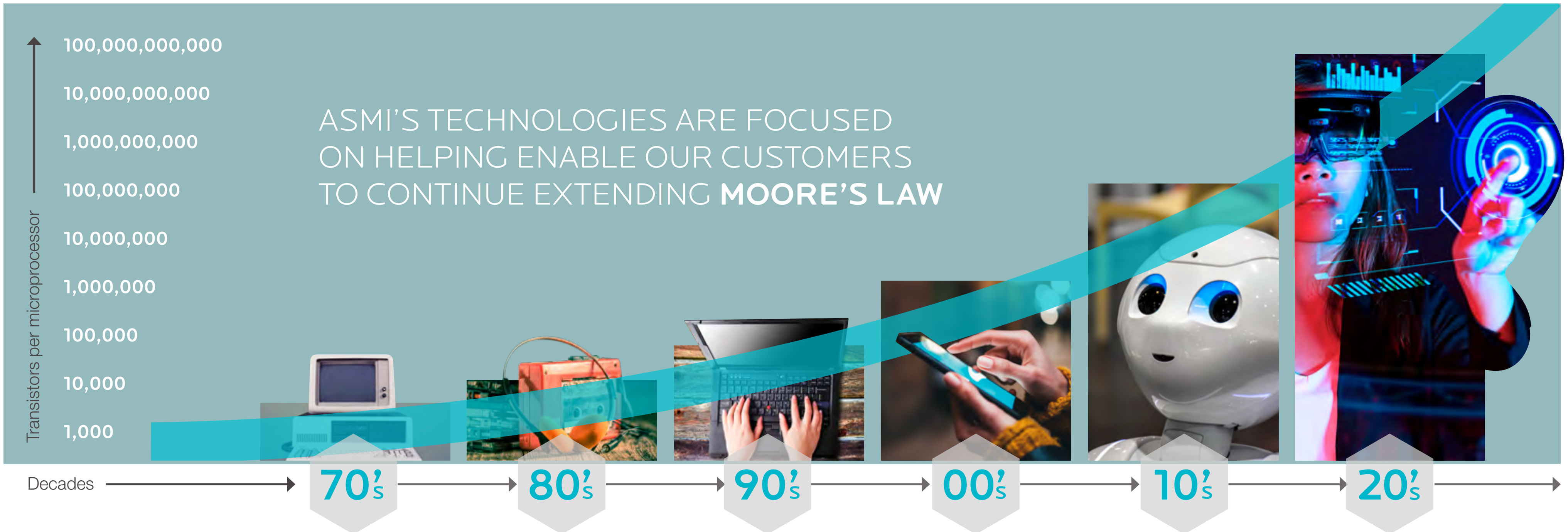
Our strategic objective is to realize profitable, sustainable growth by capitalizing on our innovative strength in deposition technologies and our strong relationships with key customers.
We act thereby as a responsible citizen.

OUR STRENGTHS

- We are a focused deposition equipment player in the semiconductor wafer fab equipment market. Our principal technologies are in ALD and Epi, in which we hold leading positions, and these play a critical role for our customers in enabling the transition to new device generations. Since 2010, we have increased our revenue by an annual average growth of 16%, ahead of the 7% compound annual growth rate shown by the broader wafer fab equipment (WFE) market in the same period. Our target is to continue outgrowing the WFE market over time, by leveraging our strong position in advanced nodes. By growing our revenue, 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 advanced new materials, new products and new processes to our customers. With R&D centers in six countries throughout the world, we are close to our customers and we have access to world-class professionals working in the semiconductor sector today. This R&D capability has resulted in a strong patent position, with 2,094 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 key requirements of the next generation of device roadmaps, enabling us to develop value-added solutions to the industry's critical technology issues.

CHALLENGES

- One challenge is the rising cost of advanced chip technologies. The continuation of Moore's Law, whereby the number of transistors on a chip doubles every two years, is becoming increasingly difficult. Today, investments in new factories for the most advanced nodes amount to more than US$10 billion. And the equipment costs for these advanced nodes are also increasing, which will place greater pressure on equipment manufacturers to create innovative solutions. Remaining at the forefront of technology developments is essential if we want to stay successful.
- Another challenge are geopolitical risks. In the past, the success of the semiconductor industry was strongly tied to the success of all parties along the value chain. Innovations by equipment suppliers supported original solutions developed by chip manufacturers, which led to new opportunities for customers to take full advantage of these advanced chips. Geopolitical developments put this model at risk. We carefully review any potential impact such developments will have for us, while we seek to make use of any new opportunities such situations might offer.
- We need to strengthen our position in the memory market. While we have a strong position in the logic/foundry market, our position in the memory market is weaker. We are working on solutions to enable us to serve a larger part of this market.
- As we focus on growth, and expand our position in the industry and our operations, our environmental footprint will grow. As a result, we are stepping up our efforts to increase the efficiency of our products in terms of energy and chemical consumption, thereby supporting our customers' aim to minimize their environment footprint.
- While the average incomes of many developing countries are increasing and leading to higher demands for end products that require semiconductors, we are aware that this will increase the demand for more scarce resources and our obligation to responsibly source such resources.
- Being able to attract and retain talented employees remains a key challenge as we focus on growing and strengthening our organization.



FIVE KEY ELEMENTS OF OUR STRATEGY:

We provide leading edge deposition equipment to the global semiconductor industry. As we further expand our served available markets and expand on our positions in ALD and Epi, we aim to meaningfully outperform the broader WFE market in the 2021-2024 period.

Growing our ALD business remains a key priority. ALD will continue to grow as a core technology as our customers transition to the next nodes. Smaller geometries, increasing complexity, and new materials will require additional ALD process steps. We expect the ALD market to be the fastest growing segment in the deposition market in the coming years. While maintaining our leading position in the logic/foundry segment, we are strongly focused on increasing our market share in the memory segment of the ALD market. Supported by a strong increase in our R&D engagements in DRAM and 3D-NAND applications for the next nodes, we aim to meaningfully increase the contribution of our memory business over time.

Epitaxy has become a second growth engine in our product portfolio. Our Intrepid product has enabled us to make successful inroads in the advanced CMOS part of the Epi market. We are working in R&D on new Epi applications with multiple customers for the next nodes, which should contribute to further growth of our market share in the near future. In PECVD and vertical furnaces, we want to further develop our current niche positions by addressing targeted growth opportunities. Vertical furnace applications for the analog market is an example of a niche position in which we have been selectively investing.

We also aim to accelerate growth in our spares & services business through continued expansion of our installed bases and expanding our offerings to include differentiated outcome-based services. This will be in addition to our existing offering of spare parts, maintenance and support services. In this way, we aim to offer additional value to our customers and further strengthen our customer relationships.

THE FIVE KEY ELEMENTS OF OUR STRATEGY ARE:

INNOVATIVE STRENGTH

The core element in our overall growth strategy is the continuous innovation which provides ASMI with a leading technological competitive advantage. With R&D centers in six countries, we have helped shape the industry by driving innovation through our collaborative R&D models, successfully delivering advanced new materials, new products, and new processes to our customers. Our R&D spending is targeted at the development of new materials and process solutions that enable additional applications, as well as continuous product improvements in performance, reliability and cost of ownership. We are also making capital investments in lab space and equipment to further expand our development capabilities in next-generation technologies. In addition to our internal R&D efforts, we are continuously expanding and deepening our strategic cooperation with key customers, suppliers, chemical manufacturers, and research institutes. This approach enables us to remain innovative and swiftly meet the changing demands of our customers.

OPERATIONAL EXCELLENCE

While technology leadership remains crucial, operational excellence is essential to further strengthen our future position. 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. We continuously focus on further improving the effectiveness and efficiency of our organization. Following our strong growth in recent years, we need to strengthen our organization and business processes in specific areas. For example, we will continue to step up our capabilities in engineering, product lifecycle management (PLM) and order fulfillment. We aim to strengthen our new product introductions' processes to provide our customers with additional on-site support as the pace of technological change continues to accelerate.

The next step in our company's growth plans has been our investment in a new manufacturing facility in Singapore, which was completed at the end of 2020. This new facility doubles our production capacity, enables a more flexible manufacturing flow, and provides additional capacity for growth opportunities.

EMPLOYEES

Our employees are our key asset. We strive to create a safe, inspiring and motivating workplace where all our employees have the opportunity to use their talents, excel and develop their potential as we work together to deliver the cutting edge technologies of tomorrow. Following the rapid expansion in our workforce, we have taken steps to further strengthen and unify our culture in which care, innovation and delivery are our core values. We are improving our organization and processes to ensure we attract, retain and develop the talent to further support ASMI's growth.

MAINTAIN STRONG BALANCE SHEET

We strive to maintain a strong balance sheet that allows us to continue investing in R&D. To this end, our target is to keep a minimum of €300 million in cash on our balance sheet. At the end of 2020, we had €435 million. Our company generated a healthy free cash flow of €119 million. We intend to continue using excess cash flow for the benefit of our shareholders. By consistently following this policy, we have returned almost €1 billion to our shareholders over the last three years.

RESPONSIBLE GROWTH

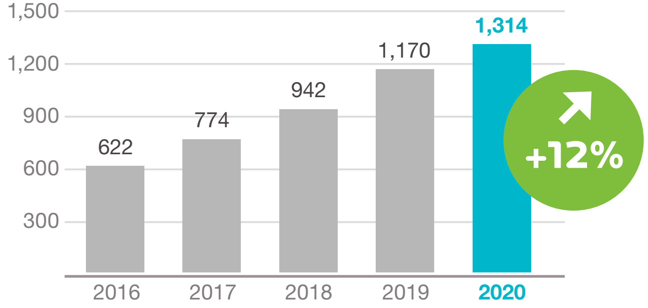
ESG is an integral part of our growth strategy. Key focus areas are workforce diversity and inclusion, further lowering the environmental footprint of our own operations, and promoting high ESG standards among our suppliers. We are stepping up our efforts to increase the efficiency of our products in terms of consumption of energy and chemicals, thereby supporting our customers in their focus to minimize their environment footprint.

KEY PERFORMANCE FINANCIAL

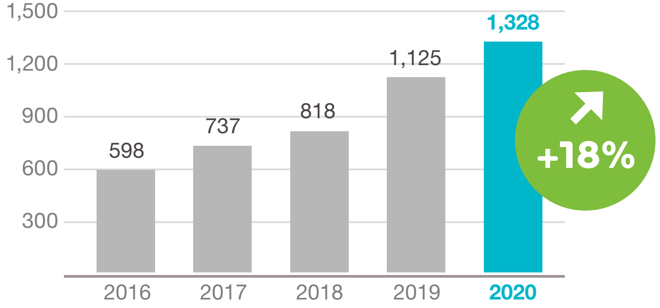
KPIs IN 2020

Relative to 2019

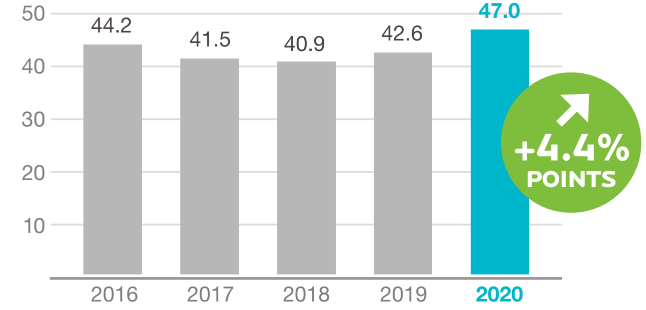
BOOKINGS* EUR million



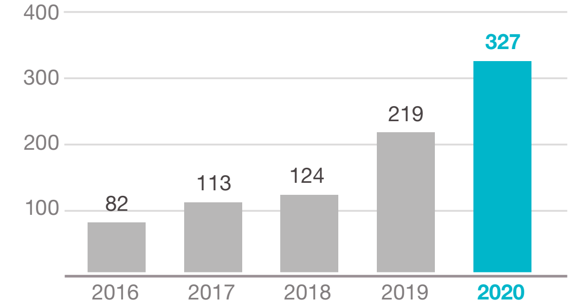
REVENUE* EUR million



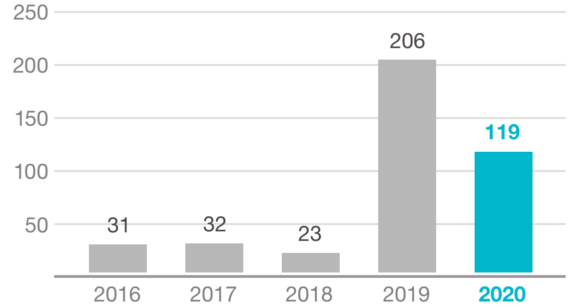
GROSS MARGIN* in %



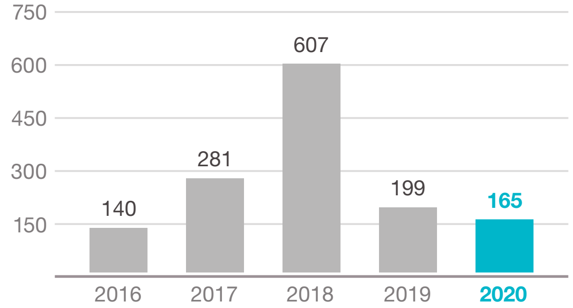
OPERATING RESULT* EUR million



FREE CASH FLOW* EUR million



CASH RETURNED TO SHAREHOLDERS EUR million



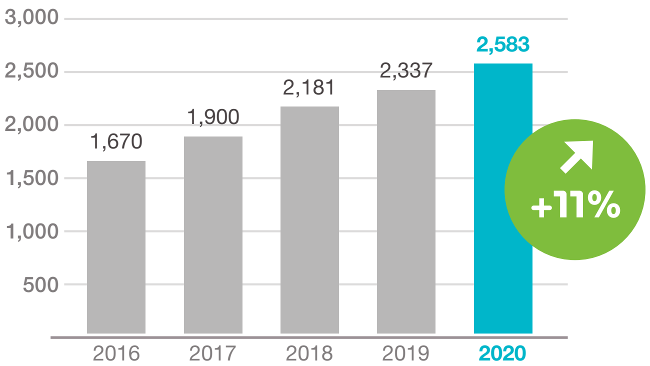
* Excluding proceeds from patent litigation and arbitration settlement in 2019.

KEY PERFORMANCE NON-FINANCIAL

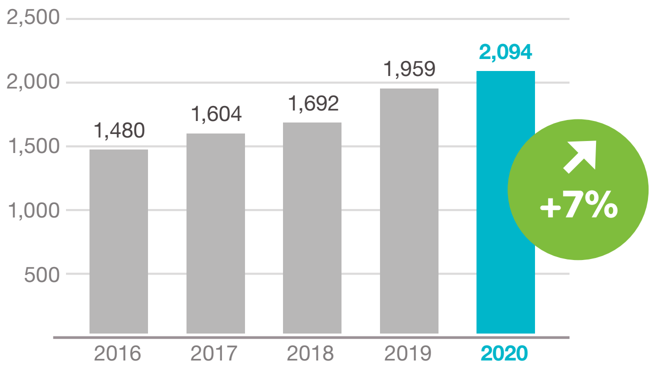
KPIs IN 2020

Relative to 2019

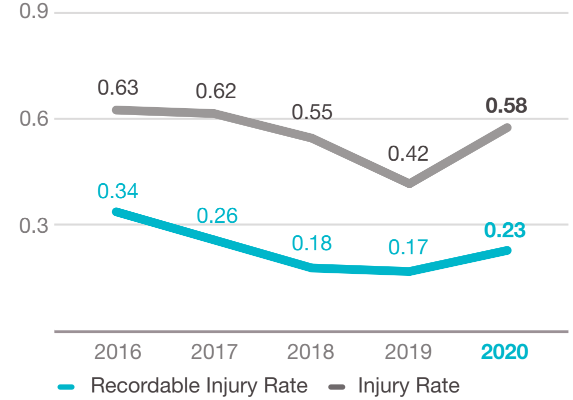
EMPLOYEES HEADCOUNT



PATENTS IN FORCE

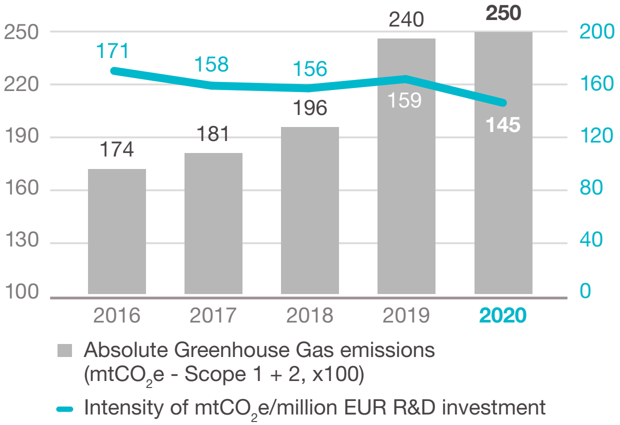


GLOBAL INJURY AND RECORDABLE RATES



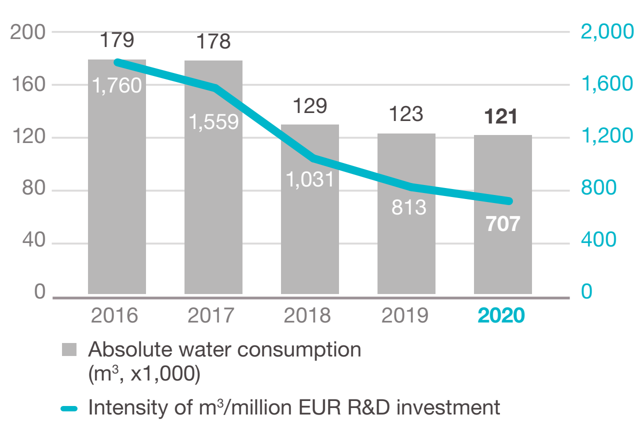
GREENHOUSE GAS (GHG) EMISSIONS

(Absolute and normalized per R&D investment)



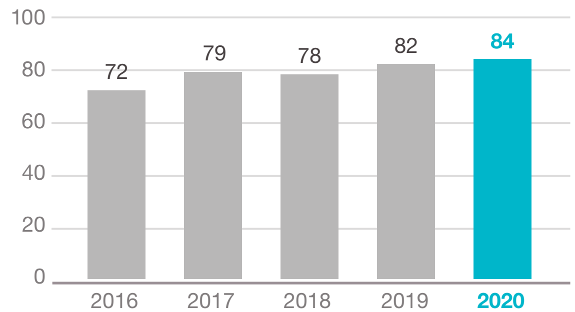
WATER CONSUMPTION

(Absolute and normalized per R&D investment)



LANDFILL DIVERSION RATE

(in %)



VALUE CREATION

We realized strong growth in 2020, with annual sales increasing by 18% to €1.3 billion. By industry segment, sales for the full year were led by the foundry segment, followed by logic and then memory.

ALD THE KEY DRIVER

Our ALD product lines enjoyed strong double-digit growth in 2020, with ALD continuing to represent more than half of our equipment revenue over the year. Our spares & services business increased by a solid 29%, while our other product lines, including epitaxy, were partially held back by lower demand in the analog/power market.

MARKET DEVELOPMENT

In 2020, markets were upended by the impact of lockdown measures and border closures, and the global economy showed a sharp drop. Certain areas of the semiconductor market, such as the Automotive and Industrial end markets, were negatively affected. However, the overall semiconductor market showed a resilient performance.

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 a range of technologies, such as 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 – electronic devices that deliver ever-greater performance while using less energy. Higher performance translates into more processing power, while a lower energy requirement means smaller, longer-lasting, more efficient products. This means that electronics manufacturers can further integrate smart technology into a wider range of products. For example, ASMI's ALD and epitaxy tools are critical to creating high-performance transistors that can operate at lower power levels, a key enabler for products such as mobile phones, 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 the energy reduction possibilities provided by new electronic products that are enabled by advanced semiconductors. The widespread use of smartphones is a great example of this. Continuous advancements in microprocessors and memory chips empowers global consumers with extensive computing power that increasingly drive their daily activities, all from the palm of their hand.

OUR BUSINESS MODEL

We strive to create value for our 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.

HOW WE CREATE VALUE

INPUTS

HUMAN CAPITAL
Employees
2,583

INTELLECTUAL CAPITAL
R&D spending (EUR million)
172

FINANCIAL CAPITAL
Equity (EUR million)
1,855

MANUFACTURING & SUPPLY CHAIN CAPITAL
Material spending (EUR million)
555

NATURAL CAPITAL
Electric usage (KwH)
44,915,401

OUTPUTS

HUMAN CAPITAL
Injury rate
0.58

INTELLECTUAL CAPITAL
Patents in force
2,094

FINANCIAL CAPITAL
Operating & investing cash flow (EUR million)
120

MANUFACTURING & SUPPLY CHAIN CAPITAL
Revenue (EUR million)
1,328

NATURAL CAPITAL
GHG emission scope 1&2 ($mtCO_2e$)
24,977

CUSTOMERS AND PRODUCTS

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 a broad range of applications, including the latest smartphones, for servers in cloud computing, and to enable artificial intelligence algorithms. The semiconductor industry finds it increasingly difficult to achieve each subsequent technology node, resulting in the need for more advanced process steps and new materials. Our equipment is a key component in enabling the industry to advance its technology roadmap.

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 ASMI's process tools.

Today, our most advanced foundry customers manufacture semiconductor devices equivalent to the 5 nanometer node (one nanometer, or nm, is one billionth of a meter), typically in FinFET architecture connected with down to 15nm metal lines. Our customers are already qualifying and testing new critical processes to generate devices for the next nodes: 3nm and 2nm. While a new node is generally introduced every 2 years, it can be introduced even faster.

At the same time, even more advanced devices are being developed in our customers' laboratories and several collaborative research environments. 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.

Our memory customers manufacture devices such as DRAM and 3D-NAND. Today DRAM chips with a memory capacity of 1Gb/chip are being manufactured, with line widths as small as 15nm. Several of these chips are combined in one package to produce 4Gb or 8Gb DRAM modules. These DRAM chips contain very advanced vertical access transistors, and very tall capacitors with new materials. Additionally, 3D-NAND non-volatile flash memory chips are today being manufactured with 128 transistors stacked in one vertical string. Such chips can store up to 512Gb/chip, and similar to DRAM, chips are combined in one package to memory modules that can store up to 2TB. Our customers are already working on taller 3D-NAND structures.

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 high-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 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.

In addition to the development of the high-k dielectric, there is a strong focus on new technologies and materials for the metal gate and capacitor electrodes, 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. These spacers will continue to be used in combination with EUV lithography, also to extend beyond its resolution limits.

OUR PRODUCTS

Our products include wafer processing deposition systems for CVD, ALD, epitaxy, and diffusion/oxidation. 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. Our batch tools include the A412 vertical furnace for 300mm logic, foundry and memory applications, and the A400 DUO vertical furnace for 200mm and smaller wafers, targeting power, analog, RF, and MEMS applications.

Single-wafer tools typically achieve a higher level of process performance and control, especially for complex, critical applications, and a shorter cycle time. 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 short cycle times, and a high level of performance.

To address the technology needs of our customers, the industry's relentless drive to reduce costs 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 continue to rise, driven by increasing capital intensity of each new technology node.

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. Eagle XP8 PEALD tools and Dragon XP8 PECVD tools are currently in high-volume manufacturing at logic and memory fabs worldwide, and demonstrate reliable advanced performance with high productivity.

The Synergis ALD tool also uses the proven XP8 platform, and leverages the core technologies from our Pulsar and EmerALD ALD products for high productivity thermal ALD applications. Furthermore, our XP8 QCM tool enables even higher throughput by incorporating four chambers in the quad chamber module (QCM). With four QCMs attached to the XP8 platform, a total of 16 process reactors are configured on the same system. Our wide range of ALD and PEALD tools allow us to address more ALD applications, increasing the market we serve. These high productivity systems add substantial value to semiconductor fabs by reducing the cost per wafer for each processing step used in the tools.

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.

On our XP platform, we offer Pulsar and EmerALD single chamber ALD process modules for high-k dielectric and metal gate processes respectively. Also available on the XP platform is the Intrepid epitaxy tool and the Previum process module for integrated pre-deposition surface cleaning. Previum surface cleaning enables optimal quality epitaxial depositions for advanced node channel and source/drain engineering applications.

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

With the XP8 common platform architecture, we offer a wide range of systems for ALD, PEALD, and PECVD applications. The Dragon XP8 for PECVD, Eagle XP8 for PEALD and Synergis for thermal ALD all use DCM module configurations. Our XP8 QCM tool offers PEALD processing on quad chamber modules for very high productivity.

CUSTOMER FEEDBACK

Our focus is on providing customers with the best products and services, which are critical for market success. During the year, we received awards from a number of key customers.

In March 2020, ASMI was recognized by Intel as a recipient of a 2019 Preferred Quality Supplier (PQS) award. The PQS award recognizes companies like ASMI that Intel believes have relentlessly pursued excellence and conducted business with resolute professionalism. To qualify for the PQS status, suppliers must exceed high expectations and achieve uncompromising performance goals. During the presentation, Intel highlighted our safe working environments and partnership, flexibility and accountability in our support models.

In November 2020, ASMI received the Contribution Award from Samsung for recognition of 30 years of dedicated support. ASMI also received various appreciation plaques from Samsung during 2020, including:

- Best cooperation in foundry manufacturing technology in February;
- Outstanding support to improve productivity in memory in May; and
- Dedicated support for defect improvement in foundry in July.

ASMI has also received an award for the #1 Safety Supplier in 2020 from a leading memory customer in Taiwan.

CUSTOMER SAFETY – COVID-19 RESPONSE

We recognize that safety at our customer sites is a shared experience. We engage with our key customers through an innovative engagement called ‘Safety Leadership Collaborations’ to share and review data, including safety observations and incident reports. Through these engagements, we emphasize a shared approach to safety and foster an atmosphere of continuous improvement. For example, we used data to identify opportunities for ergonomic improvement, and a joint ‘ergonomic task force’ has realized the improvement of multiple situations. This has reduced the risk of injury for staff using our equipment.

From the onset of the COVID-19 pandemic, we took a number of steps to protect our employees and customers, while enabling the performance of our systems at our customer sites. We developed and continually refined our own employee exposure control policies and procedures, and implemented approval processes for customer site visits, taking into account regional and customer fab-specific policies.

We do not allow our people to travel to areas where local policies fail to meet our own requirements, while in areas where constraints may be more stringent, we ensure our compliance. By year-end, we were not aware of having had a direct work-related spread of the virus. We also participated in SEMI’s COVID-19 workgroup with customers and peers in benchmarking and contributing efforts to drive improvements across the industry.

BREAKTHROUGH TECHNOLOGIES

Innovation is the growth engine that drives us forward. Our innovative culture has enabled us to become and remain 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 our 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.

Such precision means 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 – A DRIVER OF FUTURE GROWTH

Our ALD technology is used to build integrated circuits 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 conduct joint research projects with the largest independent research institute, imec. Taken together, this helps make ALD one of the principal drivers for future growth in microelectronics.

Through 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, thereby 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.

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 extremely important. 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.

For enhanced epitaxy film performance, 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.

Overall, we expect growth in our 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.

PRODUCT STEWARDSHIP

Developing tools and processes more efficiently helps reduce electricity usage and we are working to achieve this in a variety of ways, including:

- Designing our equipment to use less power when operating in our customers' fabs;
- Developing process technologies that enable advanced semiconductor chips with lower power consumption; and
- Reducing power usage in our own manufacturing and lab facilities.

ASMI has focused on reducing energy usage in its equipment by incorporating innovative design changes in its newest products that dramatically reduce energy consumption for our customers, measured on a per wafer basis.

We have reduced energy consumption in our plasma-based equipment by improving plasma generation efficiency and decreasing plasma power leakage. We have also made improvements to the insulation of gas lines, reactor walls and transfer chambers, resulting in lower thermal energy losses. We have reduced energy usage during system idle mode by reducing the power of vacuum pumps. These efforts are ongoing, and together would result in a 16% reduction in power usage per wafer. So far, we have realized a power reduction of about 7% and the remainder will be achieved progressively as customer testing and validation takes place.

Furthermore, we have designed new reactor technology that has led to a 27% energy reduction per wafer in PECVD products. Our epitaxy reactor innovations have resulted in significant productivity enhancements in the process, generating a 30% reduction in energy usage per wafer.

Given the prevalence of semiconductor devices in today's products, lower energy usage is a key achievement. Cloud data centers need to reduce their substantial power usage, while consumers want to reduce the charging time of their mobile devices and see battery size continue to shrink. ASMI's technologies support these energy reduction goals. For example, our ALD high-k metal gate and epitaxy process technologies contribute towards reducing the operating voltage of advanced transistors, saving power on a wide scale as advanced devices proliferate globally.

PRODUCT GOVERNANCE AND LIFECYCLE 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, from cradle-to-grave. Ultimately, this approach enables us to make products more efficient and productive for our customers, while extending the products' useful life.

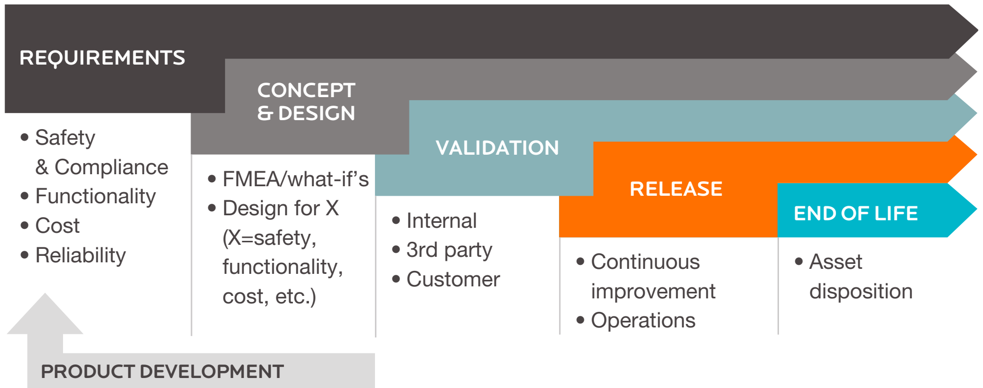
Our product life cycle process follows the well-established construct of phase-gate product development guided by several key inputs:

- Our collective industry knowledge/experience and subject matter experts;
- Industry/customer requirements and frameworks (such as customer purchase specifications 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 continuously 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.

We maintain a global Quality Management certification, ISO9001-2015 relating to the scope: Design, Sell, Make, Install, and Customer Support of Front-end Semiconductor Processing Equipment. This was re-certified on August 1, 2019.



EXTENDING THE PRODUCT LIFE OF OUR SYSTEMS

The market for our new systems continues to grow rapidly, driven primarily by customers' needs for the latest technologies. While our primary focus is to serve and enable this market, many of our older systems remain in full or partial use today.

For systems no longer in use, an aftermarket exists in which these systems are re-used amongst our customers. It is a market that we have been participating in selectively. Since the health of our customers, in part, relies on the re-use of these assets, this is an area that we intend to increase our focus on. As we know our systems' configuration details, applicability and ability to upgrade, we intend to take a more active position, with the aim of increasing our customers' success in the system aftermarket.

For those systems not operating optimally, we have a group that works on refurbishment and upgrade solutions for our installed base. We are actively working with customers to understand and implement improvement opportunities. In 2020, we saw a significant amount of system level refurbishment business and expect this to continue to grow in the future.

A key component of our customer service is ensuring older systems continue to operate. The most challenging aspect of this is supplying all the necessary parts to keep the systems running. While we generally have a healthy supply of frequently used parts, there is typically not enough volume of less commonly used parts to sustain a supply chain. Additionally, parts tend to evolve to meet the more stringent needs of today's processes.

To help prevent this, we track parts that are becoming obsolete within our supply chain, actively seek to enable and qualify replacement parts that are available, and purchase and make available original parts to prevent disruption to our customers.

SUSTAINABLE PARTS LIFE CYCLE

Customers want parts that are long-lasting, increasing the output and lifetime of the system and reduce the cost of ownership. We have integrated technologies, such as soft remote plasma cleaning in place of in situ plasma cleaning, which help to extend the life of these parts. We have also created a team in our services organization that is focused on improving the intrinsic lifetime of parts. This group focuses on expanding our supply footprint, both in terms of enabling replacement parts, with customizable, low-volume suppliers of components that go obsolete, and in terms of repairing and refurbishing to extend the usable lifetime of the original components. These efforts help ensure the longevity of our systems, reduce the cost of ownership, and increase our competitiveness in the market, enabling us to achieve sustainable production and consumption.

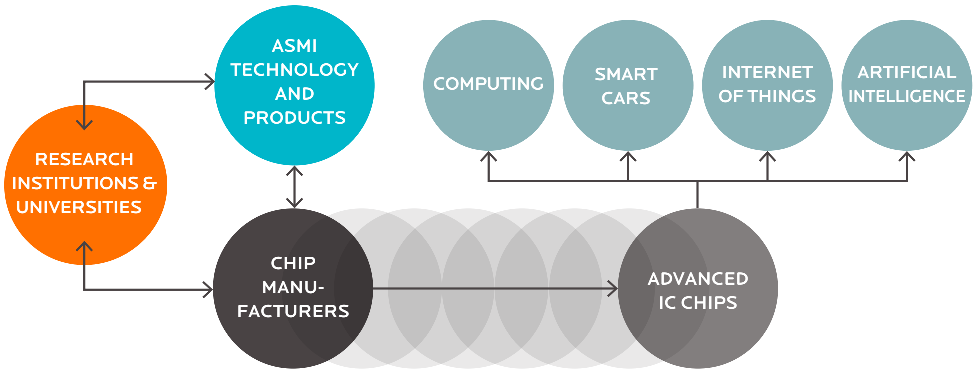
PRODUCT SAFETY AND GOVERNANCE

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 all of our design centers. These requirements are established in the PLC during the requirements phase, and include legislation and standards defined by the semiconductor industry and its customers. We verify that safety requirements are met during the concept and design phases 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.

