DRIVE INNOVATION · DELIVER EXCELLENCE >

ASM INTERNATIONAL

GROWTH THROUGH INNOVATION

ANNUAL REPORT 2021

ASMI CONTINUES TO INVEST IN INNOVATION AND EXPANSION, SHARPENS SUSTAINABILITY FOCUS, AND DELIVERS STRONG GROWTH.

In this fifth consecutive year of double-digit growth, we achieved strong expansion in logic/foundry and strengthened our position in the memory market, while working closely with customers to develop the key technologies for the next nodes.

We published our 2025 targets as part of our Growth through Innovation strategy. Prospects for our key ALD and Epi products are bright, enabling industry breakthroughs, such as the next-generation transistor architecture. Supported by increased investments in R&D, we aim to continue outpacing market growth.

GROWTH THROUGH INNOVATION

We have reinforced our commitment to sustainability. In 2021, we took a next step by defining our sustainability priorities for the next horizon, including announcing our target to achieve Net Zero emissions by 2035.

People are our key asset. We are committed to creating a safe, inspiring, inclusive and diverse workplace where employees have the opportunity to maximize their potential.

With our technology, and underpinned by our values – We Care, We Innovate, We Deliver – we continue to help move the industry roadmap forward, driving innovation in the electronics market and improving people's lives.

TABLE OF CONTENTS

NOTES TO THE READER

PDF/printed version
This document is the PDF/printed version of ASM International N.V.'s 2021 Annual Report and has been prepared for ease of use. The 2021 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 case of any 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.

ABOUT

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.

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.

Our strategy is Growth through Innovation. Innovation is at the core of what we do at ASMI. With our global, networked R&D model, we can collaborate closely and early with our customers, industry partners, and universities.

In 2021, as COVID-19 continued to impact each of us, the health and safety of our people remained our biggest priority. ASMI not only delivered strong financial results, but we also took important steps forward in strengthening our position as an innovation leader and expanding our growth potential.

MESSAGE FROM THE CEO

As COVID-19 continued to impact each of us in 2021, the health and safety of our people remained our biggest priority. ASMI not only delivered strong financial results, but also took important steps forward in strengthening our position as an innovation leader and expanding our growth potential.

Benjamin Loh
President and Chief Executive Officer

The year began on an optimistic note, with the belief that vaccines would help control the pandemic and some normality would resume. But as 2021 unfolded, and new variants drove further COVID-19 waves, uncertainty and disruption persisted. We experienced the deep impact of the pandemic on our lives, communities, and world economies. At ASMI, we continued to prioritize the health and safety of our people, business partners, and communities. Throughout 2021 and at the start of 2022, we continued with our robust control measures, travel restrictions, and work-from-home protocols.

> “WE TOOK IMPORTANT STEPS FORWARD IN EXPANDING OUR GROWTH POTENTIAL.”

I am proud of our people, and how they all pulled together as one ASMI team – putting health and safety first, while serving our customers in the best possible way. Thank you to all our employees for a great effort, and for showing your resilience and relentless commitment.

SEMICONDUCTORS ENABLING THE DIGITALIZATION TREND

Accelerated digitalization has driven strong growth in the semiconductor industry. The global semiconductor end market increased 24% in 2021, exceeding the US$500 billion level for the first time. The pandemic triggered structural changes in how we communicate, consume, and work. Semiconductors provide key building blocks for the digitalization trend, and the continued build out of IT infrastructure. The surge in demand that started in 2020 and sped up in 2021 has been outstripping supply, despite sector-wide efforts to boost output and capacity. This resulted in shortages and increased lead times in many parts of the chip markets. This, in turn, has driven further investments in capacity. It has also highlighted the increased importance of the semiconductor industry in today's world.

STRONG GROWTH IN LOGIC/FOUNDRY AND EXPANDED POSITION IN MEMORY

The wafer fab equipment (WFE) market increased strongly with a mid-to-high 30s percentage in 2021. We benefited from strong demand across the board. In terms of customer segments, our sales were driven by foundry, followed by memory, and then logic. The combined logic/foundry segment remained the key driver for ASMI. This was fueled by our customers' substantial investments in leading-edge manufacturing capacity, to meet growing demand for high-end computing and 5G smartphones. We continued to benefit from substantial increases in the ALD requirement in the most advanced logic/foundry nodes, resulting in share of wallet gains for our company. During the year, we further expanded our R&D engagements for the next nodes, and we won several new key applications. We also saw the first meaningful bookings in the second half of 2021 for the upcoming node transition, which, for most of our key logic/foundry customers, is expected to go into high-volume manufacturing in the second half of 2022 and into 2023. We expect the number of ALD layers to show strong double-digit percentage growth in the next node. This will provide us with further opportunities for share of wallet increases with key logic/foundry customers.

"WE EXPECT THE NUMBER OF ALD LAYERS TO SHOW A STRONG DOUBLE-DIGIT PERCENTAGE GROWTH IN THE NEXT NODE."

Against a backdrop of healthy spending trends in memory, we achieved a significant increase in our sales to memory customers in 2021. A key driver for our memory business has been the adoption of high-k metal gate ALD in DRAM. This is a key technology that enables greater power efficiency and improved performance of cutting-edge DRAM devices. We have strong engagements for several other new applications, both in DRAM and 3D-NAND, which we expect will increase our memory position in coming years.

Growth in WFE spending on the trailing-edge technology nodes in 2021 is also worth noting. This was driven by strong end-market demand and capacity shortages. In this market, we have a number of solid positions in niche segments, particularly in the power, analog and wafer-maker segments, even though ASMI in total derives most of its sales from the most advanced node spending. Analog/power demand, which has a relatively higher exposure to the automotive and industrial markets, rebounded strongly in 2021 following the drop in 2020.

EQUIPMENT REVENUE DRIVEN BY ALD AND EPI

In terms of product lines, revenue was again led by very solid double-digit growth in our ALD business, which continued to represent more than half our equipment revenue. Epi, our second-largest product line, also showed very strong growth on the back of robust demand in the advanced CMOS market, and the rebound in the analog/power segments. An important achievement in 2021 was the second customer win for our Intrepid ES tool, in the advanced CMOS market for an advanced gate-all-around application. We also launched the new Intrepid ESA. This makes the substantial performance and cost-of-ownership benefits of the Intrepid available for 300mm applications in the analog, power and wafer-maker markets.

We invest selectively in our PECVD and vertical furnace product lines. Noteworthy in 2021 is the contribution of the A400 DUO, our high-productivity 200mm vertical furnace. Introduced in 2019, this is now having great success, including several new customer wins in China.

"OUR OUTCOME-BASED SERVICES CREATE VALUE BY REDUCING COSTS AND INCREASING UPTIME."

Our spares & services business delivered a solid performance, with 16% higher revenue. The sales increase in 2021 moderated compared to the 29% growth in 2020, in part due to the impact of customers investing in higher inventories of spares in 2020 in the face of COVID-19-related disruptions of global supply chains and logistics. Our new, innovative outcome-based services had strong traction. We booked multiple contracts for our so-called Complete Kit Management (CKM), and spares-as-a-service offerings. These are creating value for our customers by reducing costs and increasing uptime of our equipment.

SUPPLY CHAIN CHALLENGES

COVID-19 continued to create challenges in our operations, especially supply chain. In terms of our capacity, we benefited from our investment in the new manufacturing facility in Singapore. This provided us with the flexibility to meet increased demand. Since completion at the end of 2020, we have steadily been increasing headcount to raise output. In September 2021, we announced that we had started the design work on the second manufacturing floor within this new facility, aiming to be production ready by early 2023. This will result in a further substantial capacity boost.

In supply chain, the situation was already tight as we entered 2021, and constraints increased in the second half of the year. This included the impact of the lockdown measures, resulting in reduced factory outputs – in Southeast Asia, and especially Malaysia – which is an important link in the supply chains in our industry. Building on the learnings from COVID-19-related disruptions in 2020, we took several actions to mitigate the impact. This included maintaining higher buffer inventories, and qualifying new suppliers. We were still able to meet our customer requirements. We achieved quarter-on-quarter record-high sales thanks to very strong execution by our team, and outstanding support and commitment from our supply chain partners.

SUSTAINABILITY AND ESG

This was also the year we substantially stepped up our sustainability ambitions. Our focus is on long-term sustainable value creation for all our stakeholders. Building on a solid foundation of achievements in sustainability, we are now taking important steps forward as we strive to make a positive impact in the world. In 2021, we defined our key sustainability focus areas and priorities for 2021-2025 in key environmental, social, and governance areas. These are well-aligned with our strategy and the priorities of our key stakeholders.

Our priorities include: continuing our relentless focus on safety leadership; development of our people and culture; reductions in our environmental footprint; ensuring a responsible supply chain, and continued strengthening of governance, including cybersecurity and IP protection. An important step in 2021 was the announcement of our target to achieve Net Zero emissions, including Scope 3, by 2035. In 2021, we transitioned most of our key sites to electricity from renewable sources, in line with the commitment we made last September. We believe we remain on track to achieve our target for 100% electricity from renewable sources for all our sites by 2024, with an estimated 90% reduction in our Scope 1 and 2 greenhouse gas (GHG) emissions relative to 2020.

“OUR TARGET IS TO ACHIEVE NET ZERO EMISSIONS BY 2035.”

PEOPLE ARE OUR BIGGEST ASSET

One of our key focus areas in sustainability is people. We aim to create a safe and inspiring workplace of inclusion and diversity, where our employees can unleash their potential. In 2021, we launched ConvERGe – our new employee resource group – on International Women’s Day. We have set a target to increase the percentage of women working at ASMI from 15% in 2021 to 20% by 2025. As part of our aim to build a strong and unified culture, we launched our core values – We Care, We Innovate, We Deliver – defining who we are at ASMI, and what we stand for. We stepped up our internal communications, and implemented improvement actions following our earlier engagement survey. These steps are essential to making us attractive as an employer. The war for talent is fierce, especially in the semiconductor sector, and we need to significantly grow our workforce to execute our growth ambitions. We stepped up our talent-recruitment initiatives and benchmarked our global rewards and employee-benefits programs. In 2021, we succeeded in welcoming a record-high number of new colleagues, and grew our total number of employees by 28% to 3,312.

“WE AIM TO CREATE A SAFE AND INSPIRING WORKPLACE OF INCLUSION AND DIVERSITY.”

RECORD-HIGH FINANCIAL RESULTS

Our company again delivered strong financial results in 2021. Revenue increased 30% to €1.7 billion, our fifth consecutive year of double-digit growth. The gross margin improved from 47.0% to 47.9%. Net R&D increased by 9% and SG&A expenses by 20%. Our operating result grew about 50%, with the operating margin improving from 24.6% to 28.4%.

The income related to our 25% stake in ASMPT increased to €87 million from €45 million in 2020. This result excludes the amortization of intangible assets related to ASMPT.

Free cash flow more than doubled from €120 million in 2020 to €266 million in 2021. This increase was driven by the strong improvement in profitability, with working capital under control, and despite higher income tax paid. CapEx additions amounted to €79 million in 2021, with a significant part spent on expanding and upgrading our R&D lab facilities. In 2021, we also reconfirmed the key elements of our capital allocation policy. Investment in the growth of our company and maintaining a strong financial position remain the priority. Our commitment to pay a sustainable dividend and use any excess cash for the benefit of our shareholders is unchanged.

In 2021, ASMI returned €237 million to shareholders in the form of dividend and share buybacks, up from €165 million in the previous year. We will propose a dividend of €2.50 per share to be paid over 2021, up 25% from €2.00 last year.

OUTLINING OUR GROWTH THROUGH INNOVATION STRATEGY

Long-term prospects look bright. Data-intensive end-market applications, such as artificial intelligence and cloud computing, will drive investments in faster and more power-efficient semiconductors. At our Investor Day in September 2021, we outlined how we are going to drive growth through innovation. ALD and Epi will be critical technologies to enable the inflections on our customers' roadmaps, particularly the increasing adoption of 3D structures and new materials, coupled with traditional scaling. We believe our company is well positioned to benefit due to unique strengths. These include our networked R&D model, early customer engagements, vast experience in ALD materials, and a broad portfolio of ALD solutions.