The following are some of the key accomplishments in 2020 that have helped ensure the continued advancement in our programs:

- **Expanded product safety education**: We launched new, customized ASMI product safety engineering introduction training classes to provide awareness of the latest compliance regulation changes. We made a significant expansion to reach other cross-functional groups, resulting in 305 employees trained in 2020. Additionally, we expanded ASMI's custom SEMI S2 training courses with over 70 real-life ASMI equipment examples on how to ensure proper design compliance with the written regulations;
- **Successful third party virtual safety audits during COVID-19 restrictions**: We performed multiple first-of-a-kind 'virtual' third party audits in all regions globally, which required significant additional preparation and coordination as travel was restricted. Furthermore, the number of audits globally increased markedly due to rapid new product developments across all KPUs; and
- **Semiconductor industry product safety engineering leader**: We developed and presented innovative new safety interlock design methodologies to the international semiconductor industry forum (SESHA). We provided clear guidance on how to allow proper component selection if no component exists, meeting all design requirements. The virtual presentation was viewed by over 300 professionals from semiconductor end users (ASMI customers), third party evaluators, sub-system and component suppliers, government agencies, universities, and even by ASMI's competitors.

DRIVING INNOVATIONS



GLOBAL RESEARCH

As a global company, we carry out research and development (R&D) across 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.

REGIONAL EXPERTISE WITH GLOBAL REACH

Since our R&D activities are 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 product development and new product introductions.

Guided by our global product development policies, our local activities are directed towards expanding and improving existing product lines to incorporate technology improvements and reduce product costs 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. Standardization is helpful in reducing costs and lead time as well as reducing waste. A broader use of common components reduces the risk of inventory obsolescence.

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 advanced nodes that are 4-8 years out from initial production. Driving part of our new chemistry developments and initial selection in a lab on coupons in R&D systems rather than on full wafers in 300mm manufacturing systems, as well as extensive use of statistical methods and data sciences, minimizes the number of experimental trials that are needed to conclude a development. This reduces energy and chemicals consumption, as well as silicon wafer usage. In addition we improved the rigor in our R&D process with an improved tollgate (or stage gate) process, and various pipeline controls. This improves the effectiveness and efficiency of our R&D process, decreasing waste in chemicals, materials, and test wafers.

INITIATIVES WITH CUSTOMERS, INSTITUTES AND UNIVERSITIES

We work with our customers to 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 North America, typically centered around our core R&D focus on new equipment, materials, and process developments.

We contribute to several process and equipment development projects at the major Dutch technical universities through the Dutch NWO* 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 'More than Moore' technologies, a strongly growing market of various types of analog chips which are not driven by the same Moore's Law technology scaling inflections of mainstream logic and memory chips. We are also a member of AENEAS (Association for European NanoElectronics Activities), and participate in roadmap activities.

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

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.

We were engaged in several formal joint-development programs (JDPs) with customers for 300mm applications of our products and were active in evaluations of our most advanced technologies with selected customers. The scope of these JDPs span many nodes, from the 5nm node currently in production, to well beyond the 2nm node for foundry, and the equivalent DRAM and 3D-NAND technology nodes.

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 are involved in this partnership. From 2013 through 2020, 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 ALD 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.

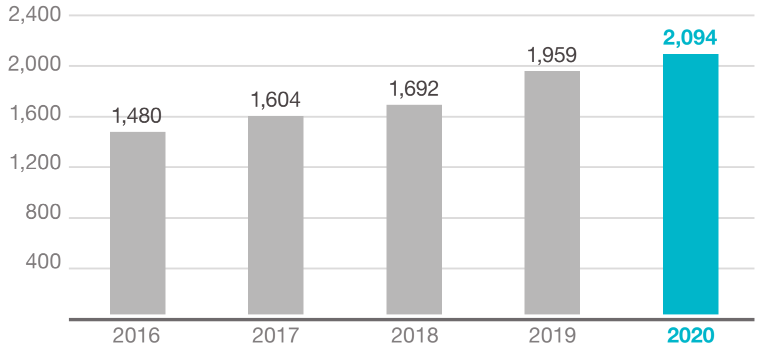
We understand that a failure to adequately protect our IP and/or leakage of our IP could result in the loss of our competitive advantage and adversely impact our financial performance.

We have therefore 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 infringements. This training is provided to all new hires, and employees are given regular refresher trainings. In addition, and on an ongoing basis, we are strengthening our IP generation process to be more efficient and improving interaction with the R&D effort to capture opportunities earlier.

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 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 2,094 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 where we do business:

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

EMPLOYEES

ASMI is focused on attracting, engaging, retaining, and developing talented people with targeted capabilities to achieve our longer-term strategic direction. Our people are part of an inclusive and diverse workforce, supported by a culture that is caring, innovative and driven to deliver.

At ASMI, our team focuses on advancing technologies and unlocking possibilities to make the world a better place. Our people are our power, and we want to create a culture and workplace where everyone is inspired, is always developing, and is empowered to perform at their best. We want to be an employer of choice in our industry. To achieve this, we are continually focused on strengthening a number of areas. First, we are redefining our culture and reinforcing our leadership. Second, we are optimizing our organizational design and workforce planning. And finally, we ensure our people are kept informed through consistent and robust employee communications.

Our main focus areas are: culture and leadership, organizational development and workforce planning, talent recruitment, retention and total rewards, and employee communications.

CULTURE

We aspire to be the employer of choice within the semiconductor industry. To achieve this, we are creating a distinct culture at ASMI, differentiating ourselves from our competitors. We are a global company with a diverse workforce, reflecting the locations where we are based, as well as our diversity in experience, positions, and backgrounds.

ASMI is working to create a unified view of who we are and the way we work. To create a unique culture, we have taken many steps towards defining our employer brand: 'the Power of an Open Mind'. This unified culture will drive our behavior and differentiate ASMI by building on our unique strengths.

GROWTH

Opportunities for personal development are key to the success of the company and each individual employee. ASMI invests in its people and their ambitions. Sustainable long-term career prospects and development is reflected in the 10% jump in internal promotions in the last two years.

In 2020, over 75% of our managers took part in virtual courses to help them advance their leadership skills and strengthen areas of professional interest. Collaboration, diversity, leadership, customers, and teams are just some of the areas covered in these learning programs.

The COVID-19 pandemic meant that all learning had to move online and we introduced a new employee toolkit that complements the existing manager toolkit. Both toolkits are designed to help employees achieve success.

ASMI provides a clear view on career advancement in key technical job families. In 2020, we introduced global services & spares to our existing portfolio of defined job families. We have clear progression tracks for global products, research and development, and manufacturing. We aim to provide clear paths for career progression for all roles for both managerial and technical positions, which will create a transparent, attractive proposition for present and potential talent.

ENGAGEMENT SURVEY

In 2020, we conducted a global employee survey to learn more about the engagement of all our employees.

The response rate was high, illustrating how motivated our employees are to actively participate in shaping the future of ASMI.

A key outcome of the survey was that our employees recognize the strengths of ASMI: a strong customer focus and a results-driven culture. The survey also highlighted the need to further build internal communications, something that will be developed considerably in 2021 and which is further explained below.

The survey highlighted strengths and improvement areas of our current culture. We use the outcomes to improve and strengthen our culture in 2021.

EMPLOYEE COMMUNICATIONS

We aim to provide a transparent, open, and engaging approach to our employee communications.

In 2020, we increased employee communications further. In November, our internal CEO video messages were relaunched in a new interactive digital format, allowing for a more interactive experience between management and employees. The questions raised during these events help us to identify key themes and focus areas for future proactive communications.

EMPLOYEE BRANDING

In 2020, we introduced 'the Power of an Open Mind', our employee value proposition (EVP). The EVP is designed to encompass ASMI's ambitions, what we believe, who we are, and what we stand for. It helps us to attract the best talent by building an employer brand that people aspire to work for. And it also helps us to engage with our current employees.

The concept was co-created with 120 employees, covering multiple geographies and business areas reflecting the diverse global structure of ASMI.

It was launched via an internal campaign, followed by training for all managers to cascade the concept deeper into the organization.

INCLUSION AND DIVERSITY

In 2020, we conducted an internal inclusion and diversity health check. This study highlighted our current strengths, as well as areas for improvement. We are using these outcomes to further prioritize initiatives, looking into creating a more inclusive company culture, and improving our talent processes and people policies that will positively influence the attraction and retention of female technical employees.

SUSTAINABILITY: DIVERSITY PROGRAMS

In accordance with the best practice provision 2.1.5 of the Dutch Corporate Governance Code, ASMI has formulated a Diversity Policy, which is published on our website. Diversity is considered in any event to consist of gender, specific knowledge, work background, nationality, age and ethnic diversity, (technical) experience and skills. In 2020, more than 75% of ASMI's people managers were trained as part of ASMI's ‘the Power of an Open Mind’ EVP program. A key element of this training is ASMI's focus on diversity.

ASMI has a proven track record when it comes to equal pay – a common issue within the industry but a key component to any successful, fair, inclusive and diverse workforce. To be transparent about the impact of our compensation programs, we assess the difference in gender 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 previous findings in 2018 and 2019, our 2020 results did not show any significant disparity between female and male compensation based on relative salary position (RSP) at the different levels in our organization. ASMI pays its people in line with market expectations, a true living wage.

	Median RSP 2019 (female/male)	Median RSP 2020 (female/male)
Senior management / executives	108%	**103%**
Middle management	99%	**102%**
Non-management	102%	**100%**
Total	**100%**	**99%**

TALENT RECRUITMENT, RETENTION AND TOTAL REWARD

In 2020, we stepped up our activities to identify internal and external talent pipelines for our immediate workforce needs, whilst also looking to our future strategic workforce requirements. During succession and talent reviews, we identify the most talented leaders and experts who are potential successors for critical positions and to staff new organizational capabilities. Externally, ASMI focuses on managing and maintaining relationships with promising candidates; when key positions are identified or become available, we are in a prime position as the employer of choice. This future-forward focus on candidates allows us to build a steady talent pipeline.

Next to our succession and talent review process, ASMI has a structured performance appraisal and development process. This process supports management and employees in having ongoing key objectives and competencies discussions on a regular basis, resulting in concrete career development-related decisions.
In 2020, we updated our set of ASMI leadership capabilities and profiles. This framework provides a common language when identifying leaders that potentially fill future requirements as defined by our business strategy. For employees, it provides aspirational roles, ensures career development, and creates future opportunities.

ORGANIZATIONAL DESIGN AND WORKFORCE PLANNING

Our process of succession and talent reviews is used to identify internal talent and current organization capabilities. Workforce planning reflects current and future growth expectations, enabling us to plan towards a future-proof workforce for ASMI.

HEADCOUNT DEVELOPMENT

We recruited 545 people during the year, ranging from technicians building our products, 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 2,444 to 2,689, a total increase of 10%.

Across 2020, our voluntary attrition rate was 8.3%. Our voluntary attrition rate has declined for the past 3 years.

WORKFORCE	2016	2017	2018	2019	2020
Employees	1,670	1,900	2,181	2,337	**2,583**
Employees including temporary workers	1,770	2,043	2,327	2,444	**2,689**
% Temporary workers	5.6%	7.0%	6.3%	4.4%	**3.9%**
Number of workers under CLA	207	224	260	278	**328**
% Workers under CLA	12.4%	11.8%	9.1%	10.8%	**11.7%**
Nationalities	29	29	29	29	**40**
Male	85%	85%	85%	85%	**85%**
Female	15%	15%	15%	15%	**15%**
Voluntary attrition rate	7.1%	10.4%	9.9%	8.7%	**8.3%**

In 2020, our workforce continued to showcase our global nature, with 40 nationalities working at ASMI. This diversity is reflected at site levels, meaning that it is normal to work with people from different nationalities on a daily basis. This international dimension is one of the reasons why people appreciate working for ASMI. As part of gender diversity, 15% of our workforce was female at year-end.

LIVING WAGE

Our employees are paid above the local minimum wage. ASMI is actively engaged with outside organizations to benchmark living wage best practices in line with the Anker methodology, which is a relevant survey practice for corporate organizations. The scope of the living wage survey includes most countries where we have ASMI employees or contractors. In 2020, we covered 13 countries, and we did not identify any cases across these countries where employee wages were below the agreed living wages.

As a member of the Responsible Business Alliance (RBA), the world's largest industry coalition dedicated to corporate social responsibility in global supply chains. In 2020, we co-sponsored an amendment to include living wage in the RBA Code of Conduct. Working with other RBA member companies, we proposed the formation of a living wage working group to study living wage best practices for use in complex, global supply chains. The working group proposal will go forward to the Board for review in 2021.

WORKING HOURS AND DAYS

The standard working week varies by region and country and is often dictated by local regulations and norms. One standard that is consistent across ASMI is aligned with the fundamental principle in the RBA Code of Conduct which limits working hours to 60 hours per week, or the local limit, whichever is lower, and working days to one day off in every seven, for hourly employees involved in the production of goods and services. There is allowance for emergency situations, such as when COVID-19 impacted the globe and disrupted schedules with lockdowns and quarantines. ASMI was able to perform within the RBA limits for both working hours and days despite the challenges presented by the crisis. We were able to achieve this because of our existing management framework around the control of working hours. The performance to this criteria is a part of a corporate-level dashboard and is monitored and reported closely to ensure compliance.

GLOBAL EMPLOYMENT STANDARDS

ASMI is dedicated to creating a safe and inclusive workspace for every individual. Our Global Employment Standards (GES) summarize our approach to respecting human rights throughout our global operations. 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;
- 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; and
- In 2020, we had no reports or evidence of any human rights violations or abuses within our global hiring or employment practices.

BUSINESS ETHICS

As a follow-up to the Ethics Committee summits started in 2019, the Code of Business Ethics was refreshed into the Code of Business Conduct (COBC) in 2020. ASMI's COBC management system includes 18 underlying policies including fair competition, gifts entertainment and hospitality, corruption and improper advantages and anti-fraud, and corruption.

The refreshed COBC is more comprehensive and comes with trainings for all employees in multiple languages. The trainings are set to effectively influence desired conduct rather than merely reinforce rules.

At the same time, it further defines the consequences of such violations through our newly introduced disciplinary policy. All training is supported by a wealth of resources including a dedicated webpage on ASMI's intranet, reference material and tools for specific areas such as gifts and entertainment, the Whistleblower program and SpeakUp!.

The COBC continues to apply to our Supervisory Board and Management Board, as well as all our employees, consultants, contractors, temporary employees, and critical suppliers.

Our Global Employment Standards (GES) 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 prohibiting the use of forced or involuntary labor, prohibiting the employment of child labor, and prohibiting discrimination or harassment.

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 COBC can be reported through the SpeakUp! process, or directly to management, HR, or the Compliance Officer. When we receive complaints, these are investigated by the Ethics Committee. Independent of the way of reporting, our COBC includes a non-retaliation policy that applies to any person making use of this process.

In 2020, five concerns were reported through our SpeakUp! system, while four cases were reported via other channels to the Ethics Committee. All incidents were fully investigated and, in those cases involving violations to the COBC, appropriate actions were taken.

PRIVACY

We have adopted and rolled out policies and privacy codes, and entered into agreements (including with third party processors) in our effort to protect the integrity and confidentiality of the data of our employees. The same applies with respect to the privacy of our customers and suppliers.

HEALTH & SAFETY

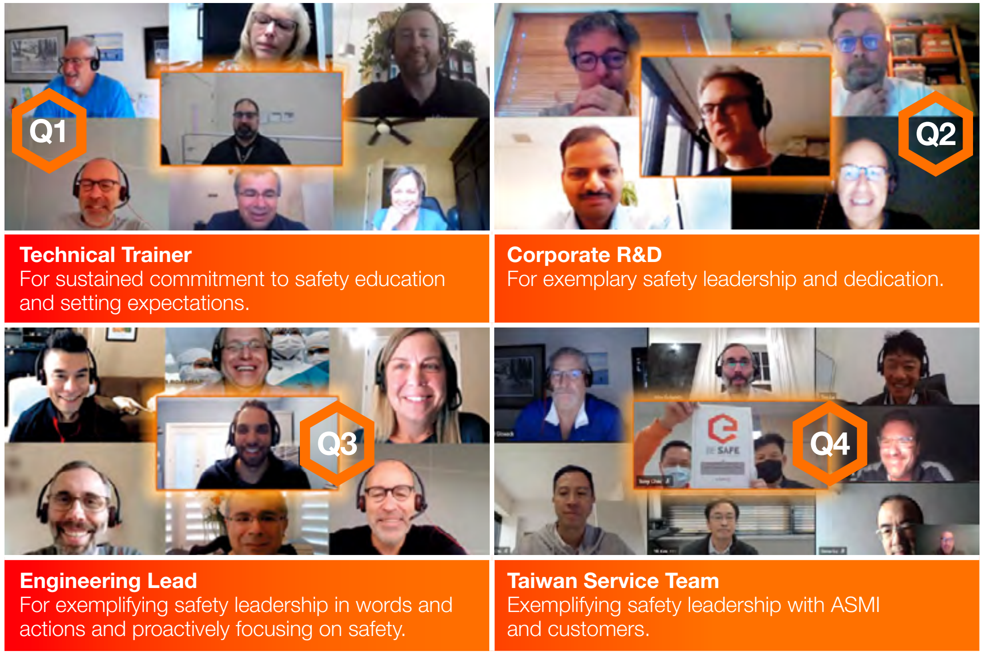
ZERO HARM! is our safety objective and we review our incidents thoroughly to identify new risks and introduce mitigation plans to prevent future exposure. We have a robust Occupational Health & Safety management system in reference to leading international and regional standards. Our management system is comprehensive in all aspects of policy, hazard identification, controls, objectives and targets, training, communications, monitoring and measurement, reporting, corrective & preventive actions, strategic planning, and management reviews. The safety management system and programs for our Singapore manufacturing facility are certified to the Singapore bizSAFE Level 3 accreditation. Our structured safety management system is approved by senior management, who not only set out our commitment to safety, but are actively engaged in and continuously informed on the progress and the priorities we must focus on toward ZERO HARM!

BE SAFE SAFETY LEADERSHIP FRAMEWORK

Across our operations, we have implemented proactive measures to reduce the risk of injury or incident, with our employees, our customers, and contract manufacturers and other suppliers. We instill this into our safety philosophies and culture, starting with our 6Es of Safety Leadership framework, which empowers everyone to lead by example and through prevention.

The framework emphasizes empowering everyone for safety, proactive measures like education, and eliminating hazards, and evaluates performance through key performance indicators and employee surveys. Employees who demonstrate notable and scaled contributions for their role, positive attributes, and leadership in safety can be nominated by peers for a global quarterly Safety Leadership Award.

QUARTERLY SAFETY AWARD WINNERS



Our safety policy includes our commitment to engage in safety across our value chain.

"Aligned with our core value 'Safety First and Everywhere' and our guiding principle 'Drive Innovation. Deliver Excellence.', ASMI is committed to conducting business, both in our own operations and throughout our supply chain, in a manner consistent with the Responsible Business Alliance (RBA) principles to protect our employees, customers, communities, shareholders and the environment."

We engage with customers and across the industry to strengthen safety partnerships. We are members of SESHA, an industry consortium focused on safety, health, and the environment, and are working with key stakeholders toward improving industry shared learnings and safety improvements. In addition, we have continued our innovative Safety Leadership Collaborations with key customers. This has led to the implementation of an ergonomic task force with one of our customers. After our safety observation data started showing opportunities for improvement, we worked with the customer to form the joint task force and by year-end, we had implemented 14 ergonomic projects, designs, and improvements.

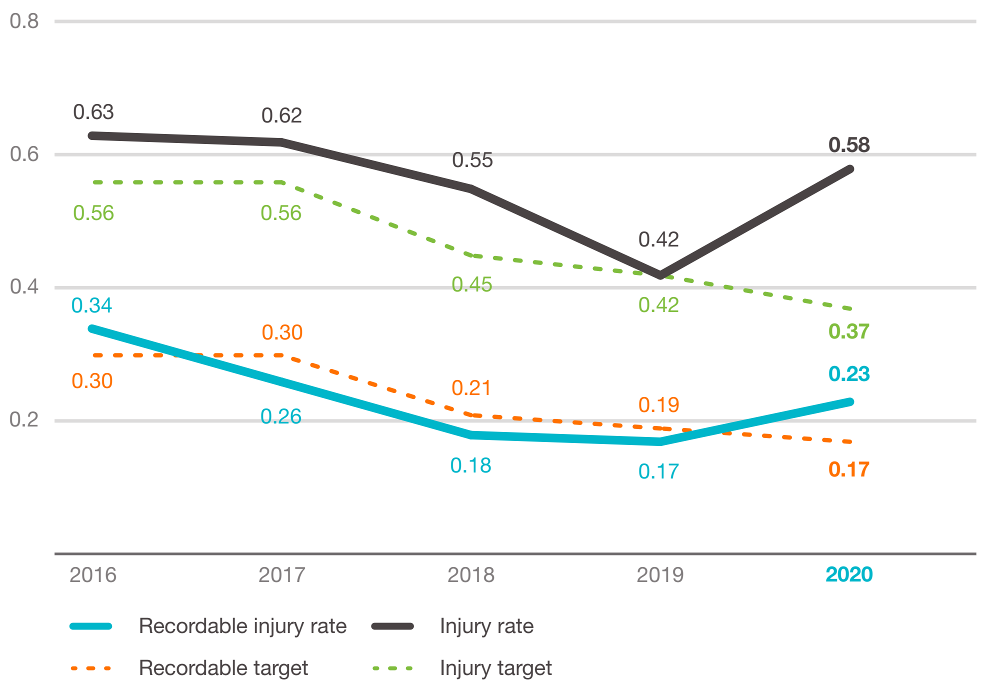
Contractors are critical to ASMI's success, and their safety on our site is vital. Our Contractor Safety Programs include contractor company screening, individual contractor training and orientation to our sites and requirements, and administrative controls such as safety plans and work permits. We work with contractors while on our sites to ensure close coordination through Pre-Task Planning and Site Incident Prevention programs to minimize the risk of our operations impacting their tasks, and subsequently their safety, and vice-versa.

Our safety key performance measures are aligned with 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. We have chosen to place emphasis on a total injury rate consistent with our goal of ZERO HARM! Placing emphasis on lost time or days-away rate, restricted time rates, or other measures of serious injury only is not consistent with our ambition to eliminate all injuries. We have found that transparently sharing even the mildest first aid injuries is the right approach for our ambition.

In 2020, our total injury rate showed an increase from 0.42 cases per 100 employees to 0.58 cases per 100 employees. This is the first substantial increase in 10 years. Our goal is ZERO HARM! and while many of the cases we saw in 2020 were minor injuries, such as a splinter or bumped knuckle, we treat every one with the same resolve to eliminate. Our recordable injury rate, the measure of more serious injuries, increased by two cases, resulting in a rate of 0.23 cases per 100 employees compared with a rate of 0.17 in 2019. We are strongly committed to reduce this in the years to come, and are setting appropriate objectives and taking active steps to enhance our overall Safety Management System toward that goal.

GLOBAL INJURY AND RECORDABLE RATES

(Case rate per 100 employees)



As of year-end, there have been no work-related employee or contractor fatalities in 2020 at ASMI sites or relative to ASMI operations.

EMPLOYEE COVID-19 RESPONSE

The COVID-19 pandemic strongly impacted our way of working in 2020. ASMI banned travel to those regions initially affected by the end of January. Hygiene and screening measures were introduced across all sites globally in February, and a global travel restriction was issued in March.

As we learned more about the spread of the virus, we maximized work from home globally, improved hygiene and control measures, and mandated social distancing at our sites for designated employees in March. To help with the work-from-home efforts, our IT organization held a series of training sessions on remote applications and tools in April and May. Our employees have responded with a demonstrated care for others throughout the entire pandemic period, following protocols at every step and reporting potential symptoms and close contacts, and staying at home until cleared to return.

Throughout the progression of this pandemic, taking care of our employees has been at the front of our efforts. By April, we had developed and rolled out global human resources guidelines to managers and employees to help navigate these unprecedented times. ASMI focused on doing what was right for our employees. Policies allowed for employees to take time off when there was a need to care for a family member. When border crossing and travel were restricted, we established temporary housing for employees near our factories.

Recruiting was not interrupted and we focused on virtual recruitment and onboarding. In Singapore, we implemented measures for our workers who have their homes in Malaysia but who, despite border closures due to country lockdowns, chose to continue to work in Singapore. Support measures included financial support for daily expenses, providing local accommodation, and assistance for foreign workers in finding local housing. ASMI worked to obtain all local ministry, trade, and industry approvals. Initially, employees were given hotel accommodation in safe spaces. As the pandemic progressed, we sourced more permanent housing. Smaller services, such as providing our employees with local SIM cards, were also swiftly rolled out, making communication with friends, family and colleagues easier.

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 2020.

Global economic growth turned negative in 2020, impacted by COVID-19 lockdown measures. However, wafer fab equipment spending increased as our customers continued to invest in leading edge semiconductor manufacturing capacity. 2020 was a strong growth year for ASMI.

Total revenue increased by 18%, excluding the settlement proceeds in 2019, driven by solid increases in our ALD business and our spares & services revenue. This marks the fourth consecutive year of double-digit top-line growth.

ASMI has strongly outperformed the wafer fab equipment industry in recent years. In 2020, our gross margin improved to 47%, and with operating costs remaining under control, operating profit increased by 49% last year. We stepped up our investments as we completed our new manufacturing facility in Singapore and invested in the strengthening and expansion of R&D operations. Despite increased investments and higher working capital requirements, we generated a healthy free cash flow of €119 million in 2020.

Our company's healthy financial performance has contributed to a strong share price performance in recent years. We continued to execute our policy of using excess cash for the benefit of shareholders. During the 2010-2020 period, we returned close to €2 billion through dividends, share buybacks, return of capital, and buyback of convertible bonds. Alongside the excess cash generated by our operations in 2017/2018, we also used approximately €0.7 billion proceeds of our reduced shareholding in ASMPT from 39% to 25% in 2017 for share buybacks and a tax-efficient return of capital to shareholders. For 2020, we have increased the proposed regular dividend by 33% to €2.00 per share.

FINANCIAL RESULTS

The following table shows the operating performance for 2020, versus 2019:

(EUR million)	2019 [1]	2020	Change
New orders	1,328.9	**1,313.6**	(1%)
Backlog	351.2	**323.6**	(8%)
Book-to-bill	1.0	**1.0**	
Revenue	1,283.9	**1,328.1**	3%
Gross profit	638.5	**623.6**	(2%)
Gross profit margin %	49.7%	**47.0%**	
Selling, general and administrative expenses	(148.9)	**(157.4)**	6%
Research and development expenses	(110.8)	**(139)**	25%
Operating result	378.7	**327.1**	(14%)
Operating margin %	29.5%	**24.6%**	
Financing income / (expense)	(0.3)	**(25)**	(24.7)
Income taxes	(53.7)	**(48.7)**	5.0
Net earnings before share in income of investments in associates	324.8	**253.4**	(71.3)
Share in income of investments in associates	4.2	**32.0**	27.8
Net earnings	329.0	**285.4**	(43.6)
Net earnings per share, diluted	€6.58	**€5.78**	€(0.80)
Net earnings per share excluding amortization from the sale of ASMPT shares in 2013	€6.86	**€6.04**	€(0.82)

[1] Including proceeds from patent litigation and arbitration settlement in 2019.

The following table shows certain consolidated statement of profit or loss data as a percentage of net revenue for our operations for 2019 and 2020:

	2019 [1]	2020
Revenue	100.0%	**100.0%**
Cost of sales	(50.3%)	**(53.0%)**
Gross profit	**49.7%**	**47.0%**
Selling, general and administrative expenses	(11.6%)	**(11.9%)**
Research and development expenses	(8.6%)	**(10.5%)**
Operating result	**29.5%**	**24.6%**
Net interest income (expense)	–	**(0.1%)**
Foreign currency exchange gains (losses)	–	**(1.7%)**
Share in income of investments in associates	0.3%	**2.4%**
Earnings before income taxes	**29.8%**	**25.2%**
Income taxes	(4.2%)	**(3.7%)**
Net earnings from operations	**25.6%**	**21.5%**

[1] Including proceeds from patent litigation and arbitration settlement in 2019.

REVENUE

The revenue cycle from quotation to shipment for our Front-end equipment generally takes several months, depending on capacity utilization and the urgency of the order. On average, acceptance is obtained four months after shipment. The revenue 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 2019 and 2020:

	Year ended December 31,			
(EUR million)	2019 [1]		2020	
United States	339.5	26.4%	**333.0**	**25.1%**
Europe	126.2	9.8%	**141.3**	**10.6%**
Asia	818.2	63.7%	**853.8**	**64.3%**
Total	**1,283.9**	**100.0%**	**1,328.1**	**100.0%**

[1] Including proceeds from patent litigation and arbitration settlement in 2019.

A substantial portion of our revenue is earned by equipping new or upgraded fabrication plants where device manufacturers are installing new fabrication lines. 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 82.2% and 85.1% of revenue in 2019 and 2020, respectively. The composition of our ten largest customers changes from year to year. The largest customer accounted for more than 10% of revenue in 2019 and 2020.

	Year ended December 31,		
(EUR million)	2019	2020	% Change
Equipment revenue	909.5	1,051.5	16%
Spares & service revenue	215.2	276.6	29%
Patent litigation & arbitration settlement	159.2	–	n.a.
Total	**1,283.9**	**1,328.1**	**3%**

Revenue growth driven by continued strong demand for leading edge technologies

At slightly over €1.3 billion, our net revenue increased 18% compared to €1.1 billion in 2019, excluding the €159 million proceeds from patent litigation & arbitration settlements in that year. While global economic growth turned negative in 2020, impacted by COVID-19 lockdown measures, the total wafer fab equipment market amounted to US$63 billion (Gartner, December 2020) compared to US$54 billion in 2019 (Gartner, December 2019). This increase was particularly driven by continued investments in leading edge semiconductor manufacturing capacity. As demand for advanced technologies remained strong throughout the year, the pandemic only had a limited impact on ASMI's revenue. In the second quarter, we faced bottlenecks in our manufacturing and logistical operations, especially in Malaysia and Singapore, due to lockdown measures, which impacted several of our suppliers and led to shortages and delays for certain parts. In the third quarter, supply chain conditions returned largely to normal. Revenue in the second half was only modestly lower compared to the level in the first half. Excluding the impact from currencies, revenue in the second half increased. Fourth quarter revenue reached a new record, at €347 million.

Equipment revenue grew by 16% in 2020. This was driven by strong double-digit increases in our ALD product line, reflecting investments by our customers in the leading edge technology nodes. ALD continued to account for more than half of our total equipment revenue in 2020.

Following recent strong growth, the performance of our other product lines, including epitaxy, was partially held back by lower demand in the analog/power market. While representing a smaller part of ASMI's total revenue, the analog/power market is more exposed to industrial and automotive segments, which were negatively impacted by COVID-19 in 2020.

Spares & services revenue increased by 29%. This was driven by growth in the installed base of equipment in recent years as well as initial results from our increased focus on new value-added services. To a smaller extent, this growth was driven by customers increasing inventories in response to the COVID-19-related supply chain challenges, especially in the second quarter of the year. Spares & services represented 21% of total revenue in 2020.

Currency changes led to a 1% decrease in revenue compared to 2019, mainly due to the depreciation of the US dollar.

In terms of customer segments, revenue for the full year was led by the foundry segment, followed by logic and then memory. Revenue in the combined logic/foundry segment showed a healthy increase, driven by solid investments throughout the year in leading edge manufacturing capacity. We continued to benefit from the significant increases in the number of ALD layers in the most advanced nodes compared to the previous nodes, supporting strong share of wallet gains for ASMI with the leading logic and foundry customers. Sales in the memory segment also showed a solid increase in 2020, led by DRAM customers. Aside from some recovery in overall spending, ASMI benefited from a first meaningful contribution from high-k ALD penetrations for the most advanced DRAM devices with multiple customers.

By geography, our revenues were led by the Asia region, with a growth of approximately 30% in 2020, excluding the settlement proceeds in 2019. This was partially due to a solid increase in revenue from China which, for the first time, accounted for more than 10% of total revenue.

The following table shows new orders levels and the backlog for 2019 and 2020:

	Year ended December 31,		
(EUR million)	2019 [1]	2020	% Change
Backlog at the beginning of the year	**301.5**	**351.2**	**16%**
New orders	1,328.9	**1,313.6**	(1%)
Revenue	(1,283.9)	**(1,328.1)**	3%
FX-effect	4.7	**(13.1)**	
Backlog as per reporting date	**351.2**	**323.6**	**(8%)**
Book-to-bill ratio (new orders divided by net sales)	**1.0**	**1.0**	

[1] Including proceeds from patent litigation and arbitration settlement in 2019.

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 revenue for any subsequent period.

For the year in total, our new bookings increased by 12% in 2020 to €1,314 million, excluding the proceeds from the settlements in 2019. The book-to-bill, as measured by orders divided by revenue, was 1.0 in 2020. Equipment bookings were led by the foundry segment, followed by memory and logic. Bookings increased by 8% from the first half to the second half, reaching a new record quarterly high (excluding settlement gains) in the fourth quarter of 2020 at €379 million. We finished the year with an order backlog of €324 million compared to €351 million at the end of 2019.