We expect ALD to remain one of the fastest-growing segments of the WFE market, with a CAGR of 16% to 20% in the years to 2025*. In ALD, we aim to maintain a leading market share in excess of 55% by 2025. This is based on continued leadership in the logic/foundry space, and an increase in our ALD memory share. We project the Epi market to increase with a CAGR of 13% to 18% in the years to 2025*. We target our Epi market share to increase from about 15% last year to more than 30% by 2025. A key inflection will be gate-all-around (GAA), a new and advanced transistor architecture that is expected to further increase the need for both Epi and ALD.

In our vertical furnace and PECVD product lines, we target selective growth. Our spares & service business is further contributing to ASMI's growth, as we are moving to outcome-based services.

At our Investor Day, we also committed to 2025 financial targets. We aim to grow our revenue with a CAGR of 16% to 21% in the next five years*. We target solid gross margin in a range of 46%-50% and operating margin of 26% to 31% in 2021-2025.

LOOKING AHEAD TO 2022

Our industry entered 2022 with strong momentum. The global economy is forecast to show further solid improvement this year, despite risks related to the pandemic, including a continuing impact on the supply chain, geopolitical tensions, and inflationary pressures. Capacity shortages mean that part of the demand in 2021 has carried over into 2022.

The WFE market is expected to increase by a mid to high teens percentage in 2022. Solid spending is expected for the logic/foundry segment, driven by the combination of ongoing capacity additions as well as investments in next node initial capacity. While the memory market remains dependent on supply-demand developments, spending in 2022 is likely to be supported by expansion projects and investments in the new nodes.

Supported by a record high order backlog at the end of Q4, ASMI has started the year on a strong footing. Looking at the first half of the year of 2022, supply chain conditions are expected to remain tight. For Q1, on a currency comparable level, we expect revenue of €500-530 million, with a further steady increase in Q2 revenue compared to Q1. Based on the current visibility, we expect revenue in the second half of 2022 to be higher than the level in the first half. We expect to outperform the WFE market in 2022.

"WE WILL STAY FOCUSED ON FURTHER EXPANDING OUR ENGAGEMENTS WITH KEY CUSTOMERS."

We will stay focused on further expanding our engagements with key customers. In 2022, we will also further invest in our business – to strengthen our position and tap into the many opportunities ahead of us. We also plan to report on our progress in sustainability, as we set further targets and undertake new initiatives in our key focus areas.

March 3, 2022

Benjamin Loh
President and Chief Executive Officer

*Compared to the baseline year 2020 as presented during the Investor Day in September 2021.

ASMI AT A GLANCE

WHAT WE DO

ASMI supplies wafer processing equipment to the leading semiconductor manufacturers, primarily for the deposition of thin films. We design, manufacture, sell, and service our deposition tools to supply our customers with the advanced technologies to produce 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. Semiconductor manufacturers use our tools in their wafer fabrication plants, or fabs. We also provide maintenance service, spare parts, and process support to our customers globally at their fabs.

BASICS OF SEMICONDUCTOR MANUFACTURING

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

There are many steps to creating a semiconductor chip, involving various types of wafer-processing equipment. These include photolithographic patterning, depositing thin-film layers, etching to remove material, and thermal treatments. ASMI's systems are designed for deposition processes where 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 needed to make a chip. After testing the individual circuits to make sure they are performing correctly, the chips on the wafer are separated and packaged in a protective housing. Ultimately, they will become part of a set of semiconductor chips on circuit boards within an electronic product.

OUR PRODUCT TECHNOLOGIES

ASMI's ALD, epitaxy, PECVD and vertical furnace systems are all used in the manufacturing process for the world's most advanced semiconductor chips. It is increasingly difficult for the semiconductor industry to achieve each subsequent technology node, which is fueling the demand for more advanced process steps and new materials. Our equipment is a key component in enabling the industry to advance its technology roadmap.

We are a major player in the ALD and epitaxy segments, and a niche player in vertical furnace and PECVD. These product technologies are described below:

ALD

ASMI has a leading position in atomic layer deposition (ALD). It is our largest product line, accounting for more than half our equipment revenue in 2021. ALD is the most advanced deposition method in the market, making it possible to create ultra-thin films of exceptional material quality, uniformity, and conformality.

EPITAXY

Our second largest product line is epitaxy (Epi), which is the process of depositing highly controlled silicon-based crystalline films. It is one of the fastest-growing segments in the deposition market. The number of Epi steps is increasing as logic/foundry customers move to smaller nodes, and more powerful devices are needed for mobile applications and electric vehicles.

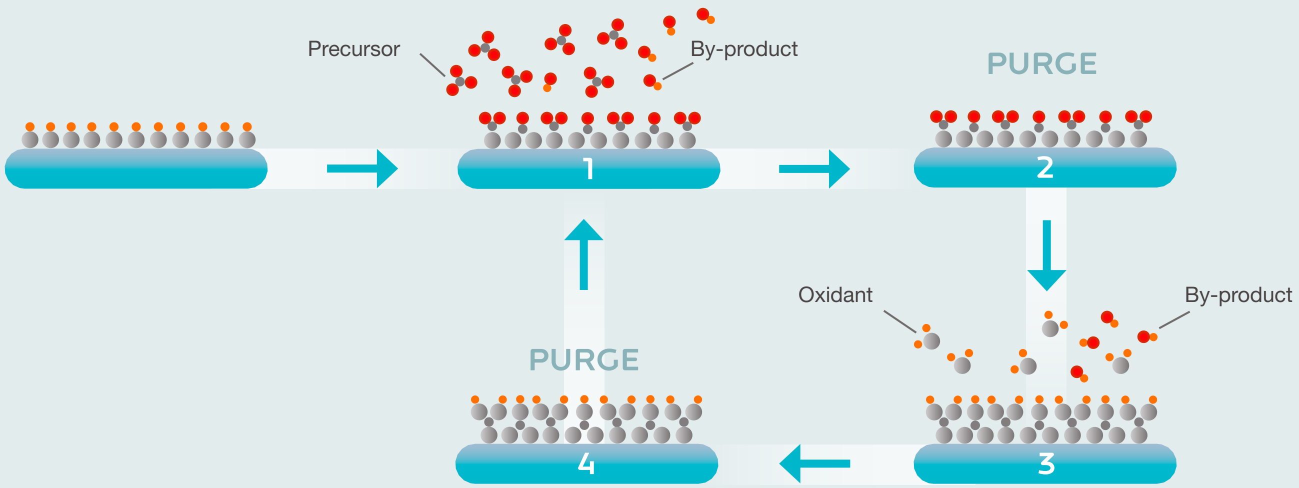
PECVD AND VERTICAL FURNACES

The relatively large size of the PECVD and vertical furnace segments makes these markets attractive to ASMI. We have seen solid increases in the total revenue of these two product lines in last years.

SERVICE AND SPARE PARTS

Technical service and spare parts are important product offerings for our business. To ensure speedy availability, our global service teams are based close to our customers at regional and local service centers. We are expanding our offering with new outcome-based services.

ALD CYCLE



ALD CYCLE

ALD is a surface-controlled layer-by-layer process that deposits thin films one atomic layer at a time. Layers are formed during ALD reaction cycles by alternately pulsing precursors and oxidants, and purging out by-products with inert gas in between each pulse. The repetition of the ALD cycles results in a layer-by-layer growth of the deposited film. Because the ALD process is self-limiting, due to the principle of surface saturation, it results in films with a uniform thickness, even over varied surface topographies (conformality). The thickness of the film is precisely controlled by adjusting the number of ALD cycles.

COMPANY FACTS & FIGURES

ABOUT ASMI

Leading player in advanced technologies in the semiconductor equipment market

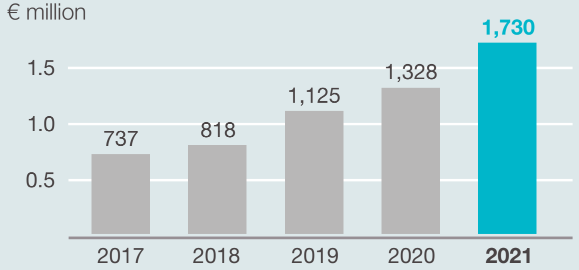
A heritage of 53 years of relentless research and innovation, and breakthrough technologies

649 employees working in R&D
€206 million gross R&D expenses

Target to achieve Net Zero emissions by 2035, with 100% renewable electricity by 2024

Our core values

HISTORICAL REVENUE*



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

ASMI IN NUMBERS

€1.7 billion revenues

28.4% operating margin

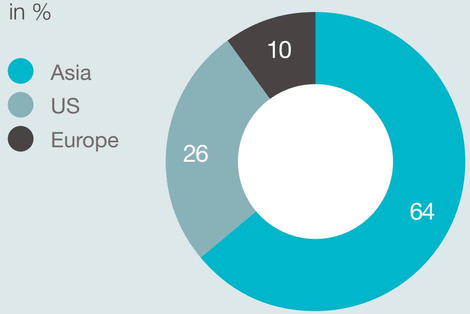
€492 million cash position

3,312 employees

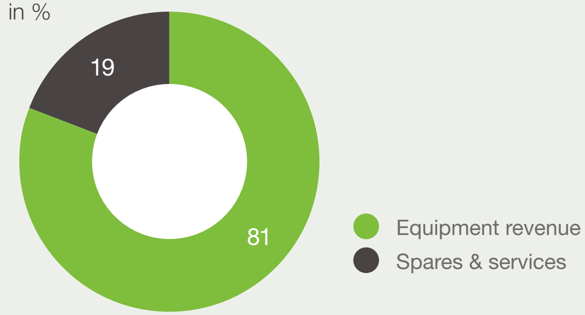
47 nationalities

2,250 patents

REVENUE BY GEOGRAPHY



ASMI FOCUS IS ON DEPOSITION TOOLS



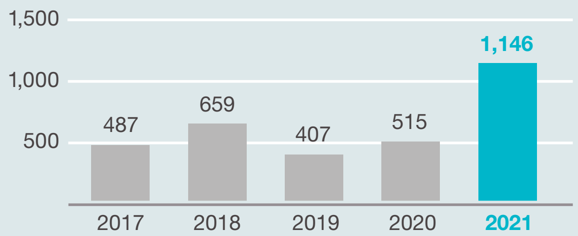
A leading 55% market share in ALD in 2020

Growing position in Epi since 2016

Selective growth in vertical furnaces and PECVD

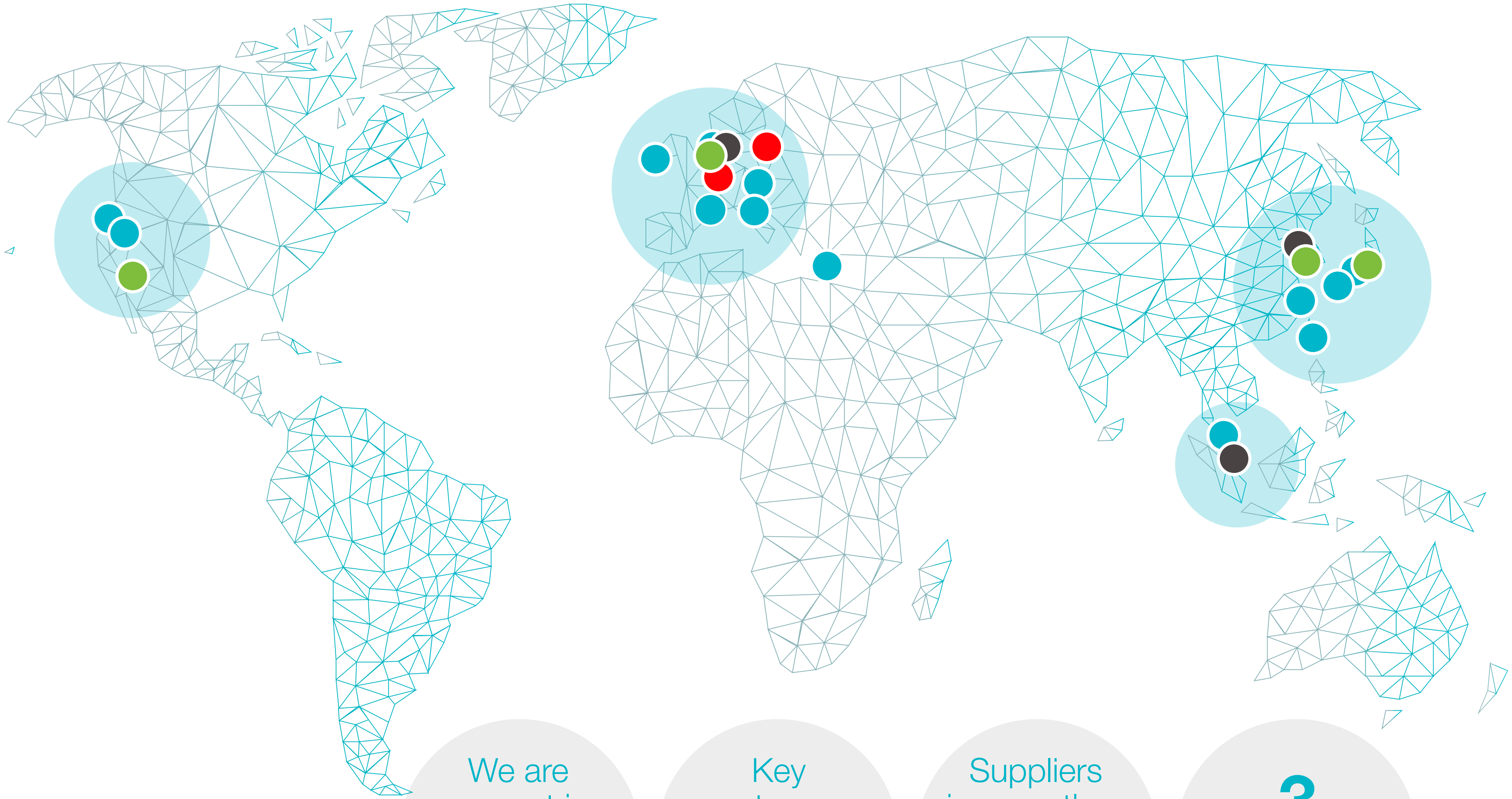
Spares & services driven by outcome-based services