GROSS PROFIT MARGIN

Total gross profit developed as follows:

	Year ended December 31,				
	Gross profit		Gross profit margin		Increase (decrease) percentage points
(EUR million)	2019	2020	2019	2020	
Front-end	638.5	**623.6**	49.7%	**47.0%**	(2.7)
Front-end, excluding patent litigation & arbitration settlement in 2019	479.3	**623.6**	42.6%	**47.0%**	4.4

The gross margin increased in 2020 from 42.6% (excluding patent litigation & arbitration settlement) to 47.0%. The gross margin was in part driven by an exceptionally strong revenue mix in second quarter and third quarter, which boosted the margin in those quarters to 48.3% and 49.9%, respectively. In addition, the gross margin increased due to the effects of cost reduction programs and efficiency improvements. For instance, while we continued to incur costs related to new growth initiatives and product introductions, the related gross margin impact lessened compared to previous years on the back of the increased revenue level.

Currency changes led to a decrease of 1% in gross profit compared to 2019.

SELLING, GENERAL AND ADMINISTRATIVE EXPENSES

Total selling, general and administrative expenses developed as follows:

	Year ended December 31,		
(EUR million)	2019	2020	% Change
Front-end	148.9	**157.4**	6%

Selling, general and administrative (SG&A) expenses increased by 6% in 2020 year-on-year. The increase was explained by targeted investments to strengthen the organization and higher variable compensation, and was partly offset by the absence of legal costs related to the patent litigation and arbitration case, which were still included in 2019.

As a percentage of revenue, SG&A expenses in 2020 were 12%, down from 13% in 2019 (excluding the patent litigation & arbitration settlement).

The impact of currency changes on SG&A expenses resulted in a decrease of 2% year-over-year.

RESEARCH AND DEVELOPMENT EXPENSES

Total research and development (R&D) expenses, including impairment, capitalization and amortization of development expenses, increased by 25% in 2020 compared to the previous year due to increased activities. As a percentage of revenue, R&D expenses were approximately stable at 10%. Currency changes resulted in a 1% decrease in R&D expenses year-over-year.

Total research and development expenses developed as follows:

	Year ended December 31,		
(EUR million)	2019	2020	% Change
Front-end:			
Research and development expenses	150.7	**171.8**	14%
Capitalization of development expenses	(60.2)	**(64.1)**	6%
Research and development grants and credits	–	**–**	
Amortization of capitalized development expenses	15.6	**21.2**	36%
	106.1	**128.9**	**21%**
Impairment of capitalized development expenses	4.8	**10.1**	
Total	**110.8**	**139.0**	**25%**

Impairment of capitalized development expenses related primarily to the development of new technology that is 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:

	Year ended December 31,		
(EUR million)	2019	2020	% Change
Front-end:			
Before special items	**224.4**	**337.2**	**50%**
Patent litigation & arbitration settlement	159.2	**–**	n.a.
Impairment charges	(4.8)	**(10.1)**	n.a.
Restructuring expenses	(0.1)	**–**	n.a.
Including special items	**378.7**	**327.1**	**(14%)**

Operating profit increased by 49% to €327.1 million, from €219.5 million in 2019 (excluding patent litigation & arbitration settlement), resulting in an operating profit margin of 24.6% (2019: 19.5%, excluding patent litigation & arbitration settlement).

Impairment charges in 2020 and 2019 are related to capitalized development expenditures and assets.

FINANCING COSTS

Financing costs are mainly related to translation results. The translation results are mainly related to movements in the US dollar in the respective periods. 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, increased to €44.9 million from €18.0 million in 2019. These results exclude the amortization of intangible assets related to ASMPT. During the year, our stake in ASMPT decreased slightly from 25.19% to 25.07%.

Total sales as reported by ASMPT increased by 6.3% to US$2.2 billion in 2020. Sales of the Semiconductor Solutions increased 13.8% in 2020. Sales of SMT Solutions decreased by 4.2% for the full year, and Materials increased 18%. ASMPT decreased gross margins from 34.8% to 32.5% in 2020. On a 100% basis, ASMPT increased net profits by 162%. For further information on ASMPT, please visit the website www.asmpacific.com.

INCOME TAX

The income tax expense of €48.7 million (2019: €53.7 million) reflects an effective tax rate of 14.6% (2019: 14.0%). For further information on tax, see Note 22 to the consolidated financial statements.

NET EARNINGS

Net earnings developed as follows:

	Year ended December 31,		
(EUR million)	2019	2020	Change
Front-end:			
Before special items	**170.5**	**263.5**	**93.0**
Patent litigation & arbitration settlement	159.2	–	(159.2)
Impairment charges	(4.8)	**(10.1)**	(5.3)
Restructuring expenses	(0.1)	–	0.1
Total	**324.8**	**253.4**	**(71.4)**
Back-end:			
Investment in ASMPT	18.0	**44.9**	26.9
Amortization other intangible assets from purchase price allocation	(13.8)	**(12.9)**	0.9
Total	**4.2**	**32.0**	**27.8**
Net earnings from operations	**329.0**	**285.4**	**(43.6)**

STATEMENT OF FINANCIAL POSITION

Working capital as at December 31, 2020 was €242.8 million (2019: €160.2 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 revenue, increased from 36 days as at December 31, 2019 to 63 days as at December 31, 2020. While our inventories decreased year-on-year from €173 million at the end of 2019 to €162 million at the end of 2020, our accounts receivable position increased from €200 million to €280 million. The percentage of overdue in accounts receivables decreased year-on-year, reflecting the healthiness of this position.

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, 2020, our principal sources of liquidity consisted of €435 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)	2019 [1]	2020
Net earnings from operations	**329.0**	**285.4**
Adjustments to cash from operating activities:		
Depreciation, amortization and impairments	78.3	**89.0**
Income tax	53.7	**48.7**
Share in income of investments in associates	(4.2)	**(32.0)**
Share-based compensation	10.5	**12.8**
Non-cash financing costs	5.5	**11.0**
Changes in other assets and liabilities:		
Accounts receivable	(23.9)	**(93.0)**
Inventories	3.1	**0.5**
Evaluation tools	(13.7)	**(39.7)**
Accounts payable and accrued expenses	81.1	**(12.7)**
Other assets	(24.3)	**2.4**
Income tax paid	(6.2)	**(8.0)**
Net cash from operating activities	**488.9**	**264.4**
Capital expenditures (net)	(48.7)	**(93.1)**
Capitalized development expenditure	(60.2)	**(64.1)**
Purchase of intangible assets	(2.3)	**(3.2)**
Dividend received from associates	32.0	**16.1**
Net cash used in investing activities	**(79.2)**	**(144.3)**
Payment of lease liabilities	(12.0)	**(7.8)**
Purchase treasury shares	(99.9)	**(66.7)**
Proceeds from issuance of treasury shares	6.8	**2.8**
Dividend paid to shareholders ASMI	(99.3)	**(98.7)**
Capital repayment	(1.1)	**–**
Net cash used in financing activities	**(205.7)**	**(170.4)**
Foreign currency translation effect	**8.0**	**(12.3)**
Total net cash provided / (used)	**212.0**	**(62.6)**

[1] Including proceeds from patent litigation and arbitration settlement in 2019.

We generated cash from operating activities of €264.4 million in 2020 (2019: €488.9 million). We used €144.3 million cash in investing activities (2019: €79.2 million) and used €170.4 million in financing activities (2019: €205.7 million).

DEBT

We were debt-free as at December 31, 2020.

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, 2020, 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 annually, on June 30 and December 31. We were in compliance with these financial covenants as per December 31, 2020.

See Notes 11, 16, and 17 to the consolidated financial statements for more information 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 25.07%-owned associate was €467.8 million on December 31, 2020. The cash resources and borrowing capacity of ASMPT are not available to our Front-end segment.

Although two directors of ASMI are directors of ASMPT, 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 2020 and 2019 were €16.1 million and €32.0 million, respectively.

The market value of our 25.07% investment in ASMPT was approximately €1,108 million as per December 31, 2020.

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 revenue levels. In the forecasts, we have also taken into account: the total cash balances amounting to €435 million on December 31, 2020; 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 2020 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, 2020, the total number of issued common shares of ASMI amounted to 49,797,394 compared to 51,297,394 at year-end 2019. The decrease was the result of the cancellation of 1.5 million treasury shares that was approved by the Annual General Meeting of Shareholders (AGM) on May 18, 2020, and became effective on July 21, 2020.

	2019	2020
As per January 1:		
Issued shares	56,297,394	51,297,394
Treasury shares	6,978,496	2,431,174
Outstanding shares	**49,318,898**	**48,866,220**
Changes during the year:		
Cancellation of treasury shares	5,000,000	1,500,000
Share buybacks	950,902	508,685
Treasury shares used for share-based performance programs	498,224	357,147
As per December 31:		
Issued shares	51,297,394	49,797,394
Treasury shares	2,431,174	1,082,712
Outstanding shares	**48,866,220**	**48,714,682**

On December 31, 2020, we had 48,714,682 outstanding common shares excluding 1,082,712 treasury shares. This compared to 48,866,220 outstanding common shares and 2,431,174 treasury shares at year-end 2019. Besides the cancellation of 1.5 million treasury shares in July 2020, the change in the number of treasury shares in 2020 was the result of 508,685 repurchased shares and 357,147 treasury shares that were used as part of share-based payments.

On December 31, 2020, 48,438,605 of the outstanding common shares were registered with our transfer agent in the Netherlands, ABN AMRO Bank N.V. and 276,077 were registered with our transfer agent in the United States, Citibank, NA, New York.

SHARE LISTING

ASMI's shares are listed on Euronext Amsterdam under the symbol ASM. As of March 23, 2020, ASMI has been included in the AEX Index. The AEX consists of the 25 largest companies listed on Euronext Amsterdam as measured by free float-adjusted market cap. Previously, ASMI was included in the AMX midcap index.

ASMI JOINED THE AEX INDEX IN 2020

Our NY Registry Shares have also been eligible since 2015 for trading on the over-the-counter (OTC) market in the United States under the symbol ASMIY (further information can be found on www.otcmarkets.com).

MARKET CAPITALIZATION

The market capitalization of ASMI at year-end 2020 was €8,766 million, based on the closing share price of €179.95 at Euronext Amsterdam on December 31, 2020, and 48.7 million total outstanding shares per year-end. The market capitalization at year-end 2019 was €4,894 million.

SHARE PERFORMANCE

On December 31, 2020, the closing price of ASMI's shares on Euronext Amsterdam was €179.95. At the end of 2019, the closing price was €100.15. The highest closing share price during the year was €179.95, on December 30, 2020, and the lowest was €59.18, on March 18, 2020. The average daily trading volume of ASMI shares on Euronext Amsterdam in 2020 was 316,286. This compares to an average daily volume of 224,790 in 2019. Euronext accounted for approximately 59% of total trading in ASMI shares in 2020.

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 %

SHAREHOLDER RETURNS

Over time, ASMI has returned significant amounts of cash in different forms to our shareholders, reflecting our policy to use excess cash for the benefit of our shareholders. In 2020, we returned €165 million to our shareholders. This follows an amount of approximately €200 million returned to our shareholders in the form of dividends and share buybacks in 2019. During 2018, we returned €607 million to shareholders in the form of dividends, share buybacks, and a capital return. During the last three years, we have returned more than €0.9 billion in cash to shareholders.

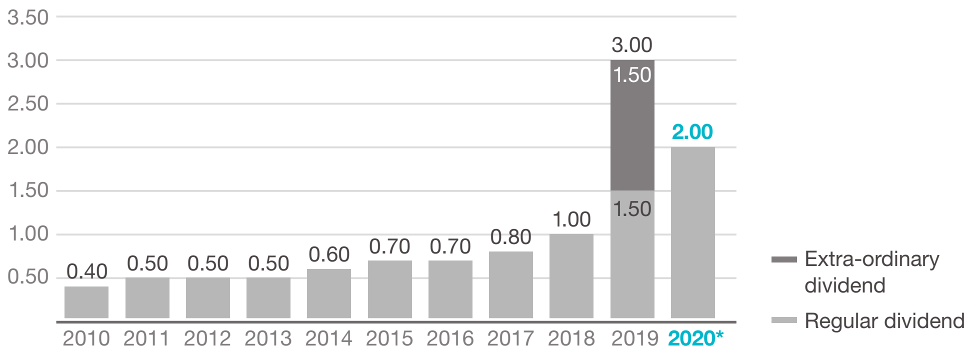
DIVIDENDS

ASMI aims to pay a sustainable annual dividend. Annually, the Supervisory Board, upon proposal of the Management Board, assesses 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 over 2020 will mark the eleventh consecutive year that ASMI has paid a dividend. Our dividend has steadily increased over time. For 2010, the dividend was €0.40 per common share. 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 share over 2018. Over 2019, we paid total dividends of €3.00 per common share, consisting of a regular dividend of €1.50 per share, and an extra-ordinary dividend also of €1.50 per share.

ASMI announced on February 25, 2021, that it would propose to the forthcoming Annual General Meeting of Shareholders (AGM) 2021, to declare a regular dividend of €2.00 per common share over 2020. The regular dividend increased 33% compared to the dividend paid over 2019.

DIVIDEND PER SHARE IN EUR PAID OVER



* Proposed

DIVIDEND TIMETABLE

- Ex-dividend date: May 19, 2021
- Record date: May 20, 2021
- Payment date: May 27, 2021

SHARE BUYBACK

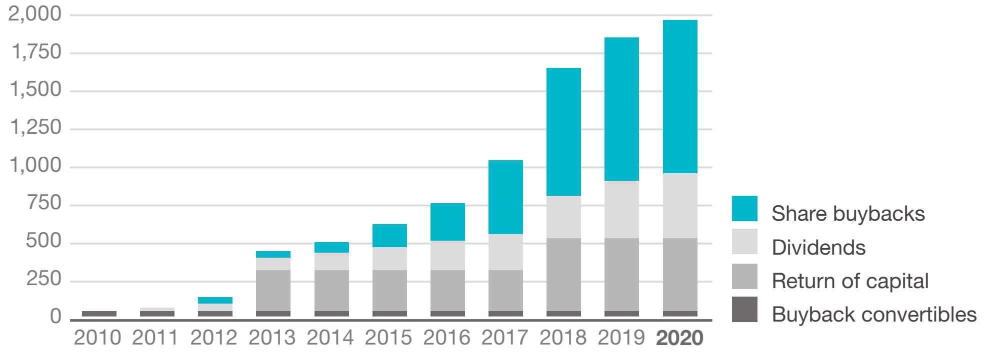
On February 25, 2020, ASMI announced that its Management Board authorized a new repurchase program of up to €100 million of the company's common shares within the 2020/2021 time frame. This buyback program is being executed by intermediaries and will end as soon as the aggregate purchase price of the 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. As at January 29, 2021, the 2020/2021 program was 80% completed, with 559,197 shares repurchased at an average share price of €143.06.

The 2020/2021 program is our seventh consecutive share buyback program. In addition 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; and
- On April 24, 2017, ASMI announced 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.

Information about earlier share buyback programs is available on our website.

CUMULATIVE CASH RETURNED TO MARKET EUR million



CAPITAL REPAYMENT

In 2013 and 2018, ASMI distributed cash to its shareholder through two capital repayments:

- In August 2018, ASMI distributed €4.00 per common share to its shareholders through a tax-efficient repayment of capital, in addition to the regular dividend that year. The proposal for this capital repayment was initially announced on February 28, 2018, and approved by the AGM 2018; and
- 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, 2021, by each beneficial owner known to us of more than 3% of our common shares:

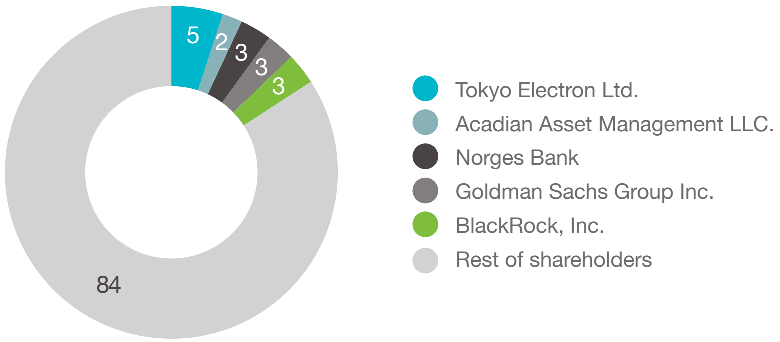
	Number of Shares	Percent [1]	Number of voting rights	Percent [1]
ASM International N.V. [2]	1,166,601	2.3%	–	–
Tokyo Electron Ltd. [3]	2,699,000	5.4%	2,699,000	5.4%
Acadian Asset Management LLC. [4]	1,584,172	3.2%	825,936	1.7%
Norges Bank [5]	1,544,287	3.1%	1,544,287	3.1%
Goldman Sachs Group, Inc. [6]	1,502,758	3.0%	1,502,758	3.0%
BlackRock, Inc [7]	1,500,180	3.0%	1,557,794	3.1%

1 Calculated on the basis of 49,797,394 issued common shares as of January 31, 2021, and without regard to options.
2 On January 31, 2021, ASMI held 1,166,601 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 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.
5 All of the 1,544,287 shares capital interest and voting rights of Norges Bank are held directly actual. Based on the notification filed with the AFM on December 11, 2020.
6 Of Goldman Sachs Group, Inc.'s capital interest and voting rights 517,236 shares are held indirectly potential and 985,522 shares are held indirectly actual. Based on the notification filed with the AFM on January 28, 2021.
7 Of BlackRock, Inc.'s capital interest 1,493,750 shares are held indirectly actual and 6,430 shares are held indirectly potential. Of the voting rights, 1,551,364 are held indirectly actual and 6,430 indirectly potential. Based on the notification filed with the AFM on December 22, 2020.

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)	2018	2019	2020
Net earnings per share, diluted	2.96	6.58	**5.78**
Normalized net earnings per share, diluted	3.19	6.86	**6.04**
Dividend per share paid over	0.80	2.00	**3.00**
Shareholders' equity per share	33.28	37.22	**38.07**
Issued shares year-end (thousand)	56,297	51,297	**49,797**
Outstanding shares year-end (thousand)	49,319	48,866	**48,715**
Average outstanding shares basic (thousand)	52,432	49,418	**48,907**
Average outstanding shares diluted (thousand)	53,110	49,999	**49,359**
Closing share price Euronext Amsterdam			
Year-end	36.20	100.15	**179.95**
High	62.62	104.40	**179.95**
Low	33.90	33.96	**59.18**
Market capitalization year-end (EUR million)	1,785	4,894	**8,766**

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 others, press releases, our annual reports, quarterly earnings calls and webcasts, and investor meetings. As COVID-19 led to increased uncertainty about the broader economic outlook in 2020, we continued to keep the markets up to date through our press releases and maintained our active programs to meet with investors via various online platforms such as virtual investor conferences & roadshows. In 2020, we also held an increasing number of investor meetings focused on ESG-related topics. Investors can find up-to-date and comprehensive information about the company and our shares on our website.

VICTOR BAREÑO

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SOCIETY AND PLANET

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.

ENVIRONMENTAL FOOTPRINT: 2016 TO 2020

ASMI's environmental policy is a key element of our corporate responsibility policy. It establishes our commitment to reduce our environmental impact by setting the right objectives and continuously improving our management systems. We also recognize the inherent value of a circular economic framework for product stewardship. Through our system improvements, refurbishments, and upgrades to extend the useful working life of the equipment, these areas are all high-value elements in the waste elimination hierarchy.

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) standard for the semiconductor industry.

Our environmental targets for 2016-2020 were:

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

The scope of these objectives was our primary Engineering and Manufacturing sites in the Netherlands, Japan, South Korea, Singapore, and the US and is managed through our environmental management system (EMS), which is ISO 14001 certified. This certification provides the assurance to our stakeholders that we are committed to our goals. Our environmental targets are in support of UN Sustainable Development Goals (SDGs) 12 – Responsible Consumption and Production, and 13 – Climate Change.

We transparently disclose our environmental impact by participating in the annual assessment by the Carbon Disclosure Project (CDP), a non-profit organization that runs the world's leading environmental disclosure platform. We have reported through CDP since 2013 and our scores have improved as we strive for greater transparency in our disclosures. In 2020, we disclosed information to CDP on ASMI's global renewable energy purchases at key sites around the world as well as reporting on climate change and water security.

CDP DISCLOSER 2020

With reference to science-based targets, we normalized our greenhouse gas (GHG) emission reduction and our water consumption reduction objectives to the intensity of our research and development (R&D) spend. Our R&D operations are responsible for the majority of our utility consumption through equipment installations and supporting facility infrastructure, accounting for more than 81% of electrical consumption and almost 76% of water consumption.

Our environmental targets and results for 2016-2020 are summarized in the table below. More detailed results may be found in the Non-financial summary tab.

Objective	Results	Discussion
Reduce greenhouse gas emissions by 5% per euro of research and development (R&D) investment below 2015 levels	**Achieved with 17.9% reduction** +	Approximately 95% of our GHG emissions are a result of electrical consumption, and 81% of our electrical consumption is a result of R&D activities, and thus defines our intensity measurement. As our R&D activities have increased dramatically the past 5 years, our associated GHG emissions have not. Our efforts to maximize electrical efficiencies at our R&D sites, including cleanroom supporting infrastructure, contributed to this progress.
Reduce water withdrawn by 45% (up from initial target of 10%) per euro of R&D investment below 2015 levels	**Achieved with 62.5% reduction** +	In 2016, we identified that our Phoenix site accounted for approximately 84% of our absolute global water consumption, and was in a high risk area for water security. Water reuse to minimize effluents was not utilized like our other sites, and we built a wastewater reuse system that brought the Phoenix consumption rate down to 50% of our global absolute consumption. This not only reduced water consumption, but started reducing the overall water effluent to the treatment plant, placing a lower burden on utilities. We have received two recognition awards since implementing the reuse plant in 2018.
Divert more than 90% of all waste from landfill through recycle or reuse	**Fell short Achieved 84% diversion** –	Our Singapore plant accounts for approximately 70% of our global solid waste generated, and a majority of that is a result of production related packaging. Our packaging reuse program targeted a dramatic reduction in waste to landfill, and while we fell short of the 90% goal, we did increase our waste diversion by 29%. In Q4 2020, we came very close to the overall objective, achieving our highest quarterly diversion rate ever with 88% diversion. Our packaging reuse program will only continue to grow in the next few years.
All new construction projects to exceed the energy efficiency standards of local jurisdictions	**Achieved** ✓	Through the 5-year cycle, ASMI completed 2 significant construction projects in South Korea (2018) and Singapore (2020). In 2020, after sustaining impacts to the construction schedule due to the COVID-19 pandemic, we completed construction of, and commenced operations in, a new facility built to the BCA Green Mark Gold Plus certification standard in Singapore. The design and construction project exceeded the energy efficiency requirements.

ENERGY AND EMISSIONS

As approximately 95% of our Scope 1 and 2 emissions are attributable to electrical energy consumption, further conservation will not be enough. We will need to reduce the related emissions through a combination of conservation and a greater use of renewable energy. In 2020, we engaged with leading external parties to find the right partner to further progress our GHG objectives, including mapping and beginning to address Scope 3 emissions.

In 2020, approximately 9.4% of our electrical consumption was from renewable resources, which is equivalent to approximately 16% of the available renewables on the market. We recently switched to using only renewable electricity at our corporate headquarters in Almere, the Netherlands, and are developing plans to increase the use of renewable energy at other locations. We will continue to search for other ways to use renewable resources.

Our electrical sourcing accounts for the majority of air emissions associated with our operations through GHG emissions. Consistent with our environmental policy, we also place significant focus on improving all emissions associated with our operations. ASMI equipment, which is installed and used in our R&D labs globally, generates effluents that must be treated or removed from releasing to the air. This includes non-GHG emissions such as particulates or volatiles. ASMI has stringent air quality permits and criteria that we meet, and are continuously driving initiatives to improve our performance. We closely monitor emissions and efficiencies of the air abatement systems, which remove GHG and non-GHG effluents from gas exhaust. We have engaged experts in air abatement technology to not only specify the best equipment for our new processes, but in one case opportunities for improvement were identified for approximately 10 abatement systems at one of our sites, further reducing GHG and non-GHG emissions from existing processes.

WATER AND EFFLUENTS

Water is a valuable resource, both for clean drinking water and for industry, and its availability is impacted not only by increased global consumption but also by climate change. We must conserve and protect the security of water and for this reason ASMI strives to minimize its water consumption and discharge wastewater responsibly so as not to contaminate water sources. Our corporate responsibility policy sets the commitment to minimize environmental impacts and strive toward ZERO HARM!, which includes water conservation and controlling discharges and effluents.

ASMI relies on good quality water for key functions in our equipment, both for cooling capacity as well as for air emission abatement equipment, to predominantly support our R&D labs and activities. The air abatement systems use water as a scrubbing mechanism to remove toxic, corrosive, and other process gases from being emitted to the air. This reduces the air emissions from our sites, both for greenhouse gases from process gases with warming potentials and for non-GHG air emissions of other pollutants. The wastewater from the abatement systems is then managed according to local wastewater effluent management methods, including the proper characterization, treatment, control, and disposal. This method of control is adopted across the industry and protects the air while providing a path for proper wastewater effluent and related chemical wastes to be safely managed. There were no legal discharge violations for ASMI operations in 2020.

ASMI has conducted water security risk assessments and reports publicly through the CDP water security disclosure report. According to the WRI aqueduct risk assessment, the baseline water stress risk rankings for the following regions in which ASMI has engineering and manufacturing operations are:

Location	Key Operations	WRI Water Stress Ranking
Almere, The Netherlands	Special Projects Manufacturing	Low
Singapore	Manufacturing	Low
Dongtan, South Korea	Engineering, Manufacturing	Medium-high
Tama, Japan	Engineering	Medium-high
Phoenix, Arizona, USA	Engineering	Extremely High

Based on a risk assessment from this data, as well as where ASMI predominantly consumes water, in recent years we have prioritized our Phoenix facility for water reduction. As a result, over the past three years we have reduced our global water withdrawals by 30% at the sites included in the 2016-2020 environmental objective boundary. This reduction not only reduces the amount of water consumed, but because a large percentage of the water is used in the abatement and treatment of our R&D processes, it reduces the overall effluent that must be treated and further reduces the load on utilities and treatment plants. At our Singapore manufacturing plant, we seek to maximize our use of the processed wastewater, NEWater, for our operations, accounting for approximately 56% of water use in 2020. By maximizing this reclaimed wastewater from the Singapore utilities, we are contributing to and helping Singapore maintain its current Low WRI water stress ranking.

A key measure in this achievement was the installation of a water reuse system in Phoenix in 2018, which maximizes the reuse of wastewater in our abatement systems. The ASM America site is located in the Sonoran Desert, where temperatures average over 38°C in the summer and water is a scarce resource. In the two years since the system was implemented, ASM America was able to conserve 58 million gallons of water.

EXTERNAL RECOGNITION

ASMI's water conservation efforts were recognized externally in early 2020 with the SRP Champions of Outstanding Water Efficiency Award and a highly regarded SEAL Environmental Initiative Award.

WASTE MANAGEMENT AND RESOURCE USE

We recognize our operations are dependent on natural capital and resources, and have assessed our consumption to prioritize our response. A majority of our resources use and solid waste is associated with the production of our products, and for that reason we have prioritized our focus on those operations consistent with our corporate responsibility policy.

> "We are committed to conducting business, both in our own operations and throughout our supply chain to protect our employees, customers, communities, shareholders and the environment.
> We are committed to an innovative framework during the design, manufacture, distribution and support of our products that meets or exceeds all applicable regulations in order to minimize environmental impact."

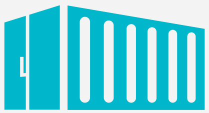
Following on from our successful 2018 pilot to reuse packaging materials with key suppliers, we systematically grew the program to include 5 product platforms in 2020. Additionally, in 2020 we successfully piloted the reuse of packaging materials with selected customers. This resulted in avoiding more than 41 metric tons of packaging waste in 2020. We continue to extend the program to additional products, suppliers, and customers. Through 2020 we made steady progress toward our Landfill Diversion objectives, and although annually our achievement was 84%, throughout the year we were steadily progressing upward toward the objective of 90% through the year.

Our R&D activities principally involve substances in gaseous form, and the reaction effluents of the deposition process are treated with leading-edge abatement to minimize the amount and constituents of resultant wastewater and air emissions. We ensure that our wastewater and air emissions are fully permitted and compliant with all local regulations. The amount of hazardous waste otherwise requiring disposal is minimal and managed responsibly and within compliance of all regulations and requirements. For example, our largest R&D site in Phoenix is a Very Small Quantity Generator (VSQG) under US waste management regulations, which indicates volumes generated are low enough that reporting and storage conditions required of small and large quantity generators are not applicable, nonetheless we maintain safe and secure storage of our wastes consistent with industry best practices. Additionally, our manufacturing operations involve negligible levels of chemical waste, which is properly managed per local regulatory requirements where they are generated. In 2020, there were no incidents of non-compliance with regard to waste management.

RESPONSIBLE CONSTRUCTION

We believe in our responsible growth as an organization and commit to aligning the construction of new facilities with a nationally recognized green building standards. In 2020, we opened a new facility in the Woodlands area of Singapore which was constructed to 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.

REUSE OF SHIPPING PACKAGING



Reuse of shipping packaging helped avoid **41 metric tons of combined packaging waste in 2020**

LOOKING AHEAD: 2021 ONWARD

There is considerable change in the world around us, in our stakeholder expectations, and in our own development. The ESG and our stakeholder landscapes and expectations have also changed and increased considerably in topics such as:

- Climate change;
- Resource conservation;
- Human and social capitals like diversity and inclusion;
- The expectations of our employees; and
- Reporting and transparency.

We have the ambition to further our progress and impact in the different geographies we operate. We aim to make meaningful contributions to our industry, to the communities where we operate, and to preserving our planet. For the forthcoming years, we will focus on broadening our sustainability and ESG goals to include:

- Strengthening our connection to external stakeholders;
- Growing our contributions to the safety of our industry;
- Inspiring workplace of inclusion and diversity;
- Offering our employees the opportunity to excel and to maximize their potential;
- Contributing our share of progress to global society's environmental challenges;

- Developing our climate resilience;
- Advancing responsible sourcing;
- Ensuring ethical treatment of people in our supply chain;
- Engaging our employees in all aspects of our plans;
- Growing contributions to our communities and industry; and
- Providing transparent and insightful ESG reporting.

CLIMATE CHANGE

Climate change is a significant issue facing the world today. During 2020, we have started to define a climate adaptation risk and opportunity assessment, complemented with external expert support, to conduct a comprehensive review for our sector, regions where we do business, and our supply chain to identify the priority issues and opportunities that require further attention. The focus is not only on the physical risks of climate change, such as extreme weather and rising sea levels, but also on climate-related risks (such as regulatory compliance, supply chain disruption). We are now in our process of the following:

1. Map and understand our key sites and key suppliers' exposure to the physical effects of climate change, regulatory and financial impact of shifting to a low-carbon economy;
2. Identify the climate risks and opportunities related to various economic, regulatory, and climate change scenarios;
3. Develop methods to assess potential strategic, operational, and financial impacts; and
4. Identify and implement action plans to address these risks and opportunities.

The scope of the assessment is ASM key sites and critical or strategic suppliers. Understanding Climate Adaptation Risk and Opportunities for our operations and supply chain are key to achieving climate resilience.

We recognize that our climate strategy must also contribute to solving the climate change crisis, and not only mitigate the risks and impacts to our operations, and we have taken steps in recent years, including the following to contribute to the impact on it.

- GHG reductions and energy efficiency in our operations, such as replacing aging equipment;
- Reduced energy consumption of our tools helping our customer to reduce their GHG emissions; and
- Water reduction in Phoenix, one of our locations most exposed to the effects of climate change.

With this view, we are developing our climate strategy to include transitioning to renewable energy. We have mapped the renewable electrical options available to us at our manufacturing and engineering sites, and have already converted our Almere headquarter building to 100% use of renewable energy. We are looking to the future for our next set of environmental objectives as part of the climate strategy and working to strengthen their alignment with global initiatives such as the UN Sustainable Development Goals (SDGs), the Task Force on Climate-related Financial Disclosure (TCFD), the Sustainability Accounting Standards Board (SASB), and the Science Based Target Initiative (SBTI). We are seeking opportunities to help strengthen the renewable market, and will look for sources that support future sources of renewables. As we develop our strategies, we are including all of our operations in scope.

COMMUNITY

Colleagues in China teamed up with an NGO to provide essential resources to a school in desperate need of help.

Over 50 employees of the ASM China team took part in the charitable project that saw over 2,000 books and broadcast equipment donated to a school in a small village in the Gansu province.

The project came to life following the success of several smaller charitable events and the desire to contribute even further. The team collaborated with a local NGO to help children at Quanshui primary school in Baihe Town.

The school is made up of eight classes of children 'left behind' as their parents are migrant workers in big cities. Resources in the village are tight, despite several of the students receiving grants from the government for their outstanding academic performance.
After working with the headmaster, the following urgent needs were identified:

1. The books in the school library were decades old, in poor condition and outdated. They urgently needed updating; and
2. The school broadcast equipment had been in disrepair for many years and needed to be replaced, as the equipment is critical to learning.

Over a month-long period, books were donated and bookshelves were purchased to create reading corners for each classroom, and monetary donations were collected. The books were delivered and the broadcast equipment was installed just before the end of 2020. In addition, the ASM China team raised an extra RMB20,000 ($3,000) in funds for the school.

In 2020, we donated to Terre des Hommes Netherlands, a non-profit organization that fights child exploitation.