NEW HIRES



Numbers refer to 2021, unless indicated otherwise.

OUR GLOBAL FOOTPRINT



We are present in **14** countries

Key customers in **Asia, US, and Europe**

Suppliers in more than **20** countries

3 manufacturing facilities

RESEARCH FACILITIES

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

BUSINESS UNIT AND PRODUCT RESEARCH & DEVELOPMENT FACILITIES

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

MANUFACTURING FACILITIES

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

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**

ASMI HISTORY: MORE THAN 50 YEARS OF INNOVATION

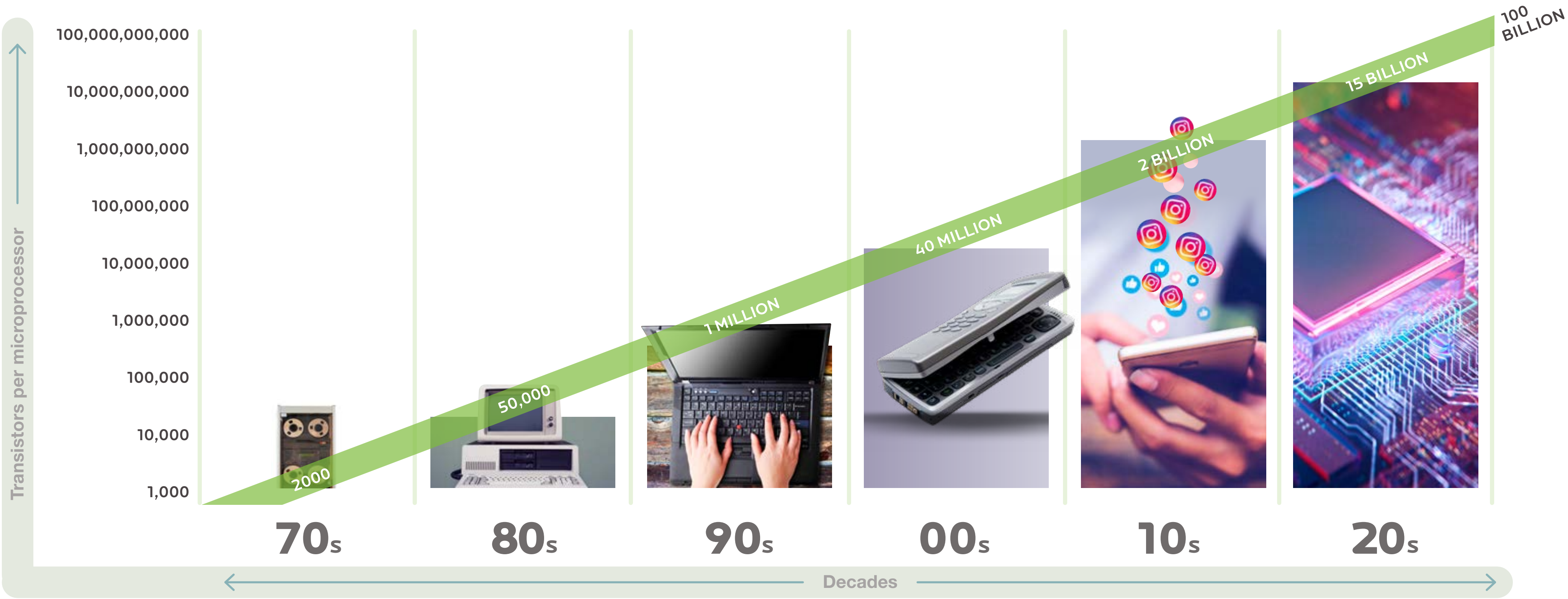
ASMI was founded in the Netherlands in 1968, at the very start of the semiconductor industry. Founder Arthur Del Prado (1931-2016) was our CEO until 2008. He was succeeded by his son, Chuck Del Prado, who was CEO until 2020. In May 2020, Benjamin Loh, our current CEO, took over. ASMI initially entered the furnace deposition market, and started producing these systems in the Netherlands in the early 1970s. As a pioneer of technology advancement and globalization, the company also began launching new companies around the world.

In the mid 1970s, ASM Pacific Technology (ASMPT) was founded in Hong Kong, becoming a market leader in back-end semiconductor assembly and packaging equipment. ASMI divested its majority share in ASMPT in 2013, but maintains a minority share today. ASM America was also founded in the 1970s, laying the foundation of our current epitaxy technology. In the early 1980s, ASM Japan was started, the basis for today's plasma CVD products. This was followed by ASMI's participation in a joint venture with Philips in the mid-1980s to develop lithography technology, known today as ASML. ASMI sold its share in ASML in 1988.

Since the early 1990s, ASMI has focused its efforts on deposition. This includes investing in the novel technique of ALD (atomic layer deposition), leading to acquisitions of ASM Microchemistry in 1999, and ASM Genitech Korea in 2004. In 2007, our Pulsar ALD tool became the first system used in the high-volume manufacturing of devices using a new hafnium-based high-k gate dielectric material. Since that breakthrough, ASMI has continued to strengthen its footprint with leading-edge customers. We have brought novel deposition processes to the market to realize 3D device architectures that can only be enabled by ALD. Over the past five years, we have also been growing our position in the Epi market.

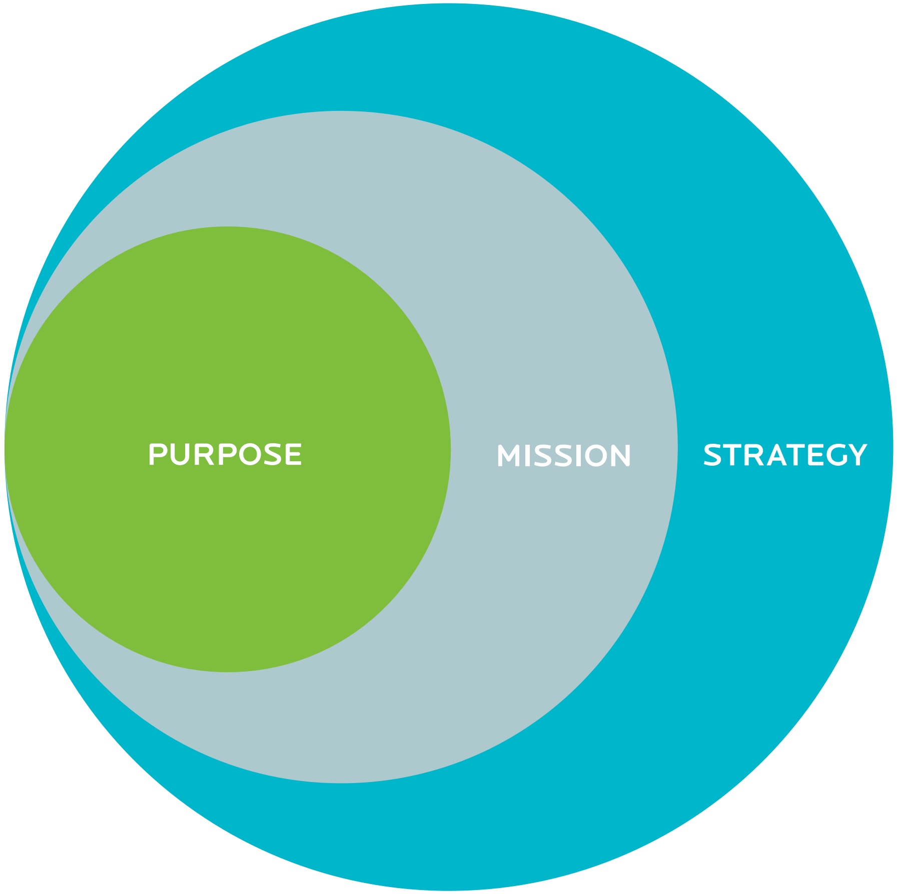
The combination of ASMI's continuous focus on innovation with its global entrepreneurship has led to ASMI's unique structure, with centers of excellence close to customers around the world, and centralized manufacturing in Singapore.

ASMI's technologies are focused on supporting our customers to continue extending Moore's Law, enabling faster and more power-efficient semiconductors



STRATEGY

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



PURPOSE

Our purpose is to improve people's lives through advancing technologies that unlock new potential.
ASMI is a leader in innovation for the semiconductor industry. With our technology, we help move the industry roadmap forward, driving innovation in the electronics market and improving people's lives.

MISSION

Our mission is to enable our customers' success by creating leading-edge semiconductor process products, services, and new materials.
Our deposition technology helps our customers address their device and process-development challenges. By partnering with leading chipmakers to develop new materials, processes, and technologies that support their roadmaps, we drive innovation in semiconductor technology. This helps create new, improved semiconductor devices. We have a deep understanding of the important requirements of the next generations of device roadmaps. This enables us to develop value-added service solutions to the industry's critical issues.

STRATEGY

Our strategy is Growth through Innovation.
Innovation is at the core of what we do at ASMI. With our global, networked R&D model, we can collaborate closely and early with our customers, industry partners, and universities. Over the past 20 years, we have accumulated a vast amount of know-how in ALD materials and chemistries. Coupled with decades of experience in developing reactors and processes, ASMI has a legacy of innovation of more than half a century.

OUR MAIN STRENGTHS

We are a focused deposition equipment player in the semiconductor wafer fab equipment (WFE) market. Our principal technologies are in ALD and Epi, and these play a critical role for our customers in enabling the transition to new device generations. From 2016 to 2021, we grew at a rate of one-and-a-half-times faster than the WFE market. Our target is to continue outperforming the market by leveraging our strong position in advanced nodes. Through revenue growth, we can generate healthy cash flow and profitability, 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, products and processes to our customers. With R&D centers in six countries throughout the world, we are close to our customers, and have access to world-class professionals in the semiconductor industry. This R&D capability has led to a portfolio of leading technologies and a strong patent position, with 2,250 patents in force.