SUPPLIERS

The complexity and technology needs of ASMI's products continues to increase. Yet the time to market to introduce these products to our customers is continually shrinking. Engaging, developing and growing a robust supply chain is critical to compete in this challenging market. ASMI continues to drive a global, high-quality, technology-leading supply chain that can support business needs from New Product Introduction (NPI) through High Volume Manufacturing (HVM) and the Aftermarket. The focus on continuous improvement programs, new tools to improve processes, and adherence to changing policies and regulations are all part of how ASMI engages suppliers to enable it's success.

GLOBAL SUPPLY CHAIN

ASMI's goal is to build a global, world-class supply chain that enables our company to produce the most technically advanced equipment in the market and provide our customers with the most technologically advanced products, services, and global support network, at a competitive cost of ownership.

ASMI production activities focus on final assembly and hence rely on hundreds of suppliers across the globe to support the parts and services needed to produce our high-tech products. Having a healthy supply chain is key to ensuring that ASMI can continue to challenge technical barriers and deliver high-quality products on time.

With design centers and manufacturing sites spread over six countries and on three continents, it is important to have suppliers who can support engineering locally as well as provide HVM parts and services for manufacturing and spares. We focus on continuing to partner with the right suppliers who have the scope to meet our full range of support, capacity and technical needs. This includes using our global footprint to source based on best cost, quality and capacity to meet our growing demand.

ASMI is migrating from a supply chain that was geographically clustered around our global engineering centers to a more centralized supplier base that can support our technology, capacity and capability needs. This means driving our spend to suppliers who are in the right regions and countries to support our cost and quality goals, are close to manufacturing centers, and can grow to keep pace with increasing demand.

Part of our supply chain management strategy also includes consolidating our supply base so we have fewer suppliers to manage while building closer partnerships with targeted suppliers. This strategy also supports our other goals of driving commonality of materials and parts across our product groups, which will give us the ability to scale more easily, create leverage with suppliers, and create more flexibility by stocking fewer part numbers, as we continue to grow. We are moving to common metal materials for common parts, such as showerheads and chambers. Having fewer suppliers will also allow us to more easily share technology needs and get suppliers to engage up-front in design for manufacturability opportunities.

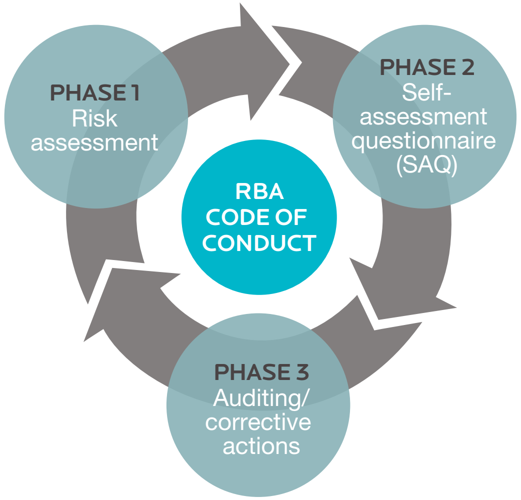
THE DIVERSE NATURE AND COMPLEXITY OF ASMI'S SUPPLY CHAIN SYNERGIS ALD

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 a 94% spend percentage with those suppliers.

RESPONSIBLE SUPPLY CHAIN

We hold our suppliers to the same high standard as ourselves, by requiring that they follow and comply with the Responsible Business Alliance's (RBA) Code of Conduct. Critical and strategic suppliers are asked to conduct a self-assurance process and set objectives for RBA Code acknowledgment, self-assessment, auditing, and corrective action processes that are consistent with RBA requirements. In 2020, 79% of suppliers completed the RBA Self-assessment questionnaire (RBA SAQ). The RBA Online platform has strict criteria for scoring questionnaires for supplier risk level. Suppliers that complete the RBA SAQ and self-assess as high risk will be audited to identify and resolve issues.

CRITICAL SUPPLIER CR STRATEGY



We also go beyond the RBA Code to partner with customers to map our contract manufacturer labor sourcing process to prevent forced and bonded labor (FLBL). In 2020, we updated supplier maps to include COVID-19 impacts on 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.

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 where 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 Business Conduct;
- 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: www.asm.com/about/supplier-management.

SUPPLIER MANAGEMENT FOR THE LONG TERM

We continue to pay close attention to critical and strategic supplier performance and adherence to quality-, environmental-, and RBA standards. We have increased the frequency of supplier audits, grown the number of supplier quarterly reviews, and revamped our supplier scorecards. Additionally, we have expanded our formal commodity management process by part families and added cross-functional participation from engineering and supplier development to ensure that the strategies put forth support the needs of the business units beyond the short term.

We are continuing to strengthen our long-term relationships we have and are engaging industry leaders to further enable our growth trajectory. It is clear we can go faster together by partnering with the best suppliers in a given commodity or technology and have been able to accelerate our development through these supplier engagements.

In 2020, ASMI held a virtual Supplier Day on December 9, 2020. We invited 70 suppliers from across the globe to join us for this event. We hold the Supplier Day annually with our key suppliers and it is an opportunity for us to share ASMI's business strategies and priorities. This includes a focus on key areas such as technology, quality expectations and growth that are important for suppliers to understand and support for ASMI to be successful. Through this event, suppliers were able to hear from our leadership team including the CEO, CVP of Operations, GM for PEALD and CVP of Spares & services to foster better relationships between companies. Three supplier awards were presented during the day to recognize the suppliers' high performance standards and outstanding support of ASMI.

RISK ASSESSMENT

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 that process, we consider significant changes, challenges (such as COVID-19) or trends that are impacting our global supply chain. Consideration is also given to other suppliers that we are actively developing or that have key capabilities.

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 assessment; and
- Strategic business reviews.

SUPPLIER DEVELOPMENT AND PERFORMANCE MANAGEMENT

As geometries continue to shrink, the emphasis on key technology suppliers and process control becomes even greater. ASMI works cross-functionally to develop future product requirement roadmaps and develop supplier technical capabilities proactively. The focus on quality is to ensure that wafer processing environments satisfy our customers' needs for greater process control, which leads to higher yield rates.

The operations engineering team continues to grow as a reflection of ASMI's investment and commitment to total quality. The supplier technology team has added subject matter experts (SMEs) to define roadmaps and develop suppliers in thermal, quartz, ceramic and other key technology areas. The supplier development and supplier quality engineering teams also continue to expand globally near supplier and customer sites in order to control manufacturing processes, resolve issues quickly and communicate results. All three teams work with our engineering, manufacturing engineering and NPI teams to ensure that quality first mindset is designed into our products at every phase.

The quality and supply chain teams continuously evaluate all suppliers and select partners who demonstrate the right combination of technical ability and commercial commitment for our common success. Technical capability assessments screen suppliers prior to selection, and process control audits ensure that products are delivered to our requirements. ASMI has continued remotely auditing all of our supply base until COVID-19 restrictions allow on-site auditing to resume.

Suppliers are trained in process control systems (PCS) and have periodic quality performance and data reviews culminating in corporate scorecard feedback. The PCS training ensures that supplier manufacturing processes are stable and documented. PCS also includes the standardization of inspection methods and deployment of fixtures to guarantee global consistency. For key technology suppliers delivering process critical parts, ASMI trains suppliers in statistical process control (SPC) to reduce part-to-part variation. Once supplier manufacturing processes are 'frozen', suppliers review SPC data in real time against established control limits to ensure that no excursions escape to our customers.

In 2020, we increased the number of suppliers on our ASCENT program to further improve our supplier forecasting, collaboration, purchase order management and delivery commits. This is a big step forward for us in further automating and digitizing our supplier communication and setting in place the tools and access to real-time data to allow us to dramatically scale our business without significantly increasing resources while ensuring more access to real-time data.

ASMI will continue to build on the platform and will be digitizing more of our supplier communications and interactions. Things we will soon start adding to the ASCENT program include: first article inspection reports; statistical process control (SPC) reporting; secondary process controls; inventory sharing and forecast improvements.

In 2020, we also revamped and revised our supplier scorecard process to increase BCP visibility (COVID-19 impact), make suppliers more accountable for quality and delivery performance, PCS alignment, and ensure compliance to safety, environmental, RBA and other compliance items. The scorecards also now account for long-term commercial and capacity commitments from suppliers. We have also segmented the scorecards by part families and are using the scoring to promote or demote suppliers within our current segmentation and framework.

A.S.C.E.N.T.

ASMI SUPPLY CHAIN ENABLEMENT & TRANSFORMATION

Automating and digitizing our supplier communication

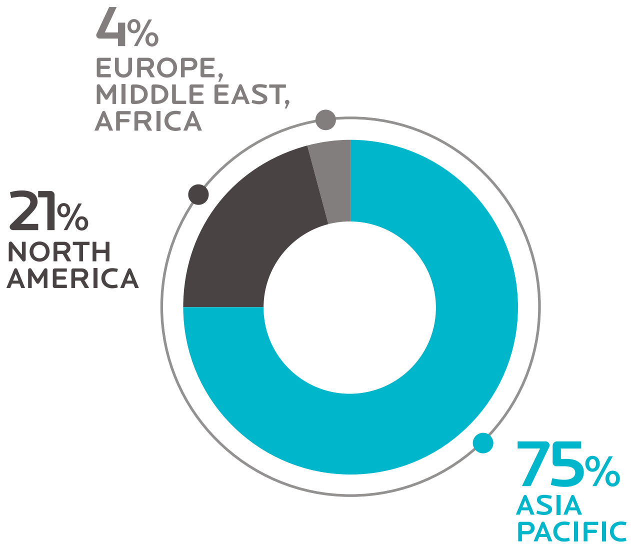
Develop tools and access to real-time data to dramatically scale our business

Functionalities:

- Forecasting
- Collaboration
- Purchase order management
- On-time delivery
- First Article Inspection reports ★
- Statistical Process Control (SPC) reporting ★
- Secondary Process controls ★
- Inventory sharing and forecast improvements ★

★ New additions

SUPPLY CHAIN SPEND BY REGION



BCP IN ACTION

With the global pandemic affecting all countries where ASMI and its suppliers do business, 2020 was a time for ASMI to put its Business Continuity Plans (BCP) into action. Through strong, up-front planning and supplier engagement, we were able to absorb government-imposed restrictions due to COVID-19 in relatively good shape. While some supply chain delays were felt, especially from suppliers in countries which took shut down measures, overall ASMI was still able to meet its commitments to its customers.

The ability to overcome this global phenomenon was largely due to our close relationship with key suppliers, dual sourcing capabilities, and strong understanding of potential risk and gaps that would put our tools at risk. Additionally, ASMI benefited from strong processes such as supplier risk monitoring, BCP tracking and executive alignment with suppliers. Constant reviews of country and supplier impacts for workers, continual review of priorities and supplier capabilities, and our focus on developing new avenues to meet our supply needs allowed us to keep up with business needs.

The global pandemic also revealed some deeper levels of risk management to historical BCP. ASMI reached deep into the supply chain to uncover risk areas for even the most standard items and processes to ensure continuity of supply and put measures in place to secure – or mitigate – these risks.

These learnings on improving supplier risk management are included in our updated processes that govern supplier management and monitoring.

CONFLICT MINERALS AND HUMAN RIGHTS

RESPONSIBLE MINERALS SOURCING

We require all of our suppliers to source tin, tantalum, tungsten and gold (3TGs) responsibly, and to use certified conflict-free smelters using recognized certification organizations. Our goal is to trace 3TG sourcing by all of our critical and strategic suppliers, ensure they are using only certified conflict-free smelters, and confirm 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, which our suppliers source from. 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. 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 (ASMI conflict minerals policy).

We joined, and are participating 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).

We will continue our active participation in, and contribution to, the RMI and our engagement with other relevant stakeholders. These include the European Parliament and other international non-governmental organizations (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 (www.asm.com/about/corporate-responsibility/supply-chain). 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.

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 are looking for opportunities to apply responsible sourcing practices to other materials that are critical to the semiconductor industry. We actively engage with critical suppliers and conduct due diligence based on OECD guidance.

Through active participation with RMI and the Responsible Labor Initiative (RLI), we monitor developments on human rights and support programs to ensure the ethical treatment of labor.

ASMI was an early signatory of the Women's Rights and Mining statement on gender-responsive due diligence and human rights of women in mineral supply chains (womenandmining.org).

PLANNING FOR A BRIGHT FUTURE

In 2021, ASMI will continue to invest in its people, tools, and supplier partnerships. This continuous investment is needed to meet not only our product needs, but also customer expectations. Having parts within tolerance is no longer good enough. We need to work closely with suppliers to understand variance control within those tolerances and its impact on product performance. Automating this feedback through various hardware and software investments is part of that growth.

Our focus will be on expanding variation control, improving our global footprint, and providing additional supply chain tools to increase automation and visibility. We will also continue to add to our growing supplier-facing technical teams, further evolve our part family strategies, improve our new product engagement with suppliers, and update the strategies needed to support after-market growth.

ASMI will also continue to drive key supplier partnerships and engage industry-leading suppliers to help us achieve our technical and product needs. We ensure we have the right capabilities and capacities to support our future growth plans, putting the right supply chain structure and planning in place now to allow for smooth future ramps. And of course, we will ensure we have the right process controls to meet increasing customer and industry demands.

INTERVIEW WITH THE CFO

Peter A.M. van Bommel
Chief Financial Officer

In the following interview Chief Financial Officer Peter van Bommel discusses some of the key financial topics that impacted the company in 2020 and comments on the policy for the use of cash.

"SALES INCREASED TO A NEW RECORD LEVEL OF 1.3 BILLION EUROS."

WHAT HAS BEEN THE EFFECT OF COVID-19, HAS IT IMPACTED ASMI'S FINANCIAL RESULTS IN 2020?

Our key priority has been and continues to be the health and safety of our employees. In terms of our operations, the most significant impact of COVID-19 for us was in the second quarter. The lockdown measures in particularly Malaysia and Singapore in that quarter impacted several of our suppliers and led to shortages and delays for certain parts. In addition, the border closure with Malaysia prevented some of our employees from coming to work in our facility in Singapore.

Despite these challenges, our team and our suppliers delivered a fantastic job and we succeeded in meeting customer demands. Towards the end of the second quarter, supply chain and logistical conditions started to improve as lockdown measures were gradually lifted across the globe. In the third quarter, supply chain conditions had largely normalized again.

The lockdown measures in Singapore also led to a delay in the construction work on our new manufacturing facility, which we completed in the fourth quarter of 2020.

From a demand perspective, COVID-19 did not have a negative impact in 2020, as our customers continued to invest in the most advanced node capacity. While global economic growth dropped sharply and specific parts such as industrial and automotive end markets were impacted, the overall semiconductor market showed a healthy increase of 7% in 2020. This increase was supported by work-from-home and learn-from-home related demand in areas such as PCs, data centers and network infrastructure.

HOW WOULD YOU DESCRIBE ASMI'S FINANCIAL PERFORMANCE IN 2020?

While COVID-19 turned 2020 into a year with many challenges for all of us, our company again delivered a solid performance last year. Revenue (exclusive the IP settlements in 2019) increased by 18% to a new record level of €1.3 billion.

We benefited in 2020 from strong investments in the most advanced nodes in logic/foundry, which remains the most important driver for ASMI. Our ALD product line again recorded strong double-digit growth and continued to account for more than half of equipment revenue. Of note was also the strong increase of 29% in our spares & services revenue, driven by increases in our installed base and the first results of our expansion into new outcome-based services.

Our revenue increased despite a negative impact from currency changes, especially the depreciation of the US dollar. The impact from negative currency changes, to a large extent the depreciation of the US dollar, impacted particularly the latter part of the year. In the fourth quarter it negatively impacted revenue by 5% year-on-year. As our currency exposure is fairly similar for revenue and expenses, the impact is limited to translation effects.

"WE INCREASED R&D SPENDING BY 14% IN 2020."

On the back of an improving margin gross profit increased 30%. Note that these comparisons with the previous year exclude the €159 million one-off settlement proceeds that positively impacted our results in 2019.

We increased R&D spending by 14% in 2020. We will continue to drive R&D spending as we grow our company. Including IFRS effects (capitalization, amortization and impairment), reported R&D increased by 25%, and included higher impairment costs compared to 2019 and an increase in amortization.

SG&A expenses increased 6% in 2020. The increase was driven by higher variable expenses. In addition, we made investments in specific organizational processes, to prepare our company for the next phase of growth. We will continue these investments in 2021.

Our operating profit increased strongly by 49%, with the operating margin improving from 19.5% to 24.6%.

Financial results were also impacted by negative currency effects, €23 million negative in 2020 compared to zero in 2019. We hold a large part of our cash balances in US dollars and the translation effects are included in the financial results.

"DURING 2020 WE FURTHER STEPPED UP OUR EFFORTS IN ESG REPORTING."

During 2020 we further stepped up our efforts in ESG reporting. In this Annual Report we expanded on the initiatives we have taken in this field, such as on the projects to reduce our water consumption and to improve the energy efficiency of our tools. Further improvements in our ESG reporting will remain an important focus in the coming years.

THE GROSS MARGIN HAS STRONGLY INCREASED IN THE LAST COUPLE OF YEARS – WHAT CAN BE EXPECTED FOR THE COMING YEARS?

Our gross margins increased in 2020 from 42.6% to 47.0%. This increase was in part driven by an exceptionally strong revenue mix in Q2 and Q3, which boosted the margin in those quarters to 48.3% and 49.9%, respectively. In addition, the gross margin was also supported by effects of cost reduction programs and efficiency improvements. Since we started to guide the market on gross margins, we only deviated a couple of times from our structural targets. At the end of 2017 and early 2018, our margins dipped below 40% due to the effects of new product introductions, including the launch of our Intrepid epitaxy tool that period.

In 2020, as just explained, the margin exceeded our targets in the second and third quarters on the back of an unusually strong revenue mix. We continuously focus on our efficiency programs. In 2020, for instance, we took further steps to increase the efficiency of our supply chain. This should gradually lead to a further improvement in our average gross margin. At the same time it is important to stress that the leverage in our gross margin is relatively limited. We have a largely outsourced business model. We only do the final assembly and testing in-house and that means our fixed costs only represent a smaller part of the total cost of goods sold. For the first quarters of 2021, we indicated to expect a gross margin of above the mid-40's percentage on the back of a positive mix.

CAN YOU COMMENT ON THE DEVELOPMENT IN THE CASH FLOW IN 2020?

Free cash flow was again healthy at €119 million, even though lower compared to €206 million in 2019. Improvements in profitability were largely offset by higher working capital requirements, an increase in capital expenditures and higher investments in evaluation tools. We stepped up capex from €49 million to €95 million. Similar to 2019 a significant portion of spending was related to our new manufacturing facility in Singapore. This has been an important investment. The facility was completed in the fourth quarter and will substantially increase our manufacturing capacity. In addition, we increased our spending as part of the initiatives we announced earlier in the year to expand and upgrade our R&D labs. For 2021, we will maintain capex at a higher level due to the lab-related investments in measurement equipment and our own tools to facilitate new product opportunities.

The working capital in 2020 showed a lower inventory development, despite the higher activity level. While inventories increased in the second quarter, as we built up inventory of raw materials in view of the COVID-19-related supply chain risks, by the end of the year our inventory levels were normalized again. The increase was due in full to higher accounts receivables. We expect this to reverse in the first quarter of 2021. The underlying quality of accounts receivables remained healthy as illustrated by the low percentage of receivables that are overdue at the end of the year.

"OUR NEW FACILITY IN SINGAPORE WILL SUBSTANTIALLY INCREASE OUR MANUFACTURING CAPACITY."

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

Our policy has been very consistent. We used excess cash for the benefit of shareholders. Since 2010, we have returned more than €1.9 billion in different forms to the financial markets. In 2020, we distributed €165 million to our shareholders. After an interim dividend payment of €50 million in November 2019, we paid out an additional €25 million as a normal dividend, as well as an extraordinary dividend of €74 million in 2020. Besides that, we spent €67 million on share buybacks. In June 2020, we started our seventh share buyback program, and at the end of 2020, this €100 million program was 64% completed. With the publication of our fourth quarter results on February 25, 2021, we announced the proposal of a dividend of €2.00 per share to be paid over 2020. This is a 33% increase compared to the regular dividend of €1.50 paid over 2019 (excluding the extraordinary dividend of €1.50 per share).

PETER, YOU WILL BE RETIRING AT THE UPCOMING AGM – HOW DO YOU LOOK BACK AT 11 YEARS AS CFO AT ASM INTERNATIONAL?

When I started as CFO at ASMI in 2010, the semiconductor industry was recovering from the slump caused by the financial crisis. In that period, ASMI had just embarked on a restructuring program to recover from a series of losses. In the subsequent years, we implemented further efficiency programs, which brought ASMI to structurally higher gross margins. At the same time, as the semiconductor industry moved to more advanced nodes, we substantially expanded our position in the growing ALD market. In the years that followed, we solidified our leadership and achieved all of the top-10 capex spenders as customers. The increase in profitability and improvement in working capital generated a healthy cash flow, freeing up funds to reinvest in the growth of our company. An important event has also been the reduction in our stake in ASMPT. We keep a minority stake for strategic reasons but the reductions in 2013 and again in 2017 helped to bring attention to the strong improvements in our Front-end operations, which in turn drove substantial increases in our company's value.

"ASMI HAS SOLID OPPORTUNITIES FOR FURTHER GROWTH AHEAD."

Over the years, we built a strong financial framework and implemented significant improvements in our risk management systems and processes. I'm pleased that ASMI in the last eleven years only had to issue a profit warning once, and that was a positive one, in January 2020 when our order intake substantially exceeded the guidance that we had provided to the market. I'm also proud of the strong team we have built at ASMI over the years. We will only succeed when we all act together as one team. ASMI has solid opportunities for further growth ahead. In the fast changing semiconductor sector, it is key to constantly strengthen our capabilities and drive investments in innovation to tap into the tremendous opportunities ahead of us. I'm confident that ASMI is well positioned for continued healthy growth.

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 our culture, behavior, and management, and this 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 all 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 Business Conduct (COBC) sets clear standards in different areas of business life. It's purpose is to provide a clear, strong, and consistent culture of ethics that applies to all who work at ASMI.

ASMI's policies and regulatory framework guide how we work. Key components are our financial, IT, product safety, environment, health and safety (EHS), compliance, corporate social responsibility, and business continuity frameworks. These are supported by transparency and accountability through our monthly business review cycle, our internal control framework, and 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 helps us develop even more effective and efficient 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 (www.asm.com/investors/corporate-governance/policies), including:

- Supervisory Board profile;
- Supervisory Board rules;
- Management Board rules;
- Audit Committee charter;
- Nomination, Selection and Remuneration Committee charter;
- Remuneration policy;
- Code of Business Conduct;
- 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.

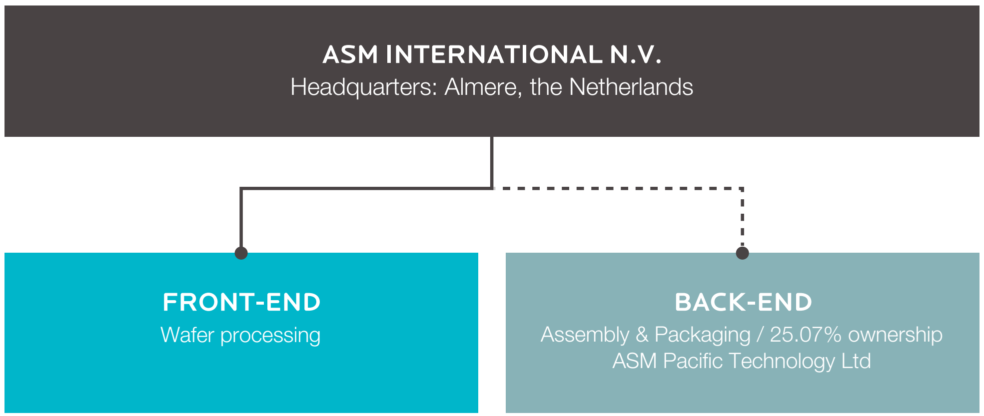
FRONT-END OPERATIONS

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 shareholding per December 31, 2020 in ASMPT is 25.07%.

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). ASMI common shares, which are held in the United States as New York Registry Shares, are eligible for trading on the OTC Market.

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 (www.asm.com/investors/investor-library).

2020 AGM OF ASMI

ASMI held its AGM on May 18, 2020. In relation to the COVID-19 outbreak, the health risks and the measures and restrictions imposed by the Dutch government, and on the basis of the Temporary Act COVID-19, the meeting was virtual. Shareholders were given the opportunity to vote through two means: (i) by providing – as in the previous AGMs – a power of attorney with voting instructions prior to the AGM; and (ii) by voting electronically during the meeting. The attendance rate was 66.05% 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 voting results and the minutes of the AGM are published on the company's website (www.asm.com/investors/investor-library).

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. 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, 2020, there were 49,797,394 common shares issued and fully paid.
No preferred nor financing preferred shares were issued on December 31, 2020. 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 CONTINUÏTEIT 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. The 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 the Stichting are:

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

The purpose of the 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 preemptive rights of shareholders upon issuance of shares;
- Authorize the Management Board to withdraw preemptive rights of shareholders upon issuance of shares; and
- Authorize the Management Board to repurchase or cancel outstanding shares.

CSR GOVERNANCE

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 and productivity improvements responsibly, 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 establishes our commitment to and expectations regarding health and safety, the environment, labor, ethics, and supply chain management. Each of these areas, which constitutes the majority of our non-financial reporting, is further supported by policies, programs, systems, and metrics to ensure that we meet our long-term objectives. The full text of our corporate responsibility policy is available on our website: www.asm.com/about/corporate-responsibility.

The Management Board is responsible for the CR policy and is supported by the Corporate Vice President of Operational Excellence, who has overall responsibility for corporate responsibility. The CR team is responsible for establishing ASMI's goals implementation plans, and monitoring the progress of our internal targets.

We adopted the Responsible Business Alliance (RBA) Code as our code of conduct in 2012, and made it our supply chain code of conduct in 2014. We became a member of the RBA in 2020, further strengthening our commitment to ethical and responsible business practices. The RBA Code evolves, typically every three years, 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).

In 2020, we co-proposed with three other companies to add Living Wage as an amendment to the RBA Code of Conduct. While the proposed amendment was not adopted in the latest version of the Code, we will continue to work with the RBA and its members on this and other important topics affecting ESG across the industry. All key ASMI sites participated in the RBA Self-Assessment Questionnaire (SAQ) and were assessed as low risk.

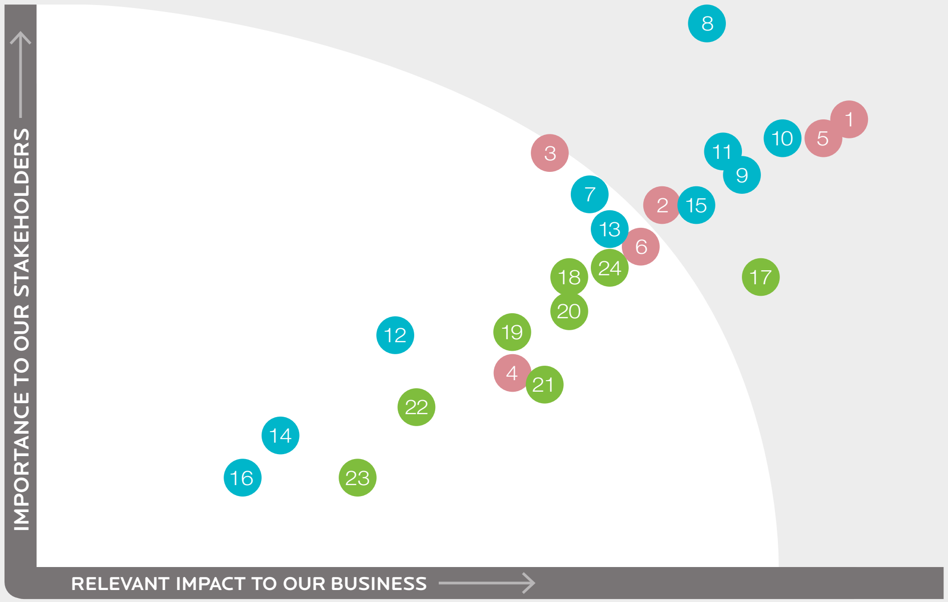
MATERIALITY ASSESSMENT

Our materiality assessment process provides us with the opportunity to continually evaluate if our strategies and objectives are aligned with our stakeholders and overall importance to our business. Our process follows the sustainability materiality steps and matrix based on the Global Reporting Initiative's (GRI) G4 sustainability reporting framework. Our materiality assessment process engages select customers, investors, all of our employees, and key non-governmental organizations (NGOs).

The aspects in the top-right of the chart below are referred to as 'primary aspects' in this report, and are considered strategic to our business.

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

All aspects in the materiality assessment are monitored and 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.



ECONOMIC

1. Company financial health
2. Innovation and 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. The Code of Business Conduct (COBC)
9. Customer partnership
10. Attracting, developing and retaining talent
11. Employee health and safety
12. Diversity
13. Employee relations and workplace vitality
14. Community engagement
15. IT security
16. Corporate philanthropy

ENVIRONMENTAL

17. Product safety and environmental compliance
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

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

Our materiality and risk assessment processes have led us to focus on issues that we can influence the most. Below are the five United Nation's Sustainable Development Goals (SDGs) that we have selected:

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

Primary aspects (reference chapter)	Our strategies	Setting strategies, steering and controls	New in 2020	Result/stakeholders' impact
ECONOMIC				
1 **Company financial health (Financial statements)** 2 **Innovation and R&D investment (Breakthrough technologies)** 5 **Protecting and using intellectual property (Risk management)**	› 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 a company culture and environment for innovation and patent creation with strong IP protection programs	› Management meetings › Key customer meetings › Market assessments › Business unit/operational reviews › Technical steering meetings › IP reviews	› Enhanced R&D tollgate process › Additional R&D pipeline controls to increase focus and ensure completeness of information › Further strengthened internal protection of IP by strengthening need-to-know assignment and controls › Improved marketing to better understand customer investment plans and industry trends	› Increased R&D effectiveness, efficiency, and controls › Further improved IP protection › Customers able to meet their technology and operational objectives
SOCIAL				
8 **The Code of Business Conduct (COBC) (Employees)** 9 **Customer partnership (Customer feedback)** 10 **Attracting, developing, and retaining talent (Employees)** 11 **Worker health and safety (Employees)** 15 **IT security (Risk management)**	› 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 › Conduct business according to ethical and professional standards › Implement COBC, CR policy, and commitment to RBA Code of Conduct › Secure IT systems	› Global EHS and Product Safety Leader teams › Global employee engagement › Global Human Resources › Global IT › Ethics Committee	› COVID-19 pandemic response management to ensure safety and business continuity › Updated COBC and training to facilitate implementation › Launched 'the Power of an Open Mind' program and employee engagement survey › Raised vigilance, employee awareness to, and protections from phishing campaigns relating to COVID-19 and work from home situations › Enhanced critical applications and cloud security postures, and further improved capability toward zero-day attacks	› Ensuring safety and business continuity › Strengthen business ethics and the Code of Business Conduct compliance › Meaningful further development of Human Capital › Increased IT and Cyber security and IP protection
ENVIRONMENTAL				
17 **Product safety and environmental compliance**	› Reduce overall risk of exposure with focus on high risk activities and functions, including labs, manufacturing and service › Product Compliance Team and embed requirements in KPUs and PLC › Safety leadership collaborations	› Safety Steering Committee › Global EHS and Product Safety Leaders › Global Facilities teams › Product Life Cycle (PLC) process and governance › Key Product Units (KPU) engineering › Safety Incident Reporting (SIR) feedback mechanism	› Further R&D lab, manufacturing, and service safety improvements › Further focus on product environmental impact improvement › Strengthened product safety governance › 3rd party support for product content screening	› Recognized by key customers as an industry safety leader › Customer environmental impact reduction › Improved first-time-right product development compliance to standards › Reduced occupational hazard exposure

STAKEHOLDER ENGAGEMENT AND INDUSTRY ESG COLLABORATIONS

We regularly engage with appropriate stakeholders to improve and mature as a business. The table below provides examples of how we consider stakeholder input and feedback to improve our strategies, objectives, and ultimately our performance.

KEY STAKEHOLDER ENGAGEMENT METHODS AND BENEFITS

Shareholder	Engagement method	Feedback	Outcome
Customers	Direct customer meetings and supplier development sessions (recurring).	Systematic inputs to improve the structural maturity and operational performance of the company.	Higher scores on supplier maturity scales with key customers. Strengthens our policies, procedures, and activities.
Investors	Direct meetings (recurring).	Increasing importance of CR/ESG. Insight to their priorities.	Informing our current and future priorities and plans.
Employees	Periodic surveys of all employees: Safety and CR/ESG.	Safety survey of R&D lab, manufacturing, and service personnel validates progress and identifies opportunities to further improve. CR/ESG survey engages employees to understand their interests and priorities.	Further improved safety culture dialogue. Better visibility of safety improvement projects. Increased action to address ergonomic risks. Employees stated CR/ESG very important to them, and want to further engage.
NGOs	Direct meetings.	Insight to their future priorities.	Initiated Climate Adaptation Risk and Opportunity Assessment. Informing our future focus areas.
Industry consortium and partners	R&D partnership with imec University of Helsinki partnership.	Cooperation and bilateral research activities.	Additional ALD, PEALD, epitaxy and CVD capability.