EXTERNAL TRENDS

- **The world around us is digitalizing fast** Technology is increasingly shaping how we live and work – and much of this technology is created with advanced semiconductors. As society becomes more automated and connected, we're relying on a broad range of electronic devices to control our homes, offices, vehicles, and communications. Our connected world is leading to a growing demand for massive amounts of data. This needs ever-greater computer processing power and storage, capable of analyzing and acting on the data quickly and effectively. To make this possible, the processing power of semiconductor chips must constantly increase. ASMI's process equipment technology is key to making this happen.
- **Rising complexity of chip technologies** The continuation of Moore's Law, which states that the number of transistors on a chip doubles every two years, is becoming increasingly difficult. The equipment costs for these advanced nodes are rising, which will place greater pressure on equipment manufacturers to create innovative solutions. At the same time, increasing complexity and smaller chip technology will require more ALD and Epi steps. Being at the forefront of technology development is critical to remaining successful.
- **Attracting and retaining talented employees** This is key to growing and strengthening our organization. The demand for highly skilled people is increasing everywhere we operate. Without the best people, we will not be able to realize our strategy.
- **Environmental footprint** The semiconductor industry provides critical and enabling technology, which contributes to society overall. But the industry's environmental footprint is significant and gaining more global attention. Our customers place a high priority on environmental performance and the associated fab operational economics. It is key to their decision-making process when selecting manufacturing equipment. It is also a major priority of our other stakeholders.
  In 2022, we plan to further strengthen our team, and global innovation and collaboration network, to increase the energy and resource efficiency of our products. This will help to improve the environmental footprint of the industry.
- **Geopolitical risk and shift in global supply** In the past, the success of the semiconductor industry was strongly linked to the success of all parties along the value chain. Innovation by equipment suppliers supported original solutions developed by chip manufacturers. This led to new opportunities for customers to take advantage of these advanced chips. Geopolitical developments put this model at risk. The increased awareness of the importance of a domestic semiconductor industry leads to shifts in the global footprint of the semiconductor industry. We carefully review any impact such developments may have for us, while seeking to take advantage of any new opportunities they may offer.
- **Scarce resources** The increased global demand for semiconductors will fuel the need for more scarce resources. Our obligation to responsibly source such resources will drive us to continue our innovations around the development of new chemistries.

SIX KEY ELEMENTS OF OUR STRATEGY:

Our strategy is based on the following six strategic objectives:

GROW ALD BUSINESS BY MAINTAINING LEADERSHIP IN LOGIC/FOUNDRY AND EXPANDING IN MEMORY

Our ALD business is a key priority. ALD will continue to grow as a core technology as our customers transition to the next nodes. We expect the ALD market to be the fastest-growing segment in the deposition market in coming years. We are focused on maintaining our leading position in the logic/foundry segment, and increasing our market share in the memory segment. 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. We estimate that the single-wafer ALD market will grow to US$3.1-3.7 billion in 2025. Our goal is to have a market share larger than 55% in 2025.

INCREASE EPI MARKET SHARE

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, while increasing our presence in the analog/power market. In R&D, we are working with multiple customers on new Epi applications for the next nodes, which should contribute to further growth of our market share. We estimate the Epi market will grow from US$0.8 billion in 2020 to US$1.5-1.8 billion in 2025. Our goal is to have a market share of more than 30% by that time.

SELECTIVE GROWTH IN VF AND PECVD NICHES

In vertical furnaces and PECVD, we want to further develop our current niche positions by addressing targeted growth opportunities. Vertical furnace applications for the analog/power market is an example of a niche position we have selectively been investing in.

GROW SPARES & SERVICES BUSINESS

We aim to accelerate the growth of our spares & service business through continued expansion of our installed base, and growing our offerings to include differentiated outcome-based services. These are in addition to our existing offering of spare parts, maintenance and support services. The focus of the new offerings will be on creating value for our customers. An example is the development of new surface technologies for the parts we use to improve our system performance, lower costs, and reduce the resources required to keep our systems running. We are positioning service packages designed to improve our customers' entire ASMI installed base on wafer performance, and system uptime and output. The benefit for the customer is lower operations costs.

For us, it means being able to expand our service to our entire installed base, not all of which is maintained by ASMI today. Through approaches like this, we are able to unlock our latent installed base as a solid business-growth driver.

ACCELERATE SUSTAINABILITY

Our focus is to deliver long-term sustainable value creation for all our stakeholders and have a positive impact on the world. We aspire to be a sustainability leader in our industry, evidenced for example by: our recent Net Zero by 2035 target which is among the most ambitious in our industry, being consistently recognized and awarded as an industry safety leader by key customers, and by improving our CDP Climate and Water scores. Furthermore, we will do so by continuing to address the key ESG topics and opportunities that are aligned with and responsive to our stakeholder priorities.

DRIVE STRONG FINANCIAL PERFORMANCE

Healthy profitability will allow us to continue investing in growth. To this end, we have formulated our profitability targets for the period 2021-2025. We strive to achieve sustainably higher gross margins between 46% and 50%, and an improved operating margin of 26% to 31%, generating strong free cash flow.

FIVE KEY ENABLERS FOR OUR STRATEGY

To be able to realize our strategy and strategic objectives, we identified five critical enablers. All our activities are focused around these elements:

BEST PEOPLE

Our employees are our biggest asset. We strive to create a safe, inspiring, and motivating workplace where our people 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 continued rapid expansion in our workforce, we are focusing on strengthening ASMI. This means developing our talent pool with more long-term career progression and training. It also means strengthening and unifying our ASMI culture. Our core values – We Care, We Innovate, We Deliver – will help us grow employee engagement, and shape an inclusive and diverse culture. This will support us in attracting, retaining, and developing the talent we need to support ASMI's growth. Read more in the section 'People'.

LEADING-EDGE INNOVATION

The core element in our overall growth strategy is continuous innovation. This provides ASMI with a leading technological competitive advantage. With R&D centers in six countries, we have helped shape today's leading-edge semiconductor products by driving innovation through our collaborative R&D models. We have successfully delivered advanced new materials, products, and processes to our customers. Our R&D spending is focused on developing new materials and process solutions that enable additional applications. Continuous product improvements in performance, reliability and cost of ownership is key. We are also focused on improving the energy and resource efficiency of our products. In addition, we are making capital investments in lab space and equipment to further expand our development capabilities in next-generation technologies. As well as our internal R&D efforts, we are growing and deepening our strategic cooperation with key customers, suppliers, chemical manufacturers, and research institutes. Read more in the section 'Innovation and products'.

EARLY CUSTOMER ENGAGEMENTS

We have strong customer relationships with the leading semiconductor manufacturers, working closely together in the early stages of their device roadmaps. As we have expanded and deepened our R&D engagements with chipmakers, we have developed our understanding of the key requirements of the next generation of device roadmaps. This is enabling us to develop value-added solutions to the industry's critical technology issues. Read more in the section 'Customers and markets'.

FLAWLESS 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 are stepping up our capabilities in engineering, product lifecycle management (PLM), and quality. 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. Read more in the section 'Global operations'.