We engage with sustainable development non-governmental organizations (NGO) such as the Carbon Disclosure Project (CDP), a non-profit organization that helps companies and cities document and disclose their environmental impacts, and the VBDO (Dutch Association of Investors for Sustainable Development). We have participated in the Transparency Benchmark, a bi-annual assessment held amongst the largest companies in the Netherlands and aims to measure their transparency in reporting on corporate social responsibility. The benchmark is used by the Dutch Ministry of Economic Affairs to assess and drive adoption of sustainable investment best practices.

In addition, we engage with prominent ESG leaders on the most important issues to influence positive change, starting in our own industry. We collaborate with our key customers in developing our ESG roadmap, including being a select member of the key customer Corporate Responsibility Leader program and identification and elimination of forced labor/bonded labor in our global supply chain. In the past year, we partnered with both customers and competitors through the SEMI MOD Work Group to encourage and grow diversity of supply for the semiconductor industry.

As part of our transparency commitment within the RBA supply chain, in 2020 we hosted a customer audit at our South Korea manufacturing and R&D site to assess site compliance to the RBA Code of Conduct. We passed the audit with no major findings.

Additionally, we have completed multiple customer and other parties' ESG questionnaires and shared our CDP results with our RBA and non-RBA customers.

We also became a member of BSR, a leading global nonprofit organization, to establish new ways to collaborate with other organizations to broaden our influence and impact, and support our ambitions to be an industry leader in sustainability.

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. Reference is made to Note 22 of this Annual Report in which the total tax paid in the Netherlands and abroad is reflected. 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. A tangible example thereof would be the bilateral advance tax agreements (BAPA) that have been concluded with tax authorities in significant countries. 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.

TAX STRATEGY

A tax control framework is in place. 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. ASMI's tax department is responsible for tax management and is supervised by the Management Board via the CFO, who discusses the tax strategy with the Audit Committee of the Supervisory Board. 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 matters, 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.

RISK MANAGEMENT

In 2020, COVID-19 pandemic has shown that not all risks can be foreseen, reiterating the importance of a robust and proactive approach to risk management. Our internal risk management and control framework enables identification of risks that may impact us and opportunities that could enable further growth, and the ability to take initiatives accordingly. In addition to instilling a proactive methodology to monitor and act on key risks, we are more clearly aligning our top-down risk assessment to our business processes to enhance our risk management intrinsically.

RISK MANAGEMENT APPROACH

ASMI's risk management approach is based on the Committee of Sponsoring Organizations' (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.

We assess the risks that could impact achievement of our strategic objectives annually at a consolidated level (top-down approach) and on a process 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.

In addition, to proactively monitor and act on key risks as a result of COVID-19 in 2020, we further strengthened the alignment between the top-down risk assessment and our primary processes. We also continued our focus on enhancement of our bottom-up processes to identify process risks and mitigating actions.

Business management provides the Management Board with an annual 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.

MANAGEMENT BOARD

FIRST LINE OF DEFENSE	SECOND LINE OF DEFENSE	THIRD LINE OF DEFENSE
OWNERSHIP & MANAGEMENT	RISK & CONTROL FUNCTIONS	INDEPENDENT OBJECTIVE ASSURANCE
BUSINESS & OPERATIONS MANAGEMENT	OVERSIGHT FUNCTIONS	INTERNAL AUDIT

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 have effective metrics and 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. Through the risk committee, periodic control self-assessments, and a focus on aligning our top-down risk assessment to our business processes, we are continually increasing risk awareness to make it an integral part of the company culture and our primary processes. Our Code of Business Conduct (COBC) applies to all ASMI employees and temporary staff, and describes how we work in an open, transparent, honest, and socially responsible way. The COBC was updated in 2020 and the effectiveness of, and compliance with, the Code 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 strategic plan and the individual objectives within this plan. The risk appetite is further guided by our COBC 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 objectives. The risk appetite per objective or risk area is set annually by the Management Board and is evaluated on an ongoing basis as events occur throughout the year.

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, environmental 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 environmental, social, and corporate governance (ESG) commitments are met. ASMI has a very low risk tolerance related to 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 the financial sustainability of the company needed to achieve the objectives.

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 COBC 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 provisions 1.2 and 1.4 of the Dutch Corporate Governance Code.

RISK CATEGORIES AND FACTORS

The risks detailed below are material risks that could impact our ability to achieve our 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, the impact they may have on our business, and the way these risks develop over time. 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. In 2020, following the outbreak of the COVID-19 pandemic, this has become even more apparent. Our risk management approach enables us to monitor risks and risk development and take appropriate action. In 2020, COVID-19 impacted our business processes, yet our business processes and people proved to be resilient and flexible in resolving the operational challenges that we faced, particularly within health and safety, customer support, supply chain, and logistics.

Our risk universe is the basis for our annual top down risk assessment, on the next pages the key risks in our risk universe as well as the mitigating measures are described.

RISK UNIVERSE

	STRATEGIC RISKS	MITIGATING MEASURES
1	**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 continues to increase. In order to ensure optimal return on investment we have further improved our R&D processes and teams as well as optimal cooperation with key stakeholders. COVID-19 has impacted demand from our end markets, and we successfully adopted to the changed demand.
2	**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 and elasticity. Our financial structure, including cash and a standby credit facility, is set up to further reduce downsides of this risk.
4	**Inability to attract and retain qualified management, technical, sales and support employees could result in delayed product development, production and diversity of management resources.**	We focus on competitive compensation & benefit packages tailored to the regions we operate in. We have talent management and succession planning programs in place that consist of the leadership academy, talent succession reviews up to board level and help our managers to assess and strengthen the leadership pipeline. In 2020 we launched our Power of an Open Mind program and an engagement survey we strive to reach our talent and tend to their needs.
5	**Failure to adequately identify and mitigate the risks arising from operating in an international context such as the political landscape, changes in legislation, instability, protectionism and cultural differences could impact our business.**	Our primary processes are set up to quickly understand, adapt to, and effectively apply international cultural and legal norms for doing business. We have global reviews with each region specifically on these topics. For example the geo political tensions have increased and may continue doing so. The US and other countries have imposed trade restrictions and specifically related to China. The US also took specific measures against certain Chinese specific parties. Some of these measures have as a result that for certain transactions – like deliveries of certain products and services – to certain customers now require an export license. Obtaining such licenses is not certain, may be difficult, and are time consuming. The implementation and interpretation of these measures and regulations and future regulatory changes remains ongoing and the impact of the changes is not always certain, could affect the result of operations, and can increase compliance costs; although the impact is currently still regarded as relatively limited. Recently China also enacted several laws of which the consequences for the industry including ASMI are currently not yet known, but could in the future have an impact. Nonetheless ASMI strives to support and serve its worldwide customers to the best of its ability while being compliant with laws and regulations set by the jurisdictions where we operate. In 2020 we have have refreshed our COBC and the related e-learnings to further enhance understanding of how ASMI wants to achieve its business goals in an international context.
6	**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 have further enhanced our corporate responsibility agenda based on the climate change risks with the aim to make a sustainable impact while leveraging our key strengths.

	OPERATIONAL RISKS	MITIGATING MEASURES
9	**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 quality assurance processes and controls to ensure consistent product quality. In addition to pro-actively managing the supply chain and logistical challenges, we have further enhanced our primary product development processes based on clear objective setting, risk identification and control gate reviews. We are also centralizing our quality organization to report directly to the CEO to bolster cross functional focus.
10 11	**Failure of suppliers to deliver resulting in financial loss due to penalties, rework and/or reduced future demand.**	Recovery plans are in place, and are continuously assessed and improved. In addition, we are further improving primary processes related to regional supplier sourcing, demand planning, and import/export risks.

OPERATIONAL RISKS	MITIGATING MEASURES
12 **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 pro-actively with our customers to respond to requests in a timely manner and strive to exceed expectations. We are diversifying our customer base by continued investments in the More than Moore and China markets. We are also putting significantly more focus on our large installed base business to help our customers get better long-term performance from our systems and diversify our revenue streams into more annuity-based opportunities.
13 **IT security breaches including cyber attacks resulting in loss of technologies, innovations, IP and process data downtime or disruption of critical business operations. Any breach of our information systems could adversely affect our finances and operating results as well as our reputation. Our software development & production processes may introduce viruses in our tools.**	An IT risk management framework including IT security management is in place in which we monitor threats and vulnerabilities, conduct cyber drills, perform gap assessments, apply remediation and identify improvement projects. The frameworks are supported by policies, processes and controls. In 2020, we raised vigilance on employee awareness through increased phishing campaigns relating to the COVID-19 pandemic and work from home situations, took steps to enhance the security posture of our critical applications, further improved our capability toward zero-day attacks and strengthened our cloud security posture.
15 **Incidents and accidents threatening our ability to operate.**	Our EHS organization is responsible for preventive and corrective action processes and the implementation of structural controls is driven within the processes. Safety is discussed in all key meetings. Safety leadership collaborations have been set up with key customers. Throughout the year 2020, our EHS team was instrumental in prioritizing health and safety.
17 **Unsuccessful product life cycle management impacting margins, market share and inventory.**	We are driving continuous improvement across our product life cycle to ensure a smooth and integrated process. In 2020 we took important steps in our primary processes. We will continue to focus on this in 2021 to pro-actively meet or exceed (future) customer needs and requests while improving internal process efficiency.

FINANCIAL RISKS	MITIGATING MEASURES
21 **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.
22 **Changes in valuation of ASMPT as a result of ineffective strategy definition and execution affecting our future financial position.**	We have Board representation in ASMPT, as two executive directors are non-executive directors at ASMPT.

COMPLIANCE RISKS	MITIGATING MEASURES
24 **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.
25 **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.

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.


Benjamin Loh


Peter A.M. van Bommel

COMPOSITION OF THE MANAGEMENT BOARD

BENJAMIN LOH – CEO

Mr. Loh was appointed as Chairman of the Management Board and President and Chief Executive Officer on May 18, 2020, for a period of four years.

Mr. Loh worked for Oerlikon Corporation from the late 1990s until 2005. He became senior vice president in 2002 and was responsible for Asia until 2005. He then joined Veeco Instruments Inc., an American thin-film process semiconductor equipment manufacturer, as senior vice president and general manager for Asia, before becoming executive vice president responsible for global field operations. In 2007, he moved to FEI Company as senior executive, holding various positions responsible for sales and service, global business operations, and finally as chief operating officer. In 2015, Mr. Loh joined VAT Vacuum Valves, based in Switzerland, as executive vice president and member of the Group Management Board, where he was responsible for, and led, worldwide sales and marketing until late 2017. Mr. Loh is a non-executive director of ASM Pacific Technologies and in the past also held positions as non-executive director in several companies (Schneeberger, Schweiter Technologies AG, and Liteq BV). He also was an advisory board member of Semi China. Mr. Loh has a wealth of experience working in the electronics and semiconductor industry and vast experience as a leader. Mr. Loh has a bachelor's degree in electronic engineering from the Tohoku University in Japan. Mr. Loh is of Singaporean nationality, but has spent the last 30 years living mostly outside of Singapore in Japan, Hong Kong, China, the UK and the US. Mr. Loh is now based in Almere, the Netherlands.

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 non-executive director of ASM Pacific Technologies, and until 2020 was a member of the Supervisory Board of Royal KPN N.V. In 2019, Mr. van Bommel was re-appointed as a member of the Supervisory Board of Neways Electronics International N.V. Since May 2017, Mr. van Bommel is an Executive Director of Stichting Bernhoven. Lastly, Mr. van Bommel was appointed a member of the Board of SES SA in April 2020. Mr. van Bommel is a Dutch national.

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 2020. 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 posted on our website (www.asm.com/investors/corporate-governance/supervisory-board/nomination-selection-and-remuneration-committee), 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	Chairman of the Supervisory Board	Dutch	1946	2009	2021
Martin C.J. van Pernis	Member of the Supervisory Board	Dutch	1945	2010	2022
Stefanie Kahle-Galonske	Member of the Supervisory Board	German and Swiss	1969	2017	2021
Marc J.C. de Jong	Member of the Supervisory Board	Dutch	1961	2018	2022
Didier R. Lamouche	Member of the Supervisory Board	French	1959	2020	2024
Monica de Virgiliis	Member of the Supervisory Board	Italian and French	1967	2020	2024

JAN C. LOBBEZOO

Chairman of the Supervisory Board

Mr. Lobbezoo was elected as a member of the Supervisory Board in May 2009. He became Chairman of the Supervisory Board in July 2013 and was lastly 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 also on the Supervisory Board of a small start-up company named VPI, which is active in development of medical software for surgery. He is furthermore 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.

MARTIN C.J. VAN PERNIS

Member of the Supervisory Board

Mr. van Pernis was elected as member of the Supervisory Board in May 2010 and was lastly reappointed on May 18, 2020, for a period of two years.

Mr. van Pernis made a career at Siemens fulfilling several executive positions. He 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 currently Chairman of the Supervisory Boards of the Dutch listed companies Aalberts NV and CM.com. He is furthermore a member of the Supervisory Board of Optixolar/Coolback BV, and member of the Advisory Board of G4S Netherlands. Mr. Van Pernis was until May 2018 also Chairman of the Supervisory Board of Batenburg 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 Erasmus University Rotterdam, the Netherlands. Mr. van Pernis is a Dutch national.

STEFANIE KAHLE-GALONSKE

Member of the Supervisory Board

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 Group 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 executive positions at NXP Semiconductors in France and the Netherlands.

Mrs. Kahle-Galonske in the past served as non-executive board member of Micronas Semiconductors in Switzerland and Nu-Tune Singapore.

Mrs. Kahle-Galonske graduated in Economics at the Ruhr-University of Bochum, Germany and is a Certified Public Accountant (CPA) since 2002. Mrs. Kahle-Galonske is a German and Swiss national.

MARC J.C. DE JONG

Member of the Supervisory Board

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 was CEO of LM Wind Power A/S until April 2018. Before that he was the executive general manager of InnoMarket B.V. Prior thereto and until 2009 he was a member of the executive management team of NXP Semiconductors, after which he was until 2013 responsible at Philips Lighting for professional lighting solutions and at the same time member of the group management committee of Philips.

Mr. de Jong is currently member of the Supervisory Boards of Nissens A/S based in Denmark, Fiberline Composites A/S based in Denmark, and chairman of Sioux B.V., based in the Netherlands. 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 a Dutch national.

DIDIER R. LAMOUCHE

Member of the Supervisory Board

Mr. Lamouche was elected as a member of the Supervisory Board on May 18, 2020, for a period of four years.

Mr. Lamouche was until the end of 2018 the CEO of IDEMIA (formerly Oberthur Technologies) which is the world leader in security and identity solutions. Prior to that he was the CEO of the Euronext listed Bull Group until 2010. And before that he had senior several executive positions in the semiconductor industry; latest as COO of ST Microelectronics and CEO of ST-Ericsson.

Mr. Lamouche has been a non-executive at the Boards of Soitec and STMicoelectronics, and is currently Chairman of the Supervisory Board of Utimaco, a leader in the cybersecurity space, and non-executive Chairman of the Board at Quadient, a company listed on Euronext and active in Enterprise communication systems. He is a member of the Supervisory Board of Adecco since 2011 (listed on the SIX in Zurich).

Mr. Lamouche graduated in 1981 from the Ecole Centrale de Lyon as an engineer, and has a PhD in semiconductor technology. Mr. Lamouche is a French national.

MONICA DE VIRGILIIS

Member of the Supervisory Board

Mrs. de Virgiliis was elected as member of the Supervisory Board on May 18, 2020, for a period of four years.

Mrs. de Virgiliis fulfilled until mid-2019 the role of chief strategy officer of CEA, the French Atomic & Alternative Energy Commission. Preceding that she had senior executive positions at Octo Telematics, Infineon Technologies, and a long career within ST Microelectronics fulfilling several senior executive roles. She has recently founded Chapter Zero France, under the auspices of the World Economic Forum as a part of the global Climate Governance Initiative.

Mrs. de Virgiliis is currently a non-executive director at the Prysmian Group, a Milan listed company, and at Geodis, which is part of the SNCF Group.

Mrs. de Virgiliis studied at the University of Turin (Politecnico di Torino) where she received her master's degree in electronic engineering summa cum laude. She holds a dual nationality: Italian and French.

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 (www.asm.com/investors/corporate-governance/supervisory-board). 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. Every year the training requirements are reviewed and discussed. Subsequently the training is organized. 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 six 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 2020, and Note 25 to the consolidated financial statements.

COMMITTEES

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

COMMITTEES STRUCTURE AND MEMBER INFORMATION

	Audit Committee	Nomination, selection and remuneration Committee	Supervisory Board
Jan C. Lobbezoo €	M	M	C
Martin C.J. van Pernis		C	M
Stefanie Kahle-Galonske €	C		M
Marc J.C. de Jong	M		M
Didier R. Lamouche		M	M
Monica de Virgiliis	M		M

C Chairperson M Member € Financial expert

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;
- Marc de Jong; and
- Monica de Virgiliis.

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);
- Didier Lamouche; and
- Jan Lobbezoo.

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 and remuneration report for the following years.

The Chief Executive Officer and the Corporate Vice President Global Human Resources 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 2020 Annual Report in accordance with 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 155 to 161.

All of the members of the Supervisory Board have signed the financial statements in respect of the financial year 2020.

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 (www.asm.com/investors/corporate-governance/supervisory-board).

MEETINGS OF THE SUPERVISORY BOARD

During 2020, the Supervisory Board met with the Management Board on eight occasions. Jan Lobbezoo, Marc de Jong and Martin van Pernis attended all Supervisory Board meetings with the Management Board, while Stefanie Kahle-Galonske attended all meetings except one. Ulrich Schumacher attended three out of the four meetings that took place before the May 18, 2020 AGM, when he retired from the Supervisory Board. After being appointed to the Supervisory Board at the May 18, 2020 AGM, Monica de Virgiliis attended all four meetings that took place since, while Didier Lamouche attended three out of four meetings.

Attendance to meetings in 2020

Committee	Supervisory Board	Audit Committee	Nomination, Selection and Remuneration Committee (NSR)
Jan C. Lobbezoo	8/8	4/4	4/4
Martin C.J. van Pernis	8/8	n.a.	4/4
Stefanie Kahle-Galonske	7/8	4/4	n.a.
Marc J.C. de Jong	8/8	4/4	n.a.
Didier R. Lamouche*	3/4	n.a.	2/2
Monica de Virgiliis*	4/4	2/2	n.a.
Ulrich H.R. Schumacher**	3/4	n.a.	1/2

Attendance is expressed as the number of meetings attended out of the number of meetings eligible to be attended.
* Appointed May 18, 2020.
** Stepped down at AGM 2020 on May 18, 2020.

In these meetings, the Boards discussed the strategy and the progress of implementation thereof, the long-term and sustainable value creation, operations, business risks, and risk management, product and market developments, geopolitical tensions and the potential impact, the company's organization, and culture program, management and financial structure, and performance, including further profitability improvements. Other (recurring) topics were also addressed by the Supervisory Board such as the annual budget, the review of quarterly financial results, COVID-19, reports from the committees, 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 2020.

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 2021.

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 as the Management Board function properly and effectively.

Due to COVID-19 and the travel restrictions, most Supervisory Board meetings in 2020 were held through video conference. In some instances the Dutch based members of the Supervisory Board gathered at the headquarters of ASMI using a video link to the foreign based members of the Supervisory Board. In addition to these meetings there were several informal meetings and telephone calls between the Supervisory Board members and/or Management Board members.

DUTCH 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

In view of the restrictions caused by the COVID-19 pandemic, it was decided to change the set-up of the AGM of May 18 2020 into a complete virtual webcast meeting. This meant that shareholders could not attend the meeting in person, but only via a virtual webcast connection. Voting could be done by way of proxy before the meeting as well as voting during the meeting via the virtual application. Shareholders for last year's AGM could email questions up to 3 days prior to the AGM which were answered by ASMI and posted on our website prior to the AGM. Shareholders which had asked questions in this way were also entitled to ask follow up questions during the AGM. During the AGM, the new amended company remuneration policy was approved and adopted by the shareholders. A final regular dividend of €1,50 per common share was proposed and approved; of that, €1,00 per share was already paid as interim dividend in November 2019. In addition to the regular dividend it was also proposed and approved to declare and pay an extra dividend of €1,50 per share; this as part of the company's commitment to use excess cash for the benefit of its shareholders.
In order to optimize the capital structure, it was proposed and agreed to decrease the issued share capital by withdrawing 1,500,000 (one and a half million) shares which the company holds in its own capital, by way of cancellation of treasury shares.
A new share buyback program was announced on June 2, 2020 for a total of €100 million; at the end of December 2020 63% of the total program had been repurchased.

SUPERVISORY BOARD COMPOSITION

The Supervisory Board is composed of six members. All six members are independent, in line with the Corporate Governance Code. During the AGM on May 18, 2020 Mr. Schumacher stepped down at the end of his final term and Mr. Lamouche and Mrs. de Virgillis were newly appointed. In addition, at the forthcoming AGM on May 17, 2021, Mr Jan Lobbezoo, after having served for three terms of four years at the ASMI Board, will retire from the Supervisory Board.

MANAGEMENT BOARD COMPOSITION

The Management Board is composed of two members. During the May 18, 2020, AGM Mr. Chuck del Prado, retired as Chief Executive Officer, Chairman of the Management Board and President of the company. On the same day, the AGM approved the nomination of Benjamin (G.L.) Loh as Chief Executive Officer, Chairman of the Management Board and President of the company, to succeed Chuck del Prado. On October 13, 2020, ASMI announced that Mr. Peter van Bommel, Chief Financial Officer and Member of the Management Board of the company, had notified the Supervisory Board of his wish to retire from the company at the next Annual General Meeting to be held on May 17, 2021. On January 12, 2021, the Supervisory Board announced the nomination of Mr. P (Paul) A.H. Verhagen as CFO and Member of the Management Board of ASMI, succeeding Peter van Bommel. The shareholders will be asked to appoint Mr. Verhagen as Management Board member for a four-year term – starting at June 1, 2021 – at the Annual General Meeting of Shareholders on May 17, 2021, after which the Supervisory Board will appoint Mr. Verhagen as the Chief Financial Officer.

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 33% female representation in the Supervisory Board. In the 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 look for candidates that support the realization of diversity on the earlier mentioned criteria.

EDUCATION AND TRAINING

As in every year, also in 2020 the Management Board and Supervisory Board discussed their education and training needs. Both boards – in addition to their regular meetings – committed one day to training. A focus for this year was on the latest developments in international remuneration for Supervisory Board and Management Board members, including the requirements of the Shareholder Rights Directive and the role of the Supervisory Board in the value creation process of the organization. This training was given by legal experts in each of these fields.

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 number of members of the Audit Committee increased in 2020 from three to four, when Monica de Virgiliis joined the Audit Committee after her appointment to the Supervisory Board during the May 18, 2020 AGM. 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), Lamouche and Lobbezoo.

In 2020, the NSR Committee held four meetings and multiple conference calls. The topics included the selection and nomination of a new Chief Executive Officer, which resulted in the nomination by the Supervisory Board of Benjamin Loh as CEO, President and Chief Executive Officer, succeeding Chuck del Prado. The topics also included the selection and nomination of a new Chief Financial Officer, which resulted in the nomination by the Supervisory Board of Paul A.H. Verhagen as Chief Financial Officer and member of the Management Board, succeeding Peter van Bommel. The topics discussed also included the remuneration of the individual members of the Management Board and the succession planning of the Board.

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 2020 is fully in accordance with the remuneration policy.

WORD OF THANKS

We extend our 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 2020. 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
D.R. Lamouche
M.C.J. van Pernis
M. de Virgiliis

Almere, the Netherlands
March 4, 2021

REMUNERATION REPORT

This remuneration report is based on the remuneration policy of ASM International N.V. (ASMI), as presented to and adopted by the 2020 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 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 five key elements: innovative strength, operational excellence, employees, strong balance sheet, and responsible growth.

The remuneration report complies with the requirements of the Corporate Governance Code and is aligned with the new Dutch legal requirements following the implementation of the EU Shareholders' Right Directive II. The remuneration policy 2020-2023 of ASMI was adopted by the Annual General Meeting of Shareholders (AGM) on May 18, 2020, and was consistently implemented in 2020 with regard to all remuneration elements.

The main changes of the Management Board remuneration policy compared to the previous version have been explained during the 2020 AGM meeting and relate to: (1) the peer group change, due to AEX-listed peer companies being reviewed and expanded compared to High Tech and Semicon companies in the US and Europe region (total of 21 peer companies); (2) switch to performance shares as only remaining long-term incentive component (which had been in practice since 2018); and (3) the change of the maximum level of long-term incentive awards, based upon an extensive benchmarking.

The 2020 remuneration report refers to the remuneration policy of ASMI which can be found at: www.asm.com/investors/corporate-governance/supervisory-board/nomination-selection-and-remuneration-committee

SHORT-TERM INCENTIVES (CASH BONUS)

Each year, a short-term incentive can be earned, based on achieving specific challenging targets. These targets are based for 75% on company financial targets and for 25% on non-financial targets. The on-target bonus percentage for the CEO is 100% of annual base salary, with a maximum pay-out of 150% of annual base salary. The on-target bonus percentage for the CFO is 75% of annual base salary, with a maximum pay-out of 125% of annual base salary.

LONG-TERM INCENTIVES OR SHARE-BASED REMUNERATION

In the past, the members of the Management Board were eligible to receive stock options and performance shares under the ASMI 2014 long-term incentive plan for members of the Management Board 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. Since 2018, no new grants of stock options have taken place. The next grant of restricted shares will take place in April 2021. The revised remuneration policy as approved by the AGM on May 18, 2020 no longer allows for stock option grants moving forward.

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

STOCK OPTIONS

- Since 2018, stock options are no longer granted;
- Options granted earlier are unconditional. 100% of the options which have been granted will become exercisable after three years; and
- The exercise price is 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.

OUTSTANDING OPTIONS

The following table shows the outstanding options to purchase ASMI common shares held by current/former members of the Management Board, and changes in such holdings during 2020:

	Year of grant	Vesting date	Outstanding January 1, 2020	Granted in 2020	Exercised in 2020 [2]	Outstanding December 31, 2020	Exercise price	End date
P.A.M. van Bommel [1]	2015	April 24, 2018	15,910	–	–	**15,910**	€40.62	April 24, 2022
P.A.M. van Bommel [1]	2016	April 22, 2019	22,833	–	–	**22,833**	€34.06	April 22, 2023
P.A.M. van Bommel [1]	2017	April 21, 2020	8,937	–	–	**8,937**	€47.33	April 21, 2024
C.D. del Prado [1] [3]	2013	December 31, 2016	81,680	–	(81,680)	**–**	€21.79	December 31, 2020
C.D. del Prado [1] [3]	2015	April 24, 2018	30,548	–	–	**30,548**	€40.62	April 24, 2022
C.D. del Prado [1] [3]	2016	April 22, 2019	45,293	–	–	**45,293**	€34.06	April 22, 2023
C.D. del Prado [1] [3]	2017	April 21, 2020	18,249	–	–	**18,249**	€47.33	April 21, 2024
Total			**223,450**	**–**	**(81,680)**	**141,770**		

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 August 6, 2020 at an average share price of €130.13.
3 Former CEO till May 18, 2020.

PERFORMANCE SHARES

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' to focus on the long-term interest of the company.

The number of performance shares granted for on-target performance will be determined after the performance year by the Supervisory Board, and relates to revenue growth compared to market and average EBIT percentage measured over a three-year performance period. ASMI applies a face value approach 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 165% of the annual base salary for the CEO and 125% for the CFO. This change has been adopted in the new remuneration policy, applicable as of 2020 up to 2023. The maximum number of shares that will be granted in case of out-performance of the predetermined performance indicators is 150% of the number at on-target performance. The number of shares granted will be zero in case none of the targets are met.

In order to show longer-term commitment to ASMI and align with shareholder interests, the CEO and CFO are required to hold the vested performance shares for two years ('Holding Period') after the vesting date. At year-end 2020, the three-year performance period of the performance shares granted to the members of the Management Board on April 20, 2018, was completed. Based on the achievement of the performance criteria, the realization percentage is 150%. This leads to the following vesting of the performance shares on April 21, 2021.

	Performance Shares Vested
G.L. Loh	–
P.A.M. van Bommel	13,512

In 2020 all outstanding conditional shares granted to the previous CEO in 2018, respectively 2019, vested at grant level on retirement date (18,843 and respectively 15,582 shares).

For 2020, the Supervisory Board awarded the following amounts:

- The previous CEO, Mr. del Prado, decided to step down per May 18, 2020, and therefore no value has been awarded in 2020; and
- The Supervisory Board decided to award the following value to Mr. Loh, current CEO: €1,039,500 and Mr. van Bommel, CFO: €567,996, based on the renewed remuneration policy 2020.

OUTSTANDING PERFORMANCE SHARES

The following table shows the outstanding performance shares granted to members of the Management Board in 2020 and held by members of the Management Board per December 31, 2020:

	Grant date	Status	Number of shares at grant date	Performance adjustment	Vested in 2020	Outstanding December 31, 2020	Fair value at grant date	Vesting date	End of Holding period
G.L. Loh [1]	July 29, 2020	Conditional	8,087	–	–	**8,087**	€123.31	July 29, 2023	July 29, 2025
P.A.M. van Bommel	April 21, 2017	Unconditional	6,234	1,790	(8,024)	**–**	€47.52	April 21, 2020	April 21, 2022
P.A.M. van Bommel	April 20, 2018	Conditional	9,008	–	–	**9,008**	€45.71	April 20, 2021	April 20, 2023
P.A.M. van Bommel	April 25, 2019	Conditional	7,343	–	–	**7,343**	€57.84	April 25, 2022	April 25, 2024
P.A.M. van Bommel	April 22, 2020	Conditional	5,559	–	–	**5,559**	€100.09	April 22, 2023	April 22, 2025
C.D. del Prado [2]	April 21, 2017	Unconditional	12,730	3,656	(16,386)	**–**	€47.52	April 21, 2020	May 18, 2020
C.D. del Prado [2]	April 20, 2018	Unconditional	18,843	–	(18,843)	**–**	€45.71	April 20, 2021	May 18, 2020
C.D. del Prado [2]	April 25, 2019	Unconditional	15,582	–	(15,582)	**–**	€57.84	April 25, 2022	May 18, 2020
Total			**83,386**	**5,446**	**(58,835)**	**29,997**			

1 New CEO since May 18, 2020.
2 Former CEO till May 18, 2020. Holding obligation lapsed as of retirement.

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 revenue 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.

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 €110,111. For their salary above €110,111, 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.

TOTAL REMUNERATION OF MANAGEMENT BOARD

The following table provides an overview of the 2020 remuneration elements in € thousands of both CEO and CFO as recognized by the company. During the year 2020, a CEO change was announced and approved by the AGM on May 18, 2020.

	1				2				3		4		5		6	
	Fixed Remuneration (K€)				Variable Remuneration (K€)				Other [4] (K€)		Pension expense (K€)		Total Remuneration (K€)		Proportion of fixed and variable remuneration	
	Base Salary		Fringe Benefits		Short-term cash incentive (STI)		Share-based payment expenses [3]									
NAME OF DIRECTOR, POSITION	2019	2020	2019	2020	2019	2020	2019	2020	2019	2020	2019	2020	2019	2020	2019	2020
G.L. Loh [1]	–	393	–	36	–	448	–	141	–	–	–	69	–	1,087	–%	85%
P.A.M. van Bommel	441	454	40	39	551	452	413	505	–	–	91	95	1,536	1,545	59%	61%
C.D. del Prado [2]	702	267	77	28	1,053	293	855	1,158	–	2,400	124	52	2,811	4,198	47%	24%
Total	1,143	1,114	117	103	1,604	1,193	1,268	1,804	–	2,400	215	216	4,347	6,830		

1 New CEO since May 18, 2020, Annualized Base Salary 2020 €630.
2 Former CEO till May 18, 2020, Annualized Base Salary 2020 €702.
3 These amounts represent the vesting expenses related to the financial year.
4 Represents an additional payroll tax payable by the company due to vesting of granted shares in previous years related to the retirement of a member of the Management Board subject to article 32bb of the Dutch Wage Tax Act.

1. Fixed remuneration

Base salary. This is the fixed annual gross base salary. A salary increase of 3% has been implemented as of January 1, 2020, in line with normal market movement in the Netherlands.

Fringe benefits. This represents the value of benefits and perquisites awarded, such as company car, representation and expense allowance, premium for health and disability insurance, as well as social security contributions.

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 for both the CEO and CFO 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, the payout will be based upon the relative deviation against these levels. The targets are 75% based on company financial targets (equally divided between revenue, EBIT, and free cash flow) and 25% based on non-financial targets.

The on-target bonus percentage for the CEO is 100% of the annual base salary, with a maximum pay-out of 150% of the annual base salary. For the year 2020, the CEO realized overall an over-achievement on STI (mix of below target, above target and stretch on company financial targets and mix of at target and stretch on non-financial targets).

The on-target bonus percentage for the CFO is 75% of annual base salary, with a maximum pay-out of 125% of annual base salary. For 2020, the CFO realized overall an over-achievement on STI (same outcome as CEO on company financial targets and in addition stretch on non-financial targets).

Share-based payment or long-term incentives. 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 revenue growth compared to market and average EBIT.

3. Other items

Non-recurring items, which represents in 2020 an additional payroll tax to the company due to vesting of already granted shares in previous years related to the retirement of a member of the Management Board subject to article 32bb of the Dutch Wage Tax Act.

4. Pension expense

As of 2015, 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 €110,111. The company reimburses an amount equal to the employer pension contribution for their salary above €110,111. 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 equals sum of 1, 2, 3 and 4 as described above.

6. Proportion of fixed and variable remuneration

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

EMPLOYMENT CONTRACTS / SERVICE AGREEMENTS

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

- Mr. C.D. del Prado, started May 18, 2006; in May 2018, Mr. del Prado was reappointed for a new term of 4 years. Mr. del Prado decided to step down per May 18, 2020 and his employment with ASMI ended on May 18, 2020;
- Mr. G.L. Loh, started May 18, 2020, and was appointed for a term of 4 years based on a service agreement; 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. On October 13, 2020, it was announced that Mr. van Bommel informed the company of his intention to step down from his role as of May 17, 2021.

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

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 2020 that no circumstances have been identified that result in any adjustments or claw back of variable remuneration.

COMPLIANCE TO REMUNERATION POLICY AND LONG-TERM PERFORMANCE

The Supervisory Board reviewed the remuneration policy in 2020 leading to the presentation of the revised policy to the Annual General Meeting of Shareholders on May 18, 2020, which approved the proposal, as applicable as of 2020. An analysis of different scenarios was included in this review.

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

- Motivates and rewards executives in both the 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. ASMI does not provide any loans, advanced payments, deposits or related guarantees to the CEO, CFO or Supervisory Board.

COMPARATIVE INFORMATION ON THE CHANGE OF REMUNERATION AND COMPANY PERFORMANCE

Annual Change	2016/2015	2017/2016	2018/2017	2019/2018	2020/2019	Information regarding 2020
Management Board Remuneration						
G.L. Loh, CEO (as of May 18)	–%	–%	–%	–%	–%	
P.A.M. van Bommel, CFO	89%	107%	101%	123%	101%	
C.D. del Prado, CEO (until May 18)	93%	112%	105%	124%	64%	Former CEO retired May 18, 2020
Company Performance						
Front-end Sales	89%	123%	111%	157%	103%	
Front-end EBIT	79%	133%	119%	171%	142%	
Free Cash flow	8%	463%	125%	488%	53%	
Qualitative/Non-Financial Strategic Objectives/Targets	96%	113%	103%	128%	88%	
Average remuneration on a full-time equivalent basis of employees (K€)						
	2016	**2017**	**2018**	**2019**	**2020**	
Average remuneration of employees	75	78	75	85	88	Increase % average remuneration: 14% and increase # of employees: 11%
CEO pay ratio	23	25	27	31	27	

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 annualized base salary and bonus of the new CEO as well as share-based payment (extrapolated to regular annual accrual). The average remuneration of all employees is calculated by dividing the total personnel costs (wage and salaries and share-based payments) minus the remuneration of the CEO, by the total number of employees. The pay ratio is in line with anticipated internal development of pay levels.

The 2020 ASMI remuneration report considers the draft 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, 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.

REMUNERATION OF THE SUPERVISORY BOARD

The 2020 remuneration report refers to the remuneration policy of ASMI which can be found at: www.asm.com/investors/corporate-governance/supervisory-board/nomination-selection-and-remuneration-committee

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:

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

The remuneration of members of the Supervisory Board was most recently revised during the 2018 Annual General Meeting of Shareholders.

No stock options or performance shares have been granted to members of the Supervisory Board.

	Year ended December 31,					
	Annual fee		Committee fee		Total remuneration	
	2019	2020	2019	2020	2019	2020
Supervisory Board:						
J.C. Lobbezoo	70.0	**70.0**	13.5	**13.5**	83.5	**83.5**
M.C.J. van Pernis	50.0	**50.0**	8.5	**8.5**	58.5	**58.5**
U.H.R. Schumacher [1]	50.0	**19.1**	6.0	**2.3**	56.0	**21.4**
S. Kahle-Galonske	50.0	**50.0**	10.0	**10.0**	60.0	**60.0**
M.J.C. de Jong	50.0	**50.0**	7.5	**7.5**	57.5	**57.5**
D.R. Lamouche [2]	–	**31.0**	–	**3.7**	–	**34.7**
M. de Virgiliis [2]	–	**31.0**	–	**4.7**	–	**35.7**
TOTAL	**270.0**	**301.1**	**45.5**	**50.2**	**315.5**	**351.3**

1 Period to May 18, 2020.
2 Period as of May 18, 2020.

Annual change	2016/2015	2017/2016	2018/2017	2019/2018	2020/2019
Supervisory Board Remuneration					
J.M.R. Danneels	40%	–%	–%	–%	–%
H.W. Kreutzer	100%	100%	41%	–%	–%
J.C. Lobbezoo	100%	100%	112%	106%	100%
M.C.J. van Pernis	100%	100%	107%	104%	100%
U.H.R. Schumacher	100%	100%	107%	105%	38%
S. Kahle-Galonske	–%	–%	183%	107%	100%
M.J.C. de Jong	–%	–%	–%	169%	100%
D.R. Lamouche	–%	–%	–%	–%	–%
M. de Virgiliis	–%	–%	–%	–%	–%

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 2020 Annual General Meeting of Shareholders (AGM) for the reporting year 2020.

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 2020 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 2020 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 2020 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 COBC, 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 2020, revenue grew by 18% excluding the settlement proceeds in 2019 and reached a new record of €1.3 billion. ALD continued our key driver and our spares & services business delivered an outstanding performance. Operating result increased to €327.1 million from €219.6 million in 2019 excluding the settlement proceeds.

OTHER DEVELOPMENTS

New bookings increased by 12% in 2020 to €1,314 million, excluding the proceeds from the settlements in 2019. Equipment bookings were led by the foundry segment, followed by memory and logic. Total research and development (R&D) expenses, including impairment, capitalization and amortization of development expenses, increased by 25% in 2020 compared to the previous year due to higher activities.

CONSOLIDATED STATEMENT OF PROFIT OR LOSS

(EUR thousand, except per share data)	Notes	Year ended December 31, 2019	2020
Revenue	21	1,283,860	1,328,122
Cost of sales	23	(645,396)	(704,553)
Gross profit		**638,464**	**623,569**
Operating expenses:			
Selling, general and administrative	23	(148,929)	(157,424)
Research and development	23	(110,846)	(139,002)
Total operating expenses		**(259,775)**	**(296,426)**
Result from operations		**378,689**	**327,143**
Finance income		1,639	141
Finance expense		(1,766)	(2,008)
Foreign currency exchange loss	17	(146)	(23,157)
Share in income of investments in associates	6	4,247	31,950
Result before income taxes		**382,663**	**334,069**
Income taxes	22	(53,650)	(48,673)
Net earnings from operations, attributable to common shareholders		**329,013**	**285,396**
Per share data	24		
Basic net earnings per share (EUR):			
From operations		**6.66**	**5.84**
Diluted net earnings per share (EUR):			
From operations		**6.58**	**5.78**
Weighted average number of shares (thousand):			
Basic		49,418	48,907
Diluted		49,999	49,359

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, 2019	2020
Net earnings from operations, attributable to common shareholders		**329,013**	**285,396**
Other comprehensive income, net of income tax			
Items that will not be reclassified subsequently to profit or loss:			
Remeasurement of defined benefit obligation	**13**	(103)	374
Share of other comprehensive income (loss) investments in associates	**6**	(3,991)	(2,296)
		(4,094)	**(1,922)**
Items that may be subsequently reclassified to profit or loss:			
Foreign currency translation effect		31,427	(98,833)
		31,427	**(98,833)**
Other comprehensive income for the year, net of income tax		**27,333**	**(100,755)**
Total comprehensive income, attributable to common shareholders	**12**	**356,346**	**184,641**

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, 2019	2020
Assets			
Right-of-use assets	2	27,547	23,387
Property, plant and equipment	3	164,863	213,967
Goodwill	4	11,270	11,270
Other intangible assets	5	189,224	209,924
Investments in associates	6	778,268	742,714
Deferred tax assets	22	3,064	196
Other non-current assets		7,780	6,590
Evaluation tools at customers	7	47,247	69,474
Employee benefits (pension assets)	13	579	1,431
Total non-current assets		**1,229,842**	**1,278,953**
Inventories	8	173,189	162,199
Accounts receivable	9	199,535	280,061
Income taxes receivable	22	1,220	553
Other current assets	10	73,479	72,945
Cash and cash equivalents	11	497,874	435,228
Total current assets		**945,297**	**950,986**
Total assets		**2,175,139**	**2,229,939**
Equity and liabilities			
Equity	12	**1,818,651**	**1,854,724**
Accrued expenses and other payables (lease liabilities)		15,774	13,045
Deferred tax liabilities	22	20,136	21,892
Total non-current liabilities		**35,910**	**34,937**
Accounts payable		119,712	124,507
Provision for warranty	14	16,424	18,987
Income taxes payable	22	34,599	67,857
Accrued expenses and other payables	15	149,843	128,927
Total current liabilities		**320,578**	**340,278**
Total liabilities		**356,488**	**375,215**
Total equity and liabilities		**2,175,139**	**2,229,939**

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, 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**
Net earnings		—	—	—	—	285,396	—	285,396
Other comprehensive income	12	—	—	—	—	—	(100,755)	(100,755)
Total comprehensive income		—	**—**	**—**	**—**	**285,396**	**(100,755)**	184,641
Dividend paid to common shareholders		—	—	—	—	(98,688)	—	(98,688)
Capital repayment		—	—	—	—	—	—	—
Compensation expense share-based payments	13	—	—	12,792	—	—	—	12,792
Exercise stock options out of treasury shares	13	127,324	—	(5,923)	8,697	—	—	2,774
Vesting restricted shares out of treasury shares	13	229,823	—	(16,043)	16,043	—	—	—
Purchase of common shares	12	(508,685)	—	—	(67,505)	—	—	(67,505)
Cancellation of common shares out of treasury shares	12	—	(60)	—	107,510	(107,450)	—	—
Other movements in investments in associates:								
Dilution	6	—	—	—	—	2,059	—	2,059
Balance as of December 31, 2020		**48,714,682**	**1,992**	**34,502**	**(104,962)**	**1,897,007**	**26,185**	**1,854,724**

[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	2019	2020
Cash flows from operating activities			
Net earnings from operations		329,013	285,396
Adjustments to reconcile net earnings to net cash from operating activities			
Depreciation, amortization and impairments	2,3,5,7	78,321	89,029
Share-based compensation	13	10,538	12,792
Non-cash costs		4,884	10,435
Non-cash interest		593	561
Share in income of investments in associates	6	(4,247)	(31,950)
Income tax	22	53,650	48,673
Changes in assets and liabilities			
Accounts receivable		(23,937)	(93,000)
Inventories		3,058	498
Evaluation tools	7	(13,670)	(39,710)
Other assets		(24,280)	2,379
Accounts payable and accrued expenses		81,134	(12,695)
Income tax paid		(6,186)	(8,055)
Net cash from operating activities		**488,871**	**264,353**
Cash flows from investing activities			
Capital expenditures	3	(48,707)	(95,441)
Proceeds from sale of property, plant and equipment	3	28	2,348
Capitalized development expenditure	5	(60,202)	(64,126)
Purchase of intangible assets	5	(2,320)	(3,230)
Dividend received from associates	6	31,960	16,142
Net cash used in investing activities		**(79,241)**	**(144,307)**
Cash flows from financing activities			
Payment of lease liabilities	2	(12,048)	(7,819)
Purchase of treasury shares ASMI	12	(99,929)	(66,715)
Proceeds from issuance of treasury shares	13	6,767	2,774
Dividends to common shareholders of ASMI		(99,298)	(98,688)
Capital repayment		(1,144)	—
Net cash used in financing activities		**(205,652)**	**(170,448)**
Foreign currency translation effect on cash and cash equivalents		**7,989**	**(12,244)**
Net increase / (decrease) in cash and cash equivalents		**211,967**	**(62,646)**
Cash and cash equivalents at beginning of year	11	285,907	497,874
Cash and cash equivalents at end of year	11	**497,874**	**435,228**

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, 2020 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 4, 2021 and will be submitted for adoption to the Annual General Meeting of Shareholders (AGM) on May 17, 2021.

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 2021 AGM.

FUNCTIONAL AND PRESENTATION CURRENCY

The consolidated financial statements are presented in Euros (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, 2020 is included in the following Notes:

- Notes 3, 5, 6 and 7 - Valuation of non-financial assets;
- Note 8 - Valuation of allowance for obsolescence inventories; and
- Note 22 - Valuation of deferred tax assets.

COVID-19

As the COVID-19 outbreak started to expand over the world in the first quarter of 2020, various countries took drastic measures like lockdowns and closure of borders. ASMI's operations were affected by this. It caused disruptions to our supply chain as borders were closed and goods and people could not move. The lockdowns resulted in lower capacity at our suppliers but also at our own operations in Singapore. Towards the end of the second quarter, the situation started to improve as lockdown measures and transport restrictions were gradually lifted in especially Asia Pacific and Europe. During 2020, the performance of the company was not materially impacted by COVID-19. Total revenue was 3% above the level of last year and excluding proceeds resulting from the patent litigation & arbitration settlements (€159 million) in 2019 the revenue increased with 18% compared to prior year.

Based on our impairments tests performed at year-end 2020, we concluded that even with a significant negative scenario, the recoverable amounts for our non-current assets exceeded the carrying amounts. Management has concluded that there are no material uncertainties related to events and conditions that may cast significant doubt on ASMI's ability to continue as a going concern.

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

Amendments to IFRS 3 ‘Definition of a Business', amendments to IFRS 9, IAS 39 and IFRS 7 ‘Interest Rate Benchmark Reform', amendments to IAS 1 and IAS 8 ‘Definition of Material' and ‘Amendments to References to the Conceptual Framework in IFRS Standards' are effective on January 1, 2020. These changes have been assessed for their potential impact and do not have a material effect on the company's consolidated financial statements.

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 euros at the exchange rates at the reporting date. The income and expenses of foreign operations are translated into euros 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 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.

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).

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 is 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 25.07% 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. In the development cycle, this is when the product is transferred from the validation (beta) phase 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 written technical acceptance and purchase order from the customer, the purchase consideration is recognized as revenue at a point in time 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 in inventories.

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 revenue 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. Depending on the contract, we obtain normally a right to payment for our equipment upon shipment and on completion of installation. Right to payment for our spares and services occurs upon shipment or completion of the service unless described otherwise.

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 depending on incoterms. The amount of revenue recognized is based on the amount of the transaction price that is allocated to the performance obligation. The total consideration of the contract is allocated between all distinct performance obligations in the contract based on their stand-alone selling prices. The stand-alone selling prices are mostly determined based on other stand-alone sales that are directly observable or based on the expected cost plus a margin approach. 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 depending on incoterms. 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 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 occur, 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. For the majority of support services transfer of control takes place over the period of support.

Cost of sales

Cost of sales comprises 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.

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 revenue, 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.

Leases

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

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.

The company has applied the exception 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.

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 and royalties.

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 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 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 related 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 dependent on the region and type of lease. The company has not entered into any sub-lease arrangements.

Right-of-use assets

(EUR thousand)	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**
Additions	3,100	1,359	–	4,459
Modifications and reassessments	551	(158)	(15)	378
Retirements	–	–	–	–
Depreciation for the year	(6,285)	(1,159)	(167)	(7,611)
Foreign currency translation effect	(1,337)	(36)	(13)	(1,386)
Balance December 31, 2020	**21,078**	**2,148**	**161**	**23,387**

Amounts recognized in profit or loss

(EUR thousand)	2019	2020
Leases under IFRS 16		
Interest on lease liabilities	586	561
Depreciation expenses	7,333	7,611
Expenses relating to short-term leases	329	254
Expenses relating to low-value leases	16	16
Total	**8,264**	**8,442**

Amounts recognized in statement of cash flows

(EUR thousand)	2019	2020
Total cash outflow for leases	12,048	7,819

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 and equipment	Furniture and fixtures and other equipment	Assets under construction	Total
At cost					
Balance January 1, 2019	**46,629**	**208,404**	**24,977**	**54,402**	**334,412**
Capital expenditures	492	2,667	1,126	44,422	**48,707**
Disposals	(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**
Capital expenditures	411	3,528	1,752	89,750	**95,441**
Disposals	(196)	(23,378)	(3,196)	–	**(26,770)**
Transfer from assets under construction	51,287	34,317	5,705	(91,309)	**–**
Transfer to intangible assets	–	–	(92)	–	**(92)**
Foreign currency translation effect	(4,173)	(14,352)	(1,359)	(3,943)	**(23,827)**
Balance December 31, 2020	**134,678**	**235,135**	**33,591**	**25,872**	**429,276**
Accumulated depreciation and impairment					
Balance January 1, 2019	**29,033**	**137,347**	**19,283**	**–**	**185,663**
Depreciation for the year	3,936	27,090	2,303	–	**33,329**
Impairment charges	–	–	–	–	**–**
Disposals	(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**
Depreciation for the year	4,406	25,647	2,974	–	**33,027**
Impairment charges	–	–	–	–	**–**
Disposals	(193)	(21,122)	(3,107)	–	**(24,422)**
Foreign currency translation effect	(1,974)	(10,056)	(927)	–	**(12,957)**
Balance December 31, 2020	**36,098**	**158,249**	**20,962**	**–**	**215,309**
Carrying amounts					
December 31, 2019	**53,490**	**71,240**	**8,759**	**31,374**	**164,863**
December 31, 2020	**98,580**	**76,886**	**12,629**	**25,872**	**213,967**
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,	
	2019	2020
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 12.6% (2019: 13.3%) 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. We expect the demand for these technologies to continue beyond a period of five years and therefore we have included perpetuity growth rates in our assumptions. Based on this analysis, management concluded that as per December 31, 2020 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, 2019	**231,944**	**31,144**	**8,915**	**272,003**
Additions	60,202	2,320	–	62,522
Disposals	–	–	–	–
Foreign currency translation effect	3,722	187	(31)	3,878
Balance December 31, 2019	**295,868**	**33,651**	**8,884**	**338,403**
Additions	64,126	3,230	–	67,356
Transfer from property, plant and equipment	–	92	–	92
Disposals	–	(3,459)	–	(3,459)
Foreign currency translation effect	(18,309)	(650)	(63)	(19,022)
Balance December 31, 2020	**341,685**	**32,864**	**8,821**	**383,370**
Accumulated amortization and impairment losses				
Balance January 1, 2019	**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**
Amortization for the year	21,187	3,863	285	25,335
Impairments	10,126	–	–	10,126
Disposals	–	(3,459)	–	(3,459)
Foreign currency translation effect	(7,319)	(353)	(63)	(7,735)
Balance December 31, 2020	**137,366**	**27,279**	**8,801**	**173,446**
Carrying amounts				
December 31, 2019	**182,496**	**6,423**	**305**	**189,224**
December 31, 2020	**204,319**	**5,585**	**20**	**209,924**

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 2019 and 2020 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
2021	21,318	2,174	10	23,502
2022	20,464	1,816	10	22,290
2023	18,008	1,595	–	19,603
2024	12,966	–	–	12,966
2025	4,942	–	–	4,942
Years thereafter	–	–	–	–
Amortization estimated	**77,698**	**5,585**	**20**	**83,303**
Amortization not yet started	126,621	–	–	126,621
Total carrying amounts	**204,319**	**5,585**	**20**	**209,924**

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**	**2019**	**2020**
Associates			
Levitech BV	Almere, the Netherlands	26.64%	**26.64%**
ASM Pacific Technology Ltd	Kwai Chung, Hong Kong, People's Republic of China	25.19%	**25.07%**

Levitech BV is valued at nil (2019: 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, 2019	**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**
Share in net earnings of investments in associates	44,813	–	–	**44,813**
Other comprehensive income of investments in associates	(2,296)	–	–	**(2,296)**
Amortization recognized (in)tangible assets	–	(12,863)	–	**(12,863)**
Dividends	(16,142)	–	–	**(16,142)**
Dilution ASMPT share to 25.07%	2,059	–	–	**2,059**
Foreign currency translation effect	(16,216)	(2,873)	(32,036)	**(51,125)**
Balance December 31, 2020	**347,088**	**30,016**	**365,610**	**742,714**

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, 2020 under equity accounting amounts to HK$68.60, whereas the level 1 fair value per share (being the market price of a share on the Hong Kong Stock Exchange) was HK$102.30 as per December 31, 2020. Management concluded that based on quantitative analysis no impairment of its share in ASMPT existed as per December 31, 2020.

In December 2020, 1,900,600 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 2020 have diluted ASMI's ownership in ASMPT to 25.07% as of December 31, 2020.

Per December 31, 2020, the book value of our equity method investment in ASMPT was €743 million. The historical cost basis of our 25.07% share of net assets on the books of ASMPT under IFRS was €347 million as of December 31, 2020, resulting in a basis difference of €396 million. €30 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 2020 was an after-tax expense of €13 million, representing the depreciation and amortization of the basis differences.

The market value of our 25.07% investment in ASMPT on December 31, 2020 approximates €1,108 million.

Summarized 100% earnings information for ASMPT equity method investment excluding basis adjustments (foreign currency exchange rate average 2020 1 HK$: €0.11272, for December 31, 2019: 1 HK$: €0.11387).

(HK$ million)	2019	2020
Net sales	15,883	**16,887**
Income before income tax	976	**1,857**
Net earnings	622	**1,631**
Other comprehensive income	(169)	**370**
Total comprehensive income	**453**	**2,001**

Summarized 100% statement of financial position information for ASMPT equity method investment excluding basis adjustments (foreign currency exchange rate per December 31, 2020, was 1 HK$: €0.10511 for December 31, 2019: 1 HK$: €0.11432).

	December 31,	
(HK$ million)	2019	2020
Current assets	13,381	**14,799**
Non-current assets	7,464	**8,365**
Current liabilities	4,432	**5,336**
Non-current liabilities	4,781	**4,634**
Total equity	11,632	**13,194**

Shareholder's equity of ASMPT per December 31, 2020 translated into euros at a rate of 0.10511 was €1,384 million (our 25.07% share: €347 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, 2019	December 31, 2020
At cost		
Balance at beginning of year	**63,851**	**73,637**
Evaluation tools shipped	30,567	**59,729**
Evaluation tools sold and returns	(22,327)	**(26,420)**
Foreign currency translation effect	1,546	**(6,172)**
Balance at end of year	**73,637**	**100,774**
Accumulated depreciation		
Balance at beginning of year	**19,217**	**26,390**
Depreciation for the year	12,117	**12,930**
Evaluation tools sold and returns	(5,431)	**(6,401)**
Foreign currency translation effect	487	**(1,619)**
Balance at end of year	**26,390**	**31,300**
Carrying amount at beginning of year	**44,634**	**47,247**
Carrying amount at end of year	**47,247**	**69,474**
Useful lives in years:		5

Evaluation tools enable ASM to win new business and expand ASMI's technological footprint by penetration at new customers and with new applications. The year-on-year increase in evaluation tools shipped to customer sites in 2020 is indicative of ASMI's market growth ambitions and is a key component in ASMI's growth strategy. The majority of evaluation tools shipped to customers result in the sale of the tool.

NOTE 8. INVENTORIES

Inventories consist of the following:

	December 31, 2019	December 31, 2020
Components and raw materials	111,609	**118,849**
Work in progress	53,673	**39,925**
Finished goods	20,434	**17,902**
Total inventories, gross	**185,716**	**176,676**
Allowance for obsolescence	(12,527)	**(14,477)**
Total inventories, net	**173,189**	**162,199**

The changes in the allowance for obsolescence are as follows:

	December 31, 2019	December 31, 2020
Balance at beginning of year	**(13,364)**	**(12,527)**
Charged to cost of sales	(4,748)	**(9,775)**
Reversals	915	**830**
Utilization of the provision	4,994	**6,200**
Foreign currency translation effect	(324)	**795**
Balance at end of year	**(12,527)**	**(14,477)**

On December 31, 2020, our allowance for inventory obsolescence amounted to €14,477, which is 8.2% of total inventory. The major part of the allowance is related to components and raw materials. The additions for the years 2019 and 2020 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 €554.8 million (2019: €510.2 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, 2019	December 31, 2020
Current	171,866	**249,032**
Overdue <30 days	19,977	**23,063**
Overdue 31-60 days	2,076	**4,283**
Overdue 61-120 days	1,599	**1,727**
Overdue >120 days	4,017	**1,956**
Total	**199,535**	**280,061**

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. COVID-19 did not have, and is not expected to have a significant impact on the customers in the industry (see also note 1 COVID-19 paragraph), and hence on the allowance for doubtful accounts.

The changes in the allowance for doubtful accounts receivable are as follows:

	December 31, 2019	December 31, 2020
Balance at beginning of year	**(155)**	**(278)**
Charged to selling, general and administrative expenses	(154)	**(83)**
Utilization of the provision	31	**–**
Foreign currency translation effect	–	**–**
Balance at end of year	**(278)**	**(361)**

Accounts receivable are impaired and provided for on an individual basis. As of December 31, 2020, accounts receivable of €31 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, 2019	December 31, 2020
Prepayments	14,795	**14,485**
VAT receivable	15,067	**12,818**
Amounts to be invoiced	37,679	**33,813**
Others	5,938	**11,829**
Total	**73,479**	**72,945**

Amounts to be invoiced mainly relates to accrued revenue, reference to note 21 contract balances.

NOTE 11. CASH AND CASH EQUIVALENTS

Cash and cash equivalents at December 31, 2020 include investments in money market funds that invest in debt securities of financial institutions that have good credit rating and governments of €9 million (2019: €10 million) and interest-bearing bank accounts of €426 million (2019: €484 million). At the end of 2020, no cash deposits with financial institutions were included in our cash position (2019: €4 million). Our cash and cash equivalents are predominantly denominated in US dollars, and partly in euros, Singapore dollars, Korean won, and Japanese yen.

Bank guarantees exist for an amount of €2.4 million at December 31, 2020 (€9.7 million as per December 31, 2019). 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 €4.1 million (2019: €5.8 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 the insignificance of the 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 18, 2020 approved the cancellation of 1,500,000 treasury shares and this cancellation became effective as per July 21, 2020.

As per December 31, 2020, 49,797,394 common shares with a nominal value of €0.04 each were issued and fully paid up, of which 1,082,712 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 48,714,682 outstanding common shares at December 31, 2020, 48,438,605 are registered with our transfer agent in the Netherlands, ABN AMRO Bank N.V., and 276,077 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, 2020, no preferred shares and no financing preferred shares are issued.

PURCHASES OF EQUITY SECURITIES BY THE ISSUER AND AFFILIATED PURCHASERS

On May 18, 2020, 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 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 2019-2020:			
November, 2019	**639,665**	€100.95	639,665
December, 2019	**313,237**	€101.67	952,902
January, 2020	**22,661**	€112.32	975,563
February, 2020	**8,716**	€118.61	984,279
Total	**984,279**	**€101.60**	

On February 25, 2020, ASMI announced a share buyback program to purchase up to an amount of €100 million of its own shares within the 2020-2021 time frame. The 2020-2021 program started on June 2, 2020.

Period	Total number of shares purchased	Average price paid per share (EUR)	Cumulative number of shares purchased
Share buyback program 2020:			
June, 2020	57,700	€119.16	57,700
July, 2020	21,648	€144.31	79,348
August, 2020	66,086	€127.15	145,434
September, 2020	140,736	€121.74	286,170
October, 2020	34,118	€130.83	320,288
November, 2020	102,020	€135.72	422,308
December, 2020	58,500	€169.64	480,808
Total	**480,808**	**€132.63**	

The following table shows the change in number of treasury shares and outstanding shares:

Number of shares	Treasury shares	Outstanding shares
Balance at beginning of year	**2,431,174**	**48,866,220**
Purchase common shares	508,685	(508,685)
Exercise stock options out of treasury shares	(127,324)	127,324
Vesting restricted shares out of treasury shares	(229,823)	229,823
Cancellation treasury shares	(1,500,000)	–
Balance at end of year	**1,082,712**	**48,714,682**

ASMI intends to use part of the shares for commitments under the employee share-based compensation schemes and the performance shares and 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, 2020, we had 48,714,682 outstanding common shares excluding 1,082,712 treasury shares. This compared to 48,866,220 outstanding common shares and 2,431,174 treasury shares at year-end 2019. Besides the cancellation of 1.5 million treasury shares in July 2020, the change in the number of treasury shares in 2020 was the result of 508,685 repurchased shares and 357,147 treasury shares that were used as part of share-based payments.

	2019	2020
As per January 1:		
Issued shares	56,297,394	51,297,394
Treasury shares	6,978,496	2,431,174
Outstanding shares	**49,318,898**	**48,866,220**
Changes during the year:		
Cancellation of treasury shares	5,000,000	1,500,000
Share buybacks	950,902	508,685
Treasury shares used for share-based performance programs	498,224	357,147
As per December 31:		
Issued shares	51,297,394	49,797,394
Treasury shares	2,431,174	1,082,712
Outstanding shares	**48,866,220**	**48,714,682**

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.

Over 2019, we paid in total a dividend of €3.00 per common share consisting of a regular dividend of €1.50 and an extraordinary dividend of €1.50. A final dividend of €2.00 (€0.50 regular and €1.50 extraordinary) was paid after the 2020 AGM in May 2020, and an interim dividend of €1.00 was paid in November 2019. We will propose to the forthcoming 2021 AGM to declare a regular dividend of €2.00 per share over 2020.

Results on dilution of investments in associates are accounted for directly in equity. For 2020 and 2019, these dilution results were €2,059 and €3,882, respectively.

OTHER RESERVES

The changes in the amounts 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, 2019	**(6,217)**	**(10)**	**105,834**	**99,607**
Proportionate share in 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**
Proportionate share in other comprehensive income investments in associates	(2,296)	–	–	**(2,296)**
Remeasurement on net defined benefit	–	374	–	**374**
Foreign currency translation effect on translation of foreign operations	–	–	(98,833)	**(98,833)**
Balance December 31, 2020	**(12,504)**	**261**	**38,428**	**26,185**

[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 142 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 ended on November 30, 2020, and there is no new collective bargaining agreement yet. This multi-employer union plan, accounted for as a defined contribution plan, covers approximately 1,390 companies and approximately 164,000 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, 2020, of 97.2% (December 31, 2019: 98.7%) 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 2020, the contribution percentage was 26.412%. 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, 2020. 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,	
	2019	2020
Defined benefit obligations	11,446	**11,083**
Fair value of plan assets	12,025	**12,514**
Net liability (asset) for defined benefit plans	**(579)**	**(1,431)**

The changes in defined benefit obligations and fair value of plan assets are as follows:

	December 31,	
	2019	2020
Defined benefit obligations		
Balance January 1	**10,502**	**11,446**
Current service cost	828	**928**
Interest on obligation	53	**28**
Remeasurement result	277	**(437)**
Benefits paid	(552)	**(470)**
Foreign currency translation effect	338	**(412)**
Balance December 31	**11,446**	**11,083**
Fair value of plan assets		
Balance January 1	**10,726**	**12,025**
Interest income	57	**31**
Return on plan assets	175	**61**
Company contribution	1,273	**1,333**
Benefits paid	(552)	**(470)**
Foreign currency translation effect	346	**(466)**
Balance December 31	**12,025**	**12,514**

The defined benefit cost consists of the following:

	December 31,	
	2019	2020
Current service cost	828	**928**
Net interest cost	(4)	**(3)**
Net defined benefit cost	**824**	**925**
Remeasurement on net defined benefit for the year	102	**(498)**
Remeasurement on net defined benefit	**102**	**(498)**
Total defined benefit cost	**926**	**427**

The assumptions in calculating the actuarial present value of benefit obligations and net periodic benefit cost are as follows:

	2019	2020
Discount rate for defined benefit obligations	0.25%	**0.50%**
Discount rate for defined benefit cost	0.50%	**0.25%**

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 concerning 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 -2.4% to 2.5%.

The allocation of plan assets is as follows:

	December 31,			
	2019		2020	
Cash and cash equivalent	147	1%	**191**	**2%**
Equity instruments	1,938	16%	**1,904**	**15%**
Debt instruments	1,279	11%	**1,276**	**10%**
Assets held by insurance company	8,661	72%	**9,143**	**73%**
Total	**12,025**	**100%**	**12,514**	**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 consist of government bonds and are valued at the closing prices in the active markets for identical assets (level 1). Assets held by the 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 €1,333 to the defined benefit plan in 2020 (€1,272 in 2019). The company expects to pay benefits for years subsequent to December 31, 2020 as follows:

	Expected contribution defined benefit plan
2021	**433**
2022	**806**
2023	**745**
2024	**507**
2025	**256**
Aggregate for the years 2026-2030	**5,366**
Total	**8,113**

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 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 18, 2020, 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 2021 AGM to allow the continued application of the long-term incentive (LTI) plans beyond November 18, 2021.

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 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 plan 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, 2019	**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**
Options forfeited	–	–
Options expired	–	–
Options exercised	(127,252)	21.79
Balance December 31, 2020	**–**	**–**

The total intrinsic value of options exercised was €2,774 for the year ended December 31, 2020 (2019: €6,767). In 2020, treasury shares have been sold for the exercise of 127,324 options.

On December 31, 2020, no options were outstanding or exercisable.

At December 31, 2020, the aggregate intrinsic value of all options outstanding and exercisable under these plans is €0 (2019: €12,744).

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, 2019	**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**		
Shares granted, employees	–	150,686	Unconditional	€105.37
Shares granted, Management Board	13,646	–	Conditional	€113.85
Shares granted, Management Board	5,446	–	Unconditional	€51.75
Shares vested	(58,835)	(170,988)		
Shares forfeited	–	(21,728)		
Balance December 31, 2020	**29,997**	**325,811**		

In 2020, treasury shares were sold for the vesting of 229,823 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 2020, no options were granted.

At December 31, 2020, the aggregate intrinsic value of all options outstanding under the 2014 long-term incentive plan is €25,512.

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 €12,792 for 2020 (2019: €10,538).

NOTE 14. PROVISION FOR WARRANTY

The changes in the amount of provision for warranty are as follows:

	December 31,	
	2019	2020
Balance January 1	**7,955**	**16,424**
Charged to cost of sales	26,301	**18,814**
Deductions	(12,232)	**(14,115)**
Releases of expired warranty	(5,684)	**(884)**
Foreign currency translation effect	84	**(1,252)**
Balance December 31	**16,424**	**18,987**

Provision is made for estimated warranty claims in respect of products sold which are still under warranty at the end of the reporting period. 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 revenue, and are updated periodically. Actual warranty costs are charged against the provision for warranty. The assumptions made in relation to the current period are consistent with those in the prior year. Factors that could impact the estimated claim information include the success of the group's productivity and quality initiatives, as well as parts and labor costs. The main part of the claims is expected to be settled in the next financial year.

NOTE 15. ACCRUED EXPENSES AND OTHER PAYABLES

Accrued expenses and other payables consist of the following:

	December 31,	
	2019	2020
Personnel-related items	45,318	**50,637**
Deferred revenue	32,146	**46,999**
Financing-related items	3,912	**991**
Current portion lease liabilities	7,002	**6,221**
Advanced payments from customers	47,601	**4,137**
Supplier-related items	2,175	**6,010**
Marketing-related items	1,365	**1,228**
R&D projects	1,109	**–**
Other	9,215	**12,704**
Total accrued expenses and other payables	**149,843**	**128,927**

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, 2020, 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, 2020. The amount outstanding as at December 31, 2020 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.

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.

The minimum level of consolidated tangible net worth for the year ended December 31, 2020 required was €450 million, the consolidated tangible net worth as per that date was €1,238 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, 2020, net cash was €435 million and total equity amounted to €1,855 million. The company is in compliance with these financial covenants as of December 31, 2020.

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,	
	2019	2020
Financial assets:		
Cash and cash equivalents	497,874	**435,228**
Accounts receivable	199,535	**280,061**
Financial liabilities:		
Accounts payable	119,712	**124,507**

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:

	2019	2020
Interest income	1,639	**141**
Interest expense	(1,766)	**(2,008)**
Result from foreign currency exchange	(146)	**(23,157)**
Addition to allowance for doubtful accounts receivable	(154)	**(83)**

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 may 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, 2019 and December 31, 2020, there were no forward exchange contracts outstanding.

The foreign currency exchange results reported in 2020 are mainly translation results related to movements in the US dollar. A substantial part of ASMI’s cash position is denominated in US dollar.

The following table analyzes the company’s exposure to currency risk in our major currencies.

	December 31,							
	2019				2020			
(thousand)	USD	JPY	KRW	SGD	USD	JPY	KRW	SGD
Accounts receivable	170,904	2,902,585	11,754,832	357	275,247	4,019,525	1,551,385	134
Cash and cash equivalents	412,773	3,034,840	15,868,137	45,262	306,855	2,142,789	35,060,828	42,710
Accounts payable	(62,962)	(3,347,833)	(13,215,657)	(27,801)	(72,087)	(3,486,230)	(16,031,125)	(28,875)
Total	**520,715**	**2,589,592**	**14,407,312**	**17,818**	**510,015**	**2,676,084**	**20,581,088**	**13,969**

The following table analyzes the company's sensitivity to a hypothetical 10% strengthening and 10% weakening of the US dollar, Singapore dollar, Korean won and Japanese yen against the euro as of December 31, 2019 and December 31, 2020. 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)	2019	2020
10% increase of US dollar versus euro	46,351	**41,563**
10% decrease of US dollar versus euro	(46,351)	**(41,563)**
10% increase of Singapore dollar versus euro	1,179	**861**
10% decrease of Singapore dollar versus euro	(1,179)	**(861)**
10% increase of Korean won versus euro	1,109	**1,544**
10% decrease of Korean won versus euro	(1,109)	**(1,544)**
10% increase of Japanese yen versus euro	2,123	**2,117**
10% decrease of Japanese yen versus euro	(2,123)	**(2,117)**

A hypothetical 10% strengthening or 10% weakening of any other currency against the euro as of December 31, 2019 and December 31, 2020 could have a material impact on net earnings for certain currencies.

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, 2020, 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 85.1% of net revenue in 2020 (2019: 82.2%). The three largest customers accounted for approximately 59.1% of net revenue in 2020 (2019: 61.6% excluding the proceeds of the patent litigation and arbitration settlement). In 2020, we had three customers (2019: three customers) who contributed more than 10% of total net revenue. Revenue 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 counterparty.

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 ongoing operations of the business, and others that relate to the uncertainties of the global economy and the semiconductor industry. Although our cash requirements fluctuate based on the timing and extent of these factors, we believe that cash generated from operations, together with our principal sources of liquidity, are sufficient to satisfy our current requirements, including our expected capital expenditures in 2021.

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, 2020.

	Total	Less than 1 year	1-5 years	More than 5 years
Accounts payable	**124,507**	124,507	–	–
Income tax payable	**67,857**	67,857	–	–
Accrued expenses and other payables	**122,706**	122,706	–	–
Lease liabilities	**21,136**	6,186	10,224	4,726
Pension liabilities	**8,113**	433	2,314	5,366
Purchase obligations:				
Purchase commitments to suppliers	**186,119**	183,949	2,170	–
Capital expenditure and other commitments	**11,063**	10,495	568	–
Total contractual obligations	**541,501**	**516,133**	**15,276**	**10,092**

Total short-term lines of credit amounted to €150 million at December 31, 2020. The amount outstanding at December 31, 2020 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 25.07% 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, 2020 under equity accounting amounts to HK$68.60, whereas the level 1 fair value per share (being the market price of a share on the Hong Kong Stock Exchange) was HK$102.30. Management concluded that, based on quantitative analysis, no impairment of its share in ASMPT existed as per December 31, 2020.

NOTE 18. COMMITMENTS AND CONTINGENCIES

Per December 31, 2020, the company entered into purchase commitments with suppliers in the amount of €183,949 for purchases within the next 12 months and €2,170 after 12 months. Commitments for capital expenditures and other commitments per December 31, 2020 were €10,495 within the next 12 months and €568 after 12 months.

NOTE 19. LITIGATION

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, 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), who 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 25.07% 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 is on an equity method investment basis. The total of all segments' financial amounts is reconciled to the corresponding amounts reported in the consolidated financial statements, eliminations being reflected in the reconciling column for amounts reported in excess of those amounts reflected in the consolidated financial statements.

	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.

	Year ended December 31, 2020			
	Front-end	Back-end 100%	Deconsoli-dated	Total
Revenue	1,328,122	1,903,447	(1,903,447)	**1,328,122**
Gross profit	623,569	617,869	(617,869)	**623,569**
Result from operations	327,143	235,501	(235,501)	**327,143**
Interest income	141	2,220	(2,220)	**141**
Interest expense	(2,008)	(19,163)	19,163	**(2,008)**
Foreign currency exchange gains (losses), net	(23,157)	(9,297)	9,297	**(23,157)**
Result on investments in associates	–	–	31,950	**31,950**
Income tax expense	(48,673)	(25,479)	25,479	**(48,673)**
Net earnings	253,446	183,782	(151,832)	**285,396**
Cash flows from operating activities	264,353	301,737	(301,737)	**264,353**
Cash flows from investing activities	(160,449)	35,149	(19,007)	**(144,307)**
Cash flows from financing activities	(170,448)	(109,260)	109,260	**(170,448)**
Cash and cash equivalents	435,228	467,781	(467,781)	**435,228**
Goodwill	11,270	121,821	(121,821)	**11,270**
Other intangible assets	209,924	119,762	(119,762)	**209,924**
Investments in associates	–	–	742,714	**742,714**
Other identifiable assets	830,803	1,725,311	(1,725,311)	**830,803**
Total assets	1,487,225	2,434,675	(1,691,961)	**2,229,939**
Total debt	–	513,938	(513,938)	**–**
Headcount [1]	2,583	9,600	(9,600)	**2,583**

[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 with 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,			
	2019		2020	
(EUR thousand)	Revenue	Property, plant and equipment	Revenue	Property, plant and equipment
United States	339,463	52,453	332,981	63,364
Europe	126,203	10,516	141,300	13,555
Asia	818,194	101,894	853,841	137,048
Total	**1,283,860**	**164,863**	**1,328,122**	**213,967**

NOTE 21. REVENUE

Geographical information is summarized as follows:

	Year ended December 31,	
	2019	2020
(EUR thousand)	Revenue	Revenue
United States	339,463	332,981
Europe	126,203	141,300
Asia	818,194	853,841
Total	**1,283,860**	**1,328,122**

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 & services. The products and services described by nature in Note 1, can be part of all revenue streams.

	Year ended December 31,	
(EUR thousand)	2019	2020
Equipment revenue	1,068,645	1,051,463
Spares & services revenue	215,215	276,659
Total	**1,283,860**	**1,328,122**

The proceeds resulting from the patent litigation & arbitration settlements (€159 million) in 2019 are included in the equipment revenue stream. We refer to our Annual Report of 2019 especially Note 19. Litigation.

Total revenue increased by 18%, excluding the settlement proceeds in 2019, driven by solid increases in our ALD business and our spares & services revenue.

Contract balances

	2019	2020
Accrued revenue	28,184	33,813
Deferred revenue	32,146	46,999

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 is transferred to accounts receivables when the rights become unconditional. This usually occurs when the company issues an invoice to the customer.
Deferred revenue relates 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. An amount of €23 million included in the deferred revenue at December 31, 2019, has been recognized in 2020.

NOTE 22. INCOME TAXES

Amounts recognized in profit or loss

The components of the result before income taxes consist of:

	Year ended December 31, 2019	Year ended December 31, 2020
The Netherlands	261,942	**212,795**
Other countries	120,721	**121,274**
Result before income taxes	**382,663**	**334,069**

The income tax expense consists of:

	Year ended December 31, 2019	Year ended December 31, 2020
Current:		
The Netherlands	(28,409)	**(25,462)**
Other countries	(9,011)	**(17,754)**
	(37,420)	**(43,216)**
Deferred:		
The Netherlands	(6,860)	**(3,348)**
Other countries	(9,370)	**(2,109)**
Income tax expense	**(53,650)**	**(48,673)**

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, 2019		2020	
Result before income taxes from continuing operations	**382,663**	**100.0%**	**334,069**	**100.0%**
Income tax provision based on Dutch statutory income tax rate	(95,666)	25.0%	**(83,517)**	**25.0%**
Non-deductible expenses	(1,527)	0.4%	**(1,892)**	**0.6%**
Foreign taxes at a rate other than the Dutch statutory rate	5,365	(1.4%)	**5,575**	**(1.7%)**
Recognition of net operating losses	–	–	**–**	**–**
Utilization of net operating losses, previously not recognized	22,569	(5.9%)	**–**	**–**
Tax incentives and non-taxable income [1]	21,626	(5.7%)	**24,961**	**(7.5%)**
Adjustments in respect of prior years' current taxes	(307)	0.1%	**4,525**	**(1.4%)**
Other [2]	(5,710)	1.5%	**1,675**	**(0.5%)**
Tax income / (expense)	**(53,650)**	**14.0%**	**(48,673)**	**14.6%**

[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.

The Dutch statutory tax rate is 25%. Taxation for other jurisdictions is calculated at the rates prevailing in the relevant jurisdictions. During 2020, there was no significant change in the statutory tax rates of 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, 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)**

	Net balance at January 1, 2020	Consolidated statement of profit and loss	Equity	Exchange differences	Net balance at December 31, 2020	Deferred tax assets at December 31, 2020	Deferred tax liabilities at December 31, 2020
Right-of-use assets & lease liabilities	45	51	–	(5)	91	–	91
Property plant and equipment	771	(146)	–	(72)	553	–	553
Other intangible assets	(36,920)	(8,065)	–	2,358	(42,627)	–	(42,627)
Evaluation tools	2,993	2,343	–	(136)	5,200	–	5,200
Employee benefits	(320)	(131)	(112)	14	(549)	–	(549)
Inventories	1,143	(61)	–	(81)	1,001	134	867
Provision for warranty	3,235	830	–	(231)	3,834	–	3,834
Accrued expenses	1,290	2,012	–	(54)	3,248	62	3,186
Tax losses carried forward	–	–	–	–	–	–	–
R&D tax credits	10,691	(2,290)	–	(848)	7,553	–	7,553
Total deferred tax	**(17,072)**	**(5,457)**	**(112)**	**945**	**(21,696)**	**196**	**(21,892)**

Deferred tax assets and/or liabilities for temporary differences are recognized in the Netherlands, United States, Japan, South Korea and Singapore. ASMI and its individual subsidiaries fully utilized the net operating losses during 2019.

Unrecognized deferred tax assets

The credits concern 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 possible 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.

	2020	
	Gross amount	Tax effect
Credits	13,644	13,644
Unrecognized deferred tax assets	**13,644**	**13,644**

Summary of open tax years

A summary of open tax years by major jurisdiction is as follows:

Jurisdiction	
Japan	2015 - 2020
The Netherlands	2014 - 2020
Singapore	2015 - 2020
United States of America	2001 - 2020
South Korea	2015 - 2020

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, 2020, the undistributed earnings of subsidiaries, subject to withholding taxes, were approximately €85,604. 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,	
	2019	2020
Materials and supplies	510,211	**554,829**
Personnel expenses	227,727	**255,814**
Depreciation and amortization	73,566	**78,903**
Impairments	4,755	**10,126**
Other personnel-related expenses	53,128	**51,661**
Professional fees	25,443	**24,397**
Other	10,341	**25,249**
Total cost of sales, selling, general and administrative and research and development expenses	**905,171**	**1,000,979**

Research and development consists of the following:

	Year ended December 31,	
	2019	2020
Research and development expenses	150,745	**171,842**
Capitalization of development expenses	(60,202)	**(64,126)**
Amortization of capitalized development expenses	15,597	**21,187**
Research and development grants and credits	(49)	**(27)**
Total research and development expenses	**106,091**	**128,876**
Impairment of research and development related assets	4,755	**10,126**
Total	**110,846**	**139,002**

The impairment expenses in 2019 and 2020 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, 2019	December 31, 2020
Wages and salaries	191,459	**216,832**
Social security	17,214	**17,200**
Pension expenses	8,408	**8,948**
Share-based payment expenses	10,538	**12,792**
Restructuring expenses	108	**42**
Total	**227,727**	**255,814**

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:

Geographical location	December 31, 2019	December 31, 2020
Europe:		
- the Netherlands	145	**146**
- EMEA	203	**221**
United States	639	**714**
Japan	271	**283**
South Korea	280	**302**
Singapore	474	**524**
Asia, other	325	**393**
Total	**2,337**	**2,583**

The number of employees, exclusive of temporary workers, by function at year-end was as follows:

Per function	December 31, 2019	December 31, 2020
Research and development	612	**613**
Manufacturing	484	**531**
Marketing and sales	275	**341**
Customer service	779	**884**
Corporate and support functions	187	**214**
Total	**2,337**	**2,583**

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, 2019	December 31, 2020
Net earnings used for purposes of calculating net income per common share		
Net earnings from operations	**329,013**	**285,396**
Basic weighted average number of shares outstanding during the year	49,418	**48,907**
Effect of dilutive potential common shares from stock options and restricted shares	580	**452**
Dilutive weighted average number of shares outstanding	**49,999**	**49,359**
Basic net earnings per share:		
from operations	6.66	**5.84**
Diluted net earnings per share:		
from operations	6.58	**5.78**

NOTE 25. BOARD REMUNERATION

During 2020, 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 2020 amounts to €7,181 (2019: €4,663). ASMI does not provide any loans, deposits or related guarantees to the members of the Management Board or the Supervisory Board.

MANAGEMENT BOARD

The remuneration of members of the Management Board has been determined by the Supervisory Board according to the following table that sets out 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. The remuneration of the Management Board consists of the remuneration of current and former managing directors.

	December 31,	
	2019	2020
Short-term employee benefits	2,864	2,410
Post-employment benefits	215	216
Other long-term benefits	–	–
Termination benefits	–	–
Share-based payment [1]	1,268	1,804
Total Management Board remuneration before additional payroll tax	**4,347**	**4,430**
Other [2]	–	2,400
Total Management Board remuneration	**4,347**	**6,830**

1 The amounts included for share-based payment in the total remuneration represent the vesting expenses related to the financial year.
2 Represents an additional payroll tax to the company due to vesting of already granted shares in previous years related to the retirement of a member of the Management Board subject to article 32bb of the Dutch Wage Tax Act.

SUPERVISORY BOARD

The total 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 in 2020 amounts to €351 (2019: €316). 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, 2019		December 31, 2020	
	Shares owned	Percentage of common shares outstanding	Shares owned	Percentage of common shares outstanding
C.D. del Prado (member of the Management Board) [1]	827,696	1.69%	–	–
P.A.M. van Bommel (member of the Management Board)	22,137	0.05%	26,177	0.05%
M.J.C. de Jong (member of the Supervisory Board)	4,050	0.01%	4,050	0.01%

1 This information is not disclosed for 2020 as Mr. del Prado had stepped down from the ASMI Board on May 18, 2020.

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 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 2020 and 2019. 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 2020 and 2019. The fees mentioned in the table for the audit of the financial statements 2020 (2019) relate to the total fees for the audit of the financial statements 2020 (2019), irrespective of whether the activities were performed during the financial year 2020 (2019). 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.

	2019			2020		
	KPMG Accountants NV	KPMG network	KPMG Total	KPMG Accountants NV	KPMG network	KPMG Total
Audit fees	489	211	700	623	245	868
Audit-related fees	–	–	–	–	–	–
Tax fees	–	–	–	–	–	–
Other fees	–	–	–	–	–	–
Total	**489**	**211**	**700**	**623**	**245**	**868**

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 2020 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.

		% Ownership December 31,	
Name	LOCATION	2019	2020
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, Israel	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 [3]	Kwai Chung, Hong Kong, People's Republic of China	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 25.07% of the shares in ASM Pacific Technology Ltd.
3 ASM Wafer Process Equipment Ltd was liquidated on October 9, 2020.

NOTE 29. SUBSEQUENT EVENTS

Subsequent events were evaluated up to March 4, 2021, which is the issuance date of this Annual Report 2020. There are no subsequent events to report.

SIGNING

Almere, the Netherlands
March 4, 2021

SUPERVISORY BOARD

J.C. Lobbezoo
M.C.J. van Pernis
M.J.C. de Jong
S. Kahle-Galonske
D.R. Lamouche
M. de Virgiliis

MANAGEMENT BOARD

G.L. Loh
P.A.M. van Bommel

COMPANY BALANCE SHEET (before proposed appropriation of net earnings for the year)

(EUR thousand)	Notes	December 31, 2019	December 31, 2020
Non-current assets			
Right-of-use assets		170	172
Property, plant and equipment		250	148
Goodwill	2	11,270	11,270
Other intangible assets		3,691	197
Investments in subsidiaries	3	1,662,442	1,831,446
Loans to subsidiaries	3	45,377	39,689
Other non-current assets		6,354	6,166
Deferred tax assets		5,709	—
Total non-current assets		**1,735,263**	**1,889,088**
Current assets			
Loans to subsidiaries	3	2,123	2,071
Amounts due from subsidiaries	6	73,098	71,562
Other current assets		526	685
Cash and cash equivalents	4	21,192	—
Total current assets		**96,939**	**74,318**
Total assets		**1,832,202**	**1,963,406**
Equity			
Common shares		2,052	1,992
Capital in excess of par value		43,676	34,502
Treasury shares		(169,707)	(104,962)
Legal reserves			
Translation reserve		126,940	26,185
Other legal reserves		932,105	908,910
Accumulated net earnings		554,572	702,701
Net earnings current year		329,013	285,396
Total equity	5	**1,818,651**	**1,854,724**
Non-current liabilities			
Accrued expenses and other payables		52	69
Total non-current liabilities		**52**	**69**
Current liabilities			
Accounts payable		428	295
Amounts due to subsidiaries	6	4,034	49,950
Income tax payable	7	—	52,714
Accrued expenses and other payables		9,037	5,654
Total current liabilities		**13,499**	**108,613**
Total liabilities		**13,551**	**108,682**
Total equity and liabilities		**1,832,202**	**1,963,406**

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	2019	2020
Operating expenses:			
Selling, general and administrative		(33,361)	(26,408)
Research and development		(2,122)	(4,074)
Total operating expenses	**8**	**(35,483)**	**(30,482)**
Result from operations		**(35,483)**	**(30,482)**
Finance income		4,964	2,576
Finance expense		(1,405)	(1,211)
Foreign currency exchange gain		6,874	34,975
Result before income taxes		**(25,050)**	**5,858**
Income taxes		(5,400)	(2,325)
Net earnings from holding activities		**(30,450)**	**3,533**
Net earnings from subsidiaries and associates		359,463	281,863
Total net earnings		**329,013**	**285,396**

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 euros 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, which 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.

Corporate income tax

The company is the head of the Dutch fiscal unity. The company recognizes the portion of corporate income tax that it would owe as an independent taxpayer, taking into account the allocation of the advantages of the fiscal unity.

Settlement within the fiscal unity between the company and its subsidiaries takes place through current account positions.

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. GOODWILL

Reference is made to Note 4 of the consolidated financial statements.

NOTE 3. INVESTMENTS AND LOANS TO SUBSIDIARIES

	Investments in subsidiaries	Loans to subsidiaries	Total
Balance January 1, 2019	**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)**
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**
Net result of subsidiaries and associates	281,863	–	**281,863**
Other comprehensive income investments	(1,922)	–	**(1,922)**
Dividend received	(16,961)	–	**(16,961)**
Repayment of loans	–	(2,071)	**(2,071)**
Dilution	2,059	–	**2,059**
Foreign currency translation effect	(96,035)	(3,669)	**(99,704)**
Balance December 31, 2020	**1,831,446**	**41,760**	**1,873,206**

	December 31,	
	2019	2020
Loans due from subsidiaries – non-current portion	45,377	**39,689**
Loans due from subsidiaries – current portion	2,123	**2,071**
Total	**47,500**	**41,760**

The interest on the loans due from subsidiaries is based on the Bank of America's prime rate plus two percent points. The repayment schedule of the loan is as follows: 24 annual installments of US$2 million, started December 31, 2018, followed by a final installment of US$5.3 million on December 31, 2043.

NOTE 4. 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. At 31 December 2020, the cash pool and in-house bank arrangement resulted in a liability which is recorded in amounts due to subsidiaries.

NOTE 5. 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, 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**
Appropriation of net earnings	–	–	–	329,013	(329,013)	–	–	**–**
Components of comprehensive income:								
Net earnings	–	–	–	–	285,396	–	–	**285,396**
Other comprehensive income	–	–	–	–	–	(100,755)	–	**(100,755)**
Total comprehensive income (loss)	**–**	**–**	**–**	**–**	**285,396**	**(100,755)**	**–**	**184,641**
Dividend paid to common shareholders	–	–	–	(98,688)	–	–	–	**(98,688)**
Capital repayment	–	–	–	–	–	–	–	**–**
Compensation expense share-based payments	–	12,792	–	–	–	–	–	**12,792**
Exercise stock options out of treasury shares	–	(5,923)	8,697	–	–	–	–	**2,774**
Vesting restricted shares out of treasury shares	–	(16,043)	16,043	–	–	–	–	**–**
Purchase of common shares	–	–	(67,505)	–	–	–	–	**(67,505)**
Cancellation of common shares out of treasury shares	(60)	–	107,510	(107,450)	–	–	–	**–**
Change in retained earnings subsidiaries	–	–	–	(2,733)	–	–	2,733	**–**
Fair value accounting investments	–	–	–	47,772	–	–	(47,772)	**–**
Capitalized development expenses subsidiaries	–	–	–	(21,844)	–	–	21,844	**–**
Other movements in investments in associates:								
Dilution	–	–	–	2,059	–	–	–	**2,059**
Balance as of December 31, 2020	**1,992**	**34,502**	**(104,962)**	**702,701**	**285,396**	**26,185**	**908,910**	**1,854,724**

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 18, 2020, approved the cancellation of 1.5 million treasury shares. This became effective as per July 21, 2020.

As per December 31, 2020 49,797,394 common shares with a nominal value of €0.04 each were issued and fully paid up, of which 1,082,712 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 48,714,682 outstanding common shares at December 31, 2020, 48,438,605 are registered with our transfer agent in the Netherlands, ABN AMRO Bank N.V., and 276,077 are registered with our transfer agent in the United States, Citibank, NA, New York.

As at December 31, 2020, 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 €704,570 (2019: €749,609), 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 distributed 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 €204,340 (2019: €182,496) has been recognized for capitalized development costs.

Changes in other legal reserves in 2019 and 2020 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, 2019	**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**
Retained earnings subsidiaries and investments	2,733	–	**2,733**
Fair value accounting investments	(47,772)	–	**(47,772)**
Development expenditures	–	21,844	**21,844**
Balance as of December 31, 2020	**704,570**	**204,340**	**908,910**

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 2020 are carried to the accumulated net earnings.

NOTE 6. AMOUNTS DUE FROM / TO SUBSIDIARIES

The amounts due from subsidiaries are mainly related to the settlement of the income tax of the Dutch fiscal unity.

The amounts due to subsidiaries are mainly related to the cash pool and in-house bank operated by the company.

NOTE 7. INCOME TAX PAYABLE

The income tax payable reflects the amount due by the Dutch fiscal unity regarding the provisional tax assessments for the years 2020 and 2019 as the company is severally liable for the tax payables of the Dutch fiscal unity.

NOTE 8. EXPENSES BY NATURE

Expenses by nature were as follows:

	Year ended December 31,	
	2019	2020
Salaries and wages	7,515	8,903
Depreciation and amortization	4,918	3,736
Other personnel-related expenses	5,195	6,011
Professional fees	14,835	8,247
Other	3,020	3,585
Total operating expenses	**35,483**	**30,482**

NOTE 9. PERSONNEL EXPENSES

The average number of employees of ASMI during 2020 was 24 (2019: 22). All employees have corporate and support functions and were based in the Netherlands.

	Year ended December 31,	
	2019	2020
Salaries	6,616	7,943
Social security charges	290	294
Pension expenses	609	666
Total	**7,515**	**8,903**

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 10. 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. These Dutch subsidiaries are disclosed in Note 28 of the consolidated financial statements.

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).

For VAT purposes in the Netherlands ASMI forms a fiscal unity together with ASM Europe BV and ASM IP Holding BV.

NOTE 11. 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 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. SUBSEQUENT EVENTS

Subsequent events were evaluated up to March 4, 2021, which is the issuance date of this Annual Report 2020. There are no subsequent events to report.

SIGNING

Almere, the Netherlands
March 4, 2021

SUPERVISORY BOARD

J.C. Lobbezoo
M.C.J. van Pernis
M.J.C. de Jong
S. Kahle-Galonske
D.R. Lamouche
M. de Virgiliis

MANAGEMENT BOARD

G.L. Loh
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 2020 included in the Annual Report

Our opinion

In our opinion:

- The accompanying consolidated financial statements give a true and fair view of the financial position of ASM International N.V. as at December 31, 2020 and of its result and its cash flows for the year then ended, in accordance with International Financial Reporting Standards as adopted by the European Union (EU-IFRS) and with Part 9 of Book 2 of the Dutch Civil Code; and
- The accompanying company financial statements give a true and fair view of the financial position of ASM International N.V. as at December 31, 2020 and of its result for the year then ended in accordance with Part 9 of Book 2 of the Dutch Civil Code.

What we have audited

We have audited the financial statements 2020 of ASM International N.V. (the company) based in Almere, The Netherlands. The financial statements include the consolidated financial statements and the company financial statements.

The consolidated financial statements comprise:

1. The consolidated statement of financial position as at December 31, 2020;
2. The following consolidated statements for 2020: the statement of profit or loss, the statements of comprehensive income, changes in equity and cash flows; and
3. The notes comprising a summary of the significant accounting policies and other explanatory information.

The company financial statements comprise:

1. The company balance sheet as at December 31, 2020;
2. The company statement of profit or loss for 2020; and
3. The notes comprising a summary of the accounting policies and other explanatory information.

Basis for our opinion

We conducted our audit in accordance with Dutch law, including the Dutch Standards on Auditing. Our responsibilities under those standards are further described in the 'Our responsibilities for the audit of the financial statements' section of our report.

We are independent of ASM International N.V. in accordance with the 'Verordening inzake de onafhankelijkheid van accountants bij assurance-opdrachten' (ViO, Code of Ethics for Professional Accountants, a regulation with respect to independence) and other relevant independence regulations in the Netherlands. Furthermore, we have complied with the 'Verordening gedrags- en beroepsregels accountants' (VGBA, Dutch Code of Ethics).

We believe the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Audit approach

Summary

Materiality
Materiality of EUR 15 million 4.5% of result before income taxes
Group audit
97% of total assets 93% of revenue
Key audit matters
Revenue recognition 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 15 million which represents 4.5% of result before income taxes (2019: EUR 10 million which represents 4.5% of prior year result before income taxes adjusted for non-recurring gain resulting from the Kokusai Settlements). The materiality is determined with reference to result before income taxes. The increase of the materiality is primarily the result of increased business operations and profitability. We consider result before income taxes as the most appropriate benchmark because the company is a profit oriented company and the key users of the financial statements are primarily 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 750,000 and classification misstatements in excess of EUR 3,750,000 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

ASM International N.V. is at the head of a group of components. The financial information of this group is included in the financial statements of ASM International N.V.

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 have:

- Selected components for which an audit of the complete reporting package is performed and components for which an audit of specific items is performed. Furthermore, we have determined the nature and extent of the audit procedures that we perform at the group level and at the company's Shared Service Center ("SSC");
- Performed procedures that cover the significant operations in Japan, Korea, the Netherlands, Singapore and the United States of America, all mainly through our audit procedures at the SSC, supplemented with local audits by KPMG member firms of specific items. In addition, we have made use of the work of non-KPMG member firm auditors of ASM Pacific Technology Ltd. ("ASMPT") as part of our procedures that cover the (results from) investments in associates. The remaining balances are covered by additional procedures at group level; and
- Sent detailed instructions to all component auditors, including 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 performed file reviews of components ASMPT (Hong Kong) and ASM Front-End Manufacturing Singapore Pte. Ltd. (Singapore) 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.

In view of restrictions on the movement of people across borders, and also within significantly affected countries, we considered changes to the planned audit approach to evaluate the component auditors' communications and the adequacy of their work. According to our original audit plan, we intended to visit the components in Hong Kong and Singapore to review selected component auditor documentation. Due to the aforementioned restrictions, this was not practicable in the current environment. As a result, we have requested those component auditors to provide us with access to audit workpapers to perform these evaluations, subject to local law and regulations. In addition, due to the inability to arrange in-person meetings with such component auditors, we have increased the use of alternative methods of communication with them, including through written instructions, exchange of emails and virtual meetings.

By performing the procedures mentioned above at 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.

For the residual population not in scope we performed analytical procedures in order to corroborate that our scoping remained appropriate throughout the audit.

Our procedures as described above can be summarized as follows:

Total assets

79%	18%	3%
Audit of the complete reporting package	Audit of specific items	Covered by additional procedures at group level

Revenue

86%	7%	7%
Audit of the complete reporting package	Audit of specific items	Covered by additional procedures at group level

Our focus on the risk of fraud and non-compliance with laws and regulations

Our objectives

The objectives of our audit with respect to fraud and non-compliance with laws and regulations are:
With respect to fraud:

- To identify and assess the risks of material misstatement of the financial statements due to fraud;
- To obtain sufficient appropriate audit evidence regarding the assessed risks of material misstatement due to fraud, through designing and implementing appropriate audit responses; and
- To respond appropriately to fraud or suspected fraud identified during the audit.

With respect to non-compliance with laws and regulations:

- To identify and assess the risk of material misstatement of the financial statements due to non-compliance with laws and regulations; and
- To obtain a high (but not absolute) level of assurance that the financial statements, taken as a whole, are free from material misstatement, whether due to fraud or error when considering the applicable legal and regulatory framework.

The primary responsibility for the prevention and detection of fraud and non-compliance with laws and regulations lies with the Management Board, with oversight by the Supervisory Board. We refer to chapter Governance of the Annual Report where the Management Board included its risk assessment and where the Supervisory Board reflects on this assessment.

Our risk assessment

As part of our process of identifying fraud risks, we evaluated fraud risk factors with respect to financial reporting fraud, misappropriation of assets and bribery and corruption. We, together with our forensics specialists, evaluated the fraud risk factors to consider whether those factors indicated a risk of material misstatement due to fraud.

In addition, we performed procedures to obtain an understanding of the legal and regulatory frameworks that are applicable to the company and we inquired the Management Board as to whether the entity is in compliance with such laws and regulations and inspected correspondence, if any, with relevant licensing and regulatory authorities.

The potential effect of the identified laws and regulations on the financial statements varies considerably.

Firstly, the company is subject to laws and regulations that directly affect the financial statements, including taxation and financial reporting (including related company legislation). We assessed the extent of compliance with these laws and regulations as part of our procedures on the related financial statement items and therefore no additional audit response is necessary.

Secondly, the company is subject to many other laws and regulations where the consequences of non-compliance could have an indirect material effect on amounts recognized or disclosures provided in the financial statements, or both, for instance through the imposition of fines or litigation. We identified the following areas as those most likely to have such an indirect effect:

- Trade sanctions and export controls laws and regulations (reflecting the company's exposure to international trading restrictions); and
- Anti-bribery and corruption laws and regulations (reflecting the company's significant and geographically diverse operations).

To obtain a detailed understanding of the risk of non-compliance related to trade sanctions and export controls we have performed certain risk assessment procedures.

In accordance with the auditing standard we evaluated the following fraud and non-compliance risks that are relevant to our audit, including the relevant presumed risks:

- Revenue recognition, in relation to completeness of equipment sales in the cut-off period of the financial year (a presumed risk); and
- Management override of controls (a presumed risk).

We communicated the identified risks of fraud throughout our team and remained alert to any indications of fraud and/or non-compliance throughout the audit. This included communication from the group to component audit teams of relevant risks of fraud and/or non-compliance with laws and regulations identified at group level. 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 response to the risks identified

We performed the following audit procedures (not limited) to respond to the assessed risks:

- We evaluated the design and the implementation of internal controls that mitigate fraud risks. In case of internal control deficiencies, where we considered there would be opportunity for fraud, we performed supplemental detailed risk-based testing;
- We performed data analysis of high-risk journal entries and investigated journal entries debiting revenue with an unexpected associated credit. Where we identified instances of unexpected journal entries or other risks through our data analytics, we performed additional audit procedures to address each identified risk. These procedures also included testing of transactions back to source information;
- Assessment of matters reported on the company's incident register/whistleblowing and complaints procedures with the entity and results of management's investigation of such matters;
- With respect to the risk of fraud in revenue recognition we refer to the key audit matter 'Revenue recognition';
- We incorporated elements of unpredictability in our audit by, among others, 1) performing audit procedures with specific focus on the equipment sales recorded in January 2021 to respond on the fraud risk concerning the completeness of equipment sales in the cut-off period and 2) investigating journal entries debiting revenue with an unexpected associated credit;
- We considered the outcome of our other audit procedures and evaluated whether any findings or misstatements were indicative of fraud or non-compliance. If so, we re-evaluated our assessment of relevant risks and its resulting impact on our audit procedures; and
- We obtained audit evidence regarding compliance with the provisions of those laws and regulations generally recognized to have a direct effect on the determination of material amounts and disclosures in the financial statements.

We do note that our audit is based on the procedures described in line with applicable auditing standards. In addition to the requirements of the auditing standards we have performed the following additional procedures:

- We performed inquiries with management and inspection of documents related to country specific sanctions and product lists to assess whether trade compliance and export controls are properly designed and implemented; and
- We obtained an understanding of the company's assessment of cyber security business risks and analyzed how the company respond to these cyber security business risks.

Our procedures to address identified risks of fraud resulted in a key audit matter. We refer to the key audit matter related to Revenue recognition.

We do note that our audit is not primarily designed to detect fraud and non-compliance with laws and regulations and that management is responsible for such internal control as management determines is necessary to enable the preparation of the financial statements that are free from material misstatement, whether due to errors or fraud, including compliance with laws and regulations.

The more distant non-compliance with indirect laws and regulations (irregularities) is from the events and transactions reflected in the financial statements, the less likely the inherently limited procedures required by auditing standards would identify it. In addition, as with any audit, there remained a higher risk of non-detection of irregularities, as these may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal controls.

Our key audit 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.

Compared to last year the key audit matter with respect to the accounting for the investment in ASMPT (associate) is not identified. Based on our reassessment of the risk of material misstatement related to this account, we identified a limited degree of complexity and judgement required. Therefore we concluded to not identify the accounting for the investment in ASMPT (associate) as a key audit matter in the current year.

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 identified a cut-off risk that equipment sales could be misstated as a result of recognition in the incorrect period. This risk inherently includes the fraud risk that management deliberately understates revenue, as management may feel pressure to achieve planned results (risk of fraud). 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 completeness of equipment sales in the cut-off period of the financial year.

Our response

Our audit procedures to address this key audit matter included, among others:

- Assessing the appropriateness of the company's accounting policies relating to revenue recognition and assessing compliance with IFRS 15;
- Evaluating the design and implementation of the company'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 completeness of sales by selecting samples during the cut-off period, with specific focus on the sales recorded in January 2021, to agree the timing of revenue recognition to underlying supporting documents such as shipping documents;
- Inquiring with management / those who have responsibilities for initiating, preparing or authorizing journal entries at period end whether there was inappropriate or unusual activity relating to the processing of journal entries and other adjustments during the period, identifying high-risk journal entries (such as journal entries debiting revenue with an unexpected associated credit) from the population of journal entries from the local ERP system with the involvement of our IT auditors and verifying the appropriateness of the identified high risk journal entries through verification with supporting documentation; and
- Assessing the adequacy of the revenue disclosures included in note 1 and note 21 of the financial statements.

Our observation

The results of our procedures related to the revenue recognition of equipment sales are satisfactory. We consider the disclosure in note 1 and note 21 of the financial statements as adequate.

Accounting for capitalized development costs

Description

Capitalized development costs are deemed to be significant to our audit, given the significance of the capitalized balance of EUR 204 million including additions of EUR 64 million in 2020, as well as the specific criteria that have to be met for capitalization. This involves management judgement on capitalized development costs not in use including the additions for the year, 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 approach includes the following procedures over capitalized development costs:

- Assessing the appropriateness of the company's accounting policies relating to internal and external cost capitalization and assess compliance with IFRS;
- Evaluating the design and implementation of the company's internal control in the R&D process that would identify a misstatement as an incorrect capitalization of development expense;
- 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 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; and
- Assessing the adequacy of the Other intangible assets disclosures included in note 5 of the financial statements.

Our observation

The results of our procedures related to the accounting for capitalized development costs are satisfactory. We consider the disclosure in note 5 of the financial statements as adequate.

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 the company 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 and ESEF

Engagement

We were engaged by the Annual General Meeting of Shareholders as auditor of ASM International N.V. 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.

European Single Electronic Format (ESEF)

ASM International N.V. has prepared its Annual Report in ESEF. The requirements for this format are set out in the Commission Delegated Regulation (EU) 2019/815 with regard to regulatory technical standards on the specification of a single electronic reporting format (these requirements are hereinafter referred to as: the RTS on ESEF).

In our opinion, the Annual Report prepared in the XHTML format, including the partially tagged consolidated financial statements as included in the reporting package by ASM International N.V., has been prepared in all material respects in accordance with the RTS on ESEF.

Management is responsible for preparing the Annual Report including the financial statements in accordance with the RTS on ESEF, whereby management combines the various components into a single reporting package. Our responsibility is to obtain reasonable assurance for our opinion whether the Annual Report in this reporting package, is in accordance with the RTS on ESEF.

Our procedures taking into consideration Alert 43 of NBA (the Netherlands Institute of Chartered Accountants), included amongst others:

- Obtaining an understanding of the entity's financial reporting process, including the preparation of the reporting package;
- Obtaining the reporting package and performing validations to determine whether the reporting package containing the Inline XBRL instance document and the XBRL extension taxonomy files have been prepared in accordance with the technical specifications as included in the RTS on ESEF; and
- Examining the information related to the consolidated financial statements in the reporting package to determine whether all required taggings have been applied and whether these are in accordance with the RTS on ESEF.

Description of responsibilities regarding the financial statements

Responsibilities of the Management Board and the Supervisory Board of the company 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 company'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 the company 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 company's financial reporting process.

Our responsibilities for the audit of the financial statements

Our objective is to plan and perform the audit engagement in a manner that allows us to obtain sufficient and appropriate audit evidence for our opinion.

Our audit has been performed with a high, but not absolute, level of assurance, which means we may not detect all material errors and fraud during our audit.

Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements. The materiality affects the nature, timing and extent of our audit procedures and the evaluation of the effect of identified misstatements on our opinion.

A further description of our responsibilities for the audit of the financial statements is located at the website of de 'Koninklijke Nederlandse Beroepsorganisatie van Accountants' (NBA, Royal Netherlands Institute of Chartered Accountants) at: http://www.nba.nl/ENG_oob_01. This description forms part of our independent auditor's report.

Amstelveen, March 4, 2021
KPMG Accountants N.V.

F.A.M. Croiset van Uchelen RA
Partner

NON-FINANCIAL SUMMARY

Our focus is on continuing to help our customers achieve critical technology and productivity improvements responsibly, and striving to reduce our impact on the environment and positively contributing to society while doing so.

ENVIRONMENTAL FOOTPRINT

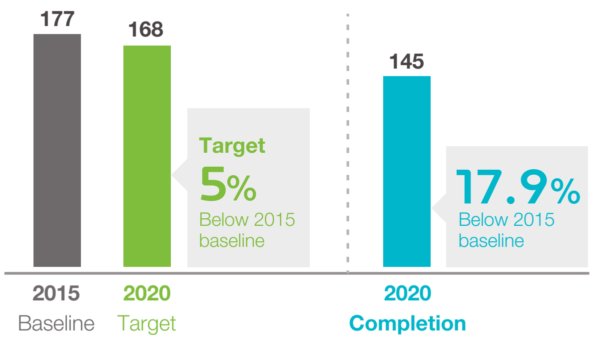
Based on our environmental targets for 2016-2020, we managed to reduce our greenhouse gas emissions by 17.9% per euro of research and development (R&D) investment, compared to the baseline 2015 levels. We also reduced water withdrawn by 62.5% per euro of R&D investment, and by 30% in absolute terms, compared to baseline 2015 levels.

FUTURE GOALS

We have the ambition to further our progress and impact in the different geographies in which we operate. We aim to make meaningful contributions to our industry, to the communities where we operate, and to preserving our planet. In the coming years, we will focus on broadening our sustainability and ESG goals.

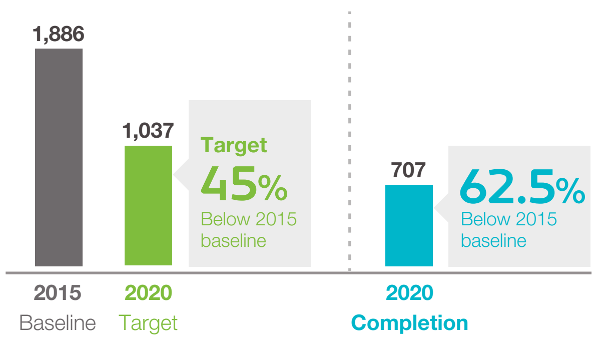
ENVIRONMENTAL FOOTPRINT RESULTS 2016 TO 2020

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



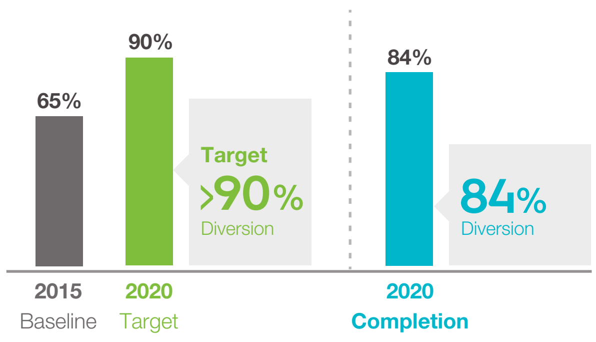
Figures are $mtCO_2e$/R&D investment EUR millions

WATER CONSUMPTION (per R&D investment)



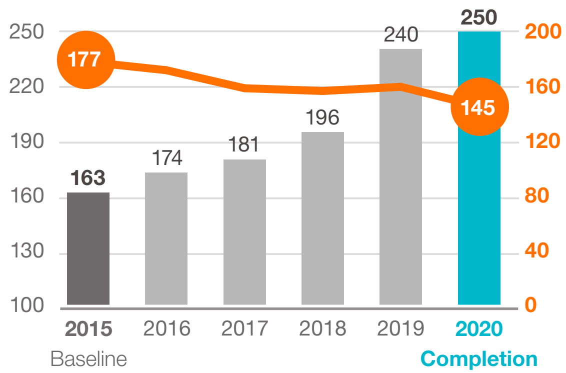
Figures are m^3/R&D investment EUR millions

LANDFILL DIVERSION RATE



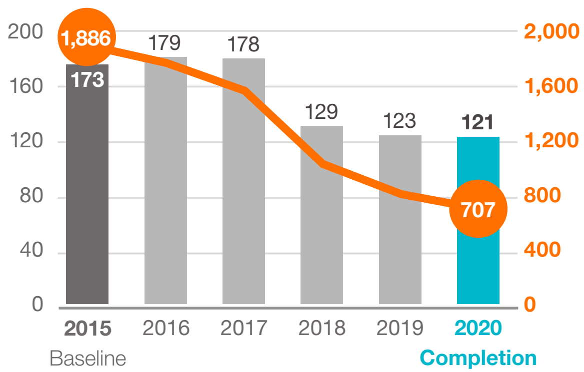
Figures are percent solid waste landfill diversion

GREENHOUSE GAS (GHG) EMISSIONS
(Absolute and normalized per R&D investment)



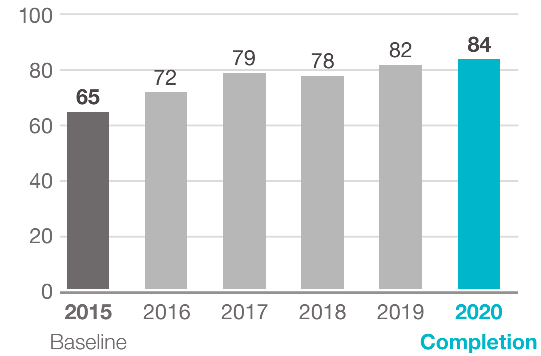
■ Absolute Greenhouse Gas emissions ($mtCO_2e$ - Scope 1 + 2, x100)
– Intensity of $mtCO_2e$/million EUR R&D spend

WATER CONSUMPTION
(Absolute and normalized per R&D investment)



■ Absolute water consumption (m^3, x1,000)
– Intensity of m^3/million EUR R&D spend

LANDFILL DIVERSION RATE
(in %)



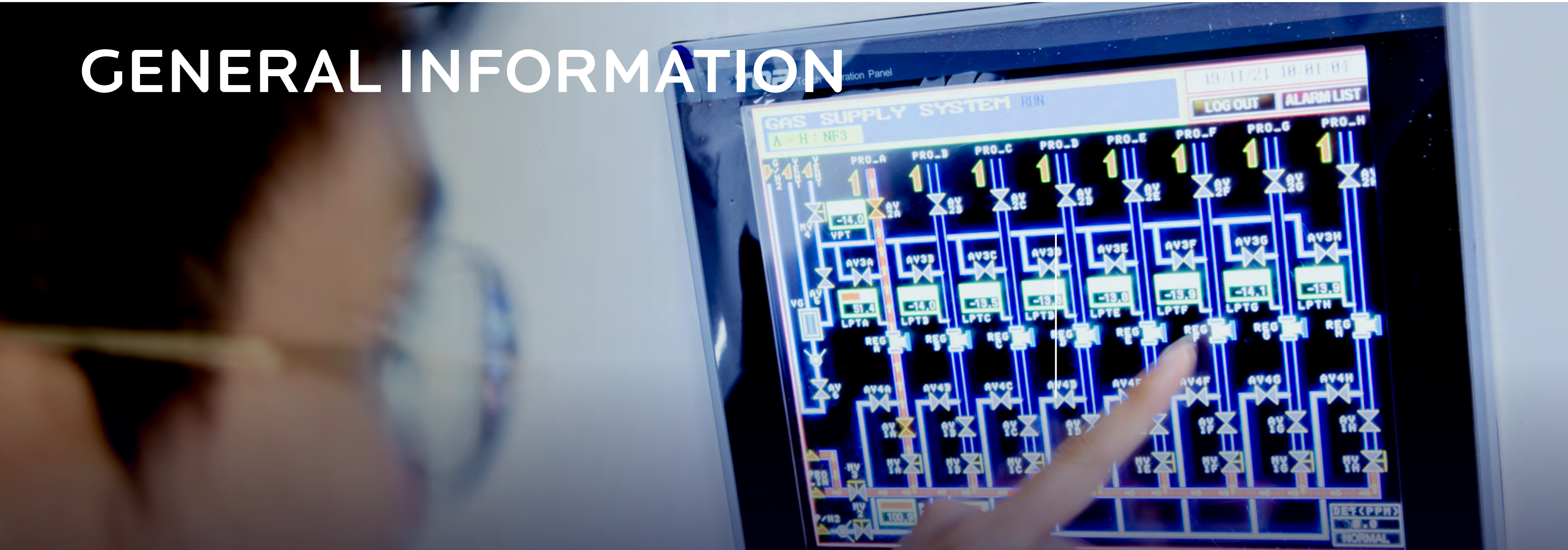
NON-FINANCIAL PERFORMANCE SUMMARY

CATEGORIES	INDICATORS	Units or definition	2016	2017	2018	2019	2020	Reference
EMPLOYEES	Employees	Number	1,670	1,900	2,181	2,337	2,583	Employees
	Temporary workers	Number	100	143	146	107	106	
	New hires	Number	253	487	659	407	515	
DIVERSITY & INCLUSION	Employees	Male (% globally)	85%	85%	85%	85%	85%	Employees
		Female (% globally)	15%	15%	15%	15%	15%	Employees
	Supervisory Board	% Female/% Male	0 / 100%	20 / 80%	20 / 80%	20 / 80%	33 / 67%	Supervisory Board
	Management Board	% Female/% Male	0 / 100%	0 / 100%	0 / 100%	0 / 100%	0 / 100%	Management Board
	Gender pay ratio	Female/Male (total)	n.a.	n.a.	101%	100%	99%	
	CEO pay ratio		23	25	27	31	27	Remuneration report
	Nationalities	Number	29	29	29	29	40	Employees
	Workforce split	Asia	50%	54%	58%	58%	58%	
		US	32%	29%	26%	27%	28%	
		Europe	18%	17%	16%	15%	14%	
	Foreign nationals workforce split	Asia	65%	65%	65%	60%	59%	(SASB)
		US	22%	24%	25%	30%	29%	(SASB)
		Europe	13%	11%	10%	10%	12%	(SASB)
OTHER SEGMENTATION	Employees in R&D	Percent	27%	26%	25%	26%	24%	
	Employees covered by collective bargaining (only the Netherlands)	Number	138	141	149	143	142	Note 13 of Consolidated statements
	Voluntary turnover rate	Percent	7.1%	10.4%	9.9%	8.7%	8.3%	Employees
	Involuntary turnover rate	Percent	10.5%	13.9%	13.9%	10.7%	10.8%	
	% Performance management completion	Percent	88.3%	87.1%	92.6%	98.0%	98.8%	
HEALTH AND SAFETY	Injury rate	per 100 employees	0.63	0.62	0.55	0.42	0.58	Employees
	Recordable injury rate	per 100 employees	0.34	0.26	0.18	0.17	0.23	Employees
	Lost Time Injury Rate (LTIR)	per 100 employees	0.29	0.21	0.05	0.08	0.16	
	Fatality rate	per 100 employees	0.00	0.00	0.00	0.00	0.00	
	Efforts to assess, monitor, reduce exposures	Qualitative	See Health & safety, Employee section					(SASB)
TRAINING	Ethics training (bi-annual)	All employees	92.5%	99.8%	99.9%	100.0%	100.0%	
	Ethics training	New hire employees	87.0%	99.7%	100.0%	100.0%	99.2%	
	Technical training hours of ASMI employees	Hours annually	8,649	17,784	37,836	48,075	28,624	

CATEGORIES	INDICATORS	Units or definition	2016	2017	2018	2019	2020	Reference
ENVIRONMENTAL	Electrical consumption	kWh	31,814,761	33,011,075	35,878,759	43,401,473	**44,915,401**	(SASB)
	Grid electricity	Percent from grid	100%	100%	100%	100%	**100%**	(SASB)
	Renewable electrical	Percentage renewable	11.2%	10.8%	10.7%	9.2%	**9.4%**	Corporate social responsibility (SASB)
	Greenhouse gas (Scope 1 and 2) Absolute emissions	$mtCO_2e$	17,371.1	18,083.2	19,562	24,031.9	**24,976.9**	
	Gross Global Scope 1 GHG emissions	$mtCO_2e$	339.8	419.2	508.4	920.8	**987.0**	(SASB)
	Gross Global Scope 2 GHG emissions	$mtCO_2e$	17,031.3	17,664	19,053.6	23,111.1	**23,989.9**	
	Greenhouse gas (Scope 1 and 2) per R&D spend (Emission Intensity)	$mtCO_2e$/million EUR	169.2	158.5	156.1	159.5	**145.4**	Environment
	Water withdrawn absolute	m^3	178,670	177,913	129,243	122,505	**121,434**	Environment (SASB)
	Water withdrawn from water stressed regions	Percent from high or extremely high water stress regions	84.3%	81.4%	72.8%	52.8%	**50.4%**	(SASB)
	Water intake per R&D spend (Water Intensity)	m^3/million EUR	1,760	1,559	1,031	813	**707**	Environment
	Landfill diversion rate [1]	% solid waste recycle or reuse	72%	79%	78%	82%	**84%**	Environment (SASB)
ETHICS COMPLIANCE	Reported confidential concerns via Speakup!	Number	3	1	1	5	**5**	Business ethics
	Reported concerns from other channels	Number	2	5	4	2	**4**	Business ethics
	Ethics related communications	Number	4	3	2	0	**0**	
RBA RISK ASSESSMENT	RBA Self Assessment rating	RBA rating (corporate + all applicable facilities)	Low	Low	Low	Low	**Low**	
SUPPLY CHAIN	Supplier spend by region	Asia percent	68%	74%	71%	75%	**75%**	Suppliers
		North America percent	25%	20%	22%	20%	**21%**	
		Europe percent	7%	6%	7%	5%	**4%**	
SUPPLY CHAIN (CRITICAL, STRATEGIC SUPPLIERS)	RBA Code of Conduct acknowledgement	Percentage	n.a.	85%	100%	100%	**100%**	Suppliers
	RBA Self Assessment (SAQ) with low/medium risk	Percentage	86%	78%	100%	40%	**77%**	Suppliers
MATERIAL SOURCING	Description of the management of risks associated with the use of critical materials	Qualitative	See conflict minerals discussion in supply chain section					(SASB)
INTELLECTUAL PROPERTY	Patents in force	Number	1,480	1,604	1,692	1,959	**2,094**	Customers and products
	Intellectual property protection & competitive behavior	Monetary losses as a result of legal proceedings associated with anti-competitive behavior regulations	0	0	0	0	**0**	(SASB)

[1] ASMI manufacturing generates very negligible hazardous waste and we do not manufacture chips/wafers. Our manufacturing waste is predominantly non-hazardous solid waste, thus solid waste is our waste management indicator.

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 ALD, CVD, epitaxy, and batch diffusion/oxidation systems, and services and spare parts for these 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 and low-temperature silicon nitride.

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 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.

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 electrodes
ALD	XP8 [1]	Synergis ALD system	Metal oxides, Metal nitrides, Metals
PEALD	XP8 [1]	Eagle XP8 PEALD system XP8 QCM PEALD system	Multipatterning spacer Gate spacer Etch stop Gapfill
PECVD	XP8 [1]	Dragon XP8 PECVD system	Low-k and TEOS oxide Silicon nitride
Diffusion Oxidation LPCVD ALD	Vertical furnace	A412 batch vertical furnace system A400 DUO batch vertical furnace system	Diffusion, oxidation Polysilicon Silicon oxide/nitride Aluminum oxide
Epitaxy	XP [1]	Intrepid ES epitaxy	Silicon channel Strain layer CMOS wafers Analog/power
Epitaxy	Epsilon	Epsilon 2000 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, ASMI 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.

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. The system is capable of a broad range of dielectric PEALD processes, including silicon oxide gapfill.

Batch vertical furnaces

The vertical furnaces offer the A412 for 300mm wafer processing and the A400 DUO for 200mm and smaller wafers, and focuses on applications in the markets for power, analog, RF, and MEMS devices. Various thermal ALD films can be deposited with the batch furnaces 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

DragonXP8 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 low-k dielectric layers, passivation layers, etch stop, and hardmask layers.

Batch vertical furnaces

The vertical furnaces offer the A412 for 300mm wafer processing and the A400 DUO for 200mm and smaller wafers, and focuses on applications in the markets for power, analog, RF, and MEMS devices. The new A400 DUO is compatible with the original A400, so existing process recipes can be easily transferred, accelerating system acceptance for production. LPCVD 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.

The Previum process module, which can be integrated with epitaxy modules on the Intrepid platform, is available for 300mm Epi applications that require pre-deposition surface cleaning, which improves the performance of deposited films. Previum surface cleaning enables quality epitaxial depositions for advanced node channel and source/drain engineering applications.

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 for analog and power applications. Epsilon is the market leader for epitaxy applications in the analog and power devices market.

DIFFUSION AND OXIDATION

We offer batch vertical furnace tools for diffusion and oxidation applications.

Batch vertical furnaces

The vertical furnaces offer the A412 for 300mm wafer processing and the A400 DUO for 200mm and smaller wafers, and focuses on applications in the markets for power, analog, RF, and MEMS devices. The new A400 DUO is compatible with the original A400, so existing process recipes can be easily transferred, accelerating system acceptance for production. Atmospheric thermal applications on the furnace include diffusion and activation of dopants, annealing to affect material properties by heating to a specific temperature, and oxidation to form silicon oxide.

SERVICES AND SPARE PARTS

Services and spare parts are important product offerings for our business. We provide service support to our customers with technical service personnel that is trained to maintain our systems at customers' fabrication plants around the world. Our service teams are located at regional and local service centers to assure prompt availability.

We sell spare parts for our equipment from parts stocks located at local 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, paragraph 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 (www.asm.com/investors/corporate-governance/articles-of-association).

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 (www.asm.com/investors/corporate-governance/articles-of-association).

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

SUBSEQUENT EVENTS

Subsequent events were evaluated up to March 4, 2021, which is the issuance date of this Annual Report 2020. 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 via our website.

ESG/CSR DATA GLOSSARY AND INFORMATION

All boundary scopes are for ASMI Front-end unless noted.

Indicators	Definitions	Section covered
CDP	CDP is a not-for-profit charity running the global disclosure system for investors, companies, cities, states and regions to manage their environmental impacts.	Corporate responsibility
CLIMATE ADAPTATION	Changes in company processes, practices, and structures to moderate potential damages or to benefit from opportunities associated with climate change.	Corporate responsibility
CLIMATE CHANGE	Climate change is a long-term change in the average weather patterns that have come to define Earth's local, regional and global climates. These changes have a broad range of observed effects upon the earth.	Corporate responsibility
CMRT	The Conflict Free Sourcing Initiative (CFSI) Conflict Minerals Reporting Template (CMRT) is an industry widely adopted standard template used by companies to collect conflict minerals due diligence data.	Suppliers
CONFLICT MINERALS	Tin, Tantalum, Tungsten and gold (3TGs) containing mineral ores that originate in the Democratic Republic of the Congo or the 10 adjoining areas and are sold illicitly to fund armed conflict in the region.	Suppliers
CORPORATE SOCIAL RESPONSIBILITY (CSR)	Corporate social responsibility (CSR) is a self-regulating business model that helps a company be socially accountable – to itself, its stakeholders, and the public.	Corporate responsibility
CRITICAL AND STRATEGIC SUPPLIERS	Suppliers that are determined to be critical or strategic to our business either because the business spends, or critical components or critical materials, or strategic technical partnership.	Suppliers
CRITICAL AND STRATEGIC SUPPLIER COMMITMENT %	The percent of critical and strategic 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 or medium risks.	Suppliers
DATA NORMALIZATION (AS A FUNCTION OF R&D SPEND)	Total power or water purchases divided by total number of millions of dollars in R&D spend during that calendar year.	Corporate responsibility
DRC	The Democratic Republic of Congo.	Suppliers
EHS: ENVIRONMENTAL, HEALTH & SAFETY	Environmental, Health, and Safety is a general term used to refer to laws, rules, regulations, professions, programs, and workplace efforts to protect the health and safety of employees and the public as well as the environment from hazards associated with the workplace.	Corporate governance
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
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
ENVIRONMENTAL, SOCIAL AND GOVERNANCE (ESG)	The three primary factors for measuring the sustainability and societal impact of a company and/or business.	Corporate responsibility

Indicators	Definitions	Section covered
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 Business Conduct and Business Principles or Policies in the reporting year.	Corporate responsibility
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 COBC Business Principles or Policies in the reporting year.	Corporate governance
FLBL: FORCED LABOR/BONDED LABOR	Forced labor refers to situations in which persons are coerced to work through the use of violence or intimidation, or by more subtle means such as accumulated debt, retention of identity papers or threats of denunciation to immigration authorities. Bonded labor, also known as debt bondage and peonage, happens when people give themselves into slavery as security against a loan or when they inherit a debt from a relative. The cyclical process begins with a debt, whether acquired or inherited, that cannot be paid immediately.	Suppliers
FOREIGN NATIONAL	A foreign national is any person who is not a national of a specific country.	Employees
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.	Corporate responsibility
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).	Corporate responsibility
HEALTH AND SAFETY	Regulations and procedures intended to prevent accident or injury in workplaces or public environments.	Corporate responsibility
ILO: INTERNATIONAL LABOR ORGANIZATION	The International Labor Organization (ILO) is a United Nations agency responsible for dealing with employment-related issues across the world, including employment standards and problems of exploitation.	Corporate responsibility
INJURY RATE	The Injury Rate is a measure of all first aid or greater injuries per every 100 employees in reporting period.	Corporate responsibility
ISO 14001	The ISO 14001 Environmental Management System (EMS) standard is an internationally recognized environmental management standard.	Corporate responsibility
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.	Corporate responsibility
LIVING WAGE	A living wage is defined as the minimum income necessary for a worker to meet the basic needs of an average sized family, including food, housing, and other essential needs such as clothing.	Corporate responsibility
NGOS: NON-GOVERNMENT ORGANIZATIONS	A nonprofit organization that operates independently of any government, typically one whose purpose is to address a social or political issue.	Corporate responsibility
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
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.	Suppliers
PATENT FILINGS	The total number of patent applications filed and applied with patent offices globally by ASMI for the invention described.	Customers and products
PRODUCT LIFECYCLE MANAGEMENT (PLM)	Product lifecycle management (PLM) refers to the handling of a good as it moves through the typical stages of its product life: development and introduction, growth, maturity/stability, and decline. This handling involves both the manufacturing of the good and the marketing of it.	Strategy

Indicators	Definitions	Section covered
RBA	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.	Suppliers
RBA CODE OF CONDUCT	The RBA Code of Conduct is a set of social, environmental and ethical industry standards for governing how companies conduct business. www.responsiblebusiness.org/code-of-conduct/	Suppliers
RBA SELF ASSESSMENT QUESTIONNAIRE (RBA SAQ)	Self-Assessment Questionnaire is one of the RBA's standardized risk assessment tools that is useful for assessing a companies commitment to ethical business conduct and compliance with the RBA Code of Conduct.	Suppliers
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
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 ASMI Code of Business Conduct and Business Policies via reporting tool SpeakUp! in the reporting period.	Society
RESPONSIBLE BUSINESS ALLIANCE (RBA)	We adopted the industry standard RBA Code of Conduct. More detail about the code can be find at www.responsiblebusiness.org/standards/code-of-conduct/	Suppliers
RMI: RESPONSIBLE MINERALS INITIATIVE	Responsible Minerals Initiative provides companies with tools and resources to make sourcing decisions that improve regulatory compliance and support responsible sourcing of minerals from conflict-affected and high-risk areas.	Suppliers
SASB	The Sustainability Accounting Standards Board (SASB) is an independent nonprofit organization that sets standards to guide the disclosure of financially material sustainability information by companies to their investors. www.sasb.org/about/	Corporate responsibility
SCOPE 1 AND SCOPE 2 EMISSIONS	Scope 1 covers direct emissions from owned or controlled sources. Scope 2 covers indirect emissions from the generation of purchased electricity, steam, heating and cooling consumed by the reporting company.	Corporate responsibility
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 applies to our own operation SAQ results with our major sites.	Suppliers
SEMI	Global industry association representing the semiconductor manufacturing and design supply chain connecting over 2,400 member companies and 1.3M professionals worldwide.	Corporate responsibility
SEMI MOD	Semiconductor Manufacturing Ownership Diversity (SEMI MOD) is a special interest group dedicated to increasing the number of diverse owned and led suppliers serving the semiconductor industry.	Corporate responsibility
STAFF (EMPLOYEE)	Staff (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
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
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
TCFD	The Financial Stability Board Task Force on Climate-related Financial Disclosures (TCFD) is a market-driven initiative, set up to develop a set of recommendations for voluntary and consistent climate-related financial risk disclosures in mainstream filings.	Corporate responsibility
UN SDG	United Nations Sustainable Development Goals.	Corporate responsibility
VOLUNTARY TURNOVER RATE	The percentage of employees in a workforce that leave voluntarily during this reporting period.	Employees
WATER CONSUMPTION	The total amount of water consumption in cubic meters for the reporting period.	Society
ZERO HARM!	Refers to ASMI striving to prevent harm to people, reduce our impact on the environment, and make positive contributions to society.	Employees

DEFINITIONS AND 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.

CONNECT: ASMI's online internal communications platform.

COBC: Code of Business Conduct.

COSO: The Committee of Sponsoring Organizations of the Treadway Commission is a joint initiative of five private-sector organizations that is dedicated to providing thought leadership through the development of frameworks and guidance on enterprise risk management, internal control and fraud deterrence.

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 then 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.

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 considered a 3D transistor since the channel is in a vertical orientation.

FMEA: Failure Mode Effects Analysis.

GES: ASMI's Global Employment Standards.

IC: Integrated Circuit.

IFRS: International Financial Reporting Standards.

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.

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.

NWO: Nederlandse Organisatie voor Wetenschappelijk Onderzoek.

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, which have been used for nanoparticle surface functionalization.

PLC: Product Life Cycle.

R&D: Research and Development.

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.

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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 geopolitical tensions or political instability, changes in import/export regulations, epidemics and other risks indicated in our most recently filed 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.

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