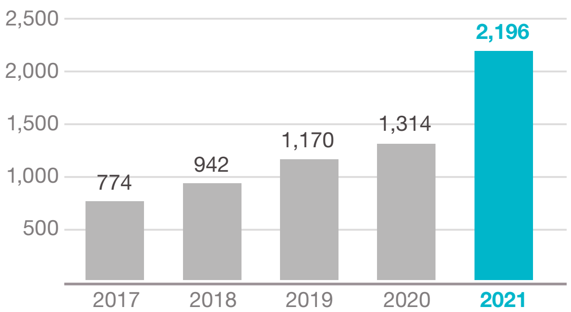
STRONG FINANCIAL POSITION

We strive to maintain a strong balance sheet that allows us to continue investing in R&D. To this end, our target is to increase the minimum amount of cash on our balance sheet from €300 million to €600 million in the period until 2025 (as announced at our Investor Day in September 2021). At the end of 2021, we had €492 million in cash and cash equivalents. ASMI generated a healthy free cash flow of €266 million. We intend to continue paying a sustainable dividend, and use excess cash for the benefit of our shareholders through share buybacks. Read more in the section 'Shareholders'.

KEY PERFORMANCE
FINANCIALS

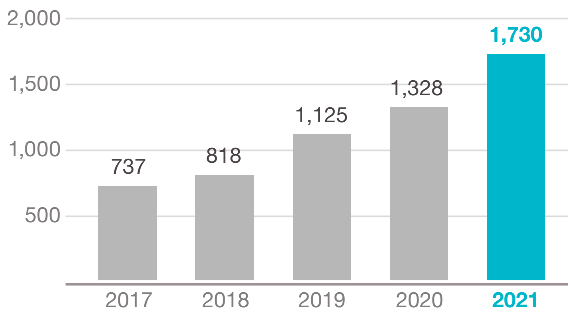
Bookings*

€ million



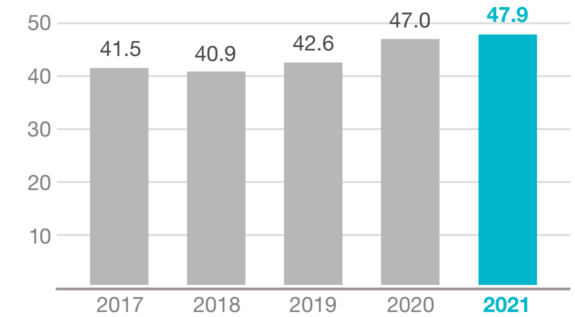
Revenue*

€ million



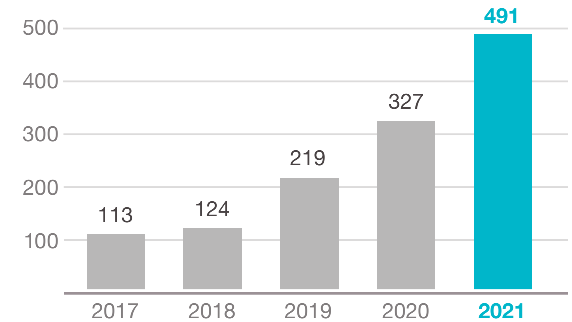
Gross margin*

in %



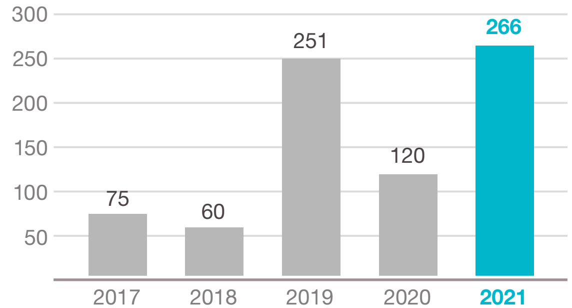
Operating result*

€ million



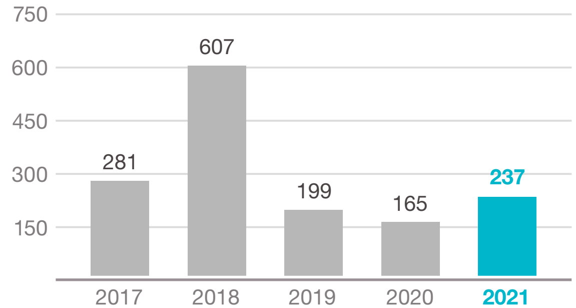
Free cash flow*,,*****

€ million



Cash returned to shareholders

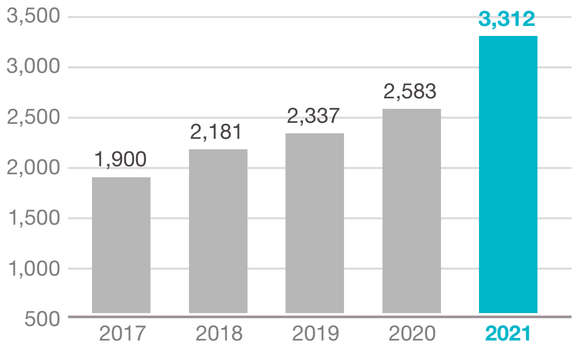
€ million



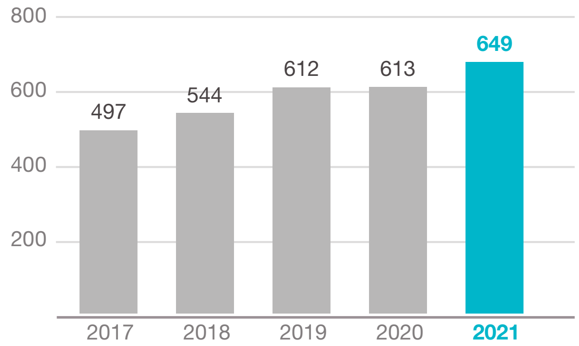
* Excluding proceeds from patent litigation and arbitration settlement in 2019.
** Excluding proceeds from the sale of ASMPT shares in 2017.
*** The free cash flow previously reported is adjusted to reflect the definition of the free cash flow. For more information, see Glossary and definitions. The years 2017-2018 are revised for comparability purposes to reflect accounting of leases under IFRS 16, effective as of January 1, 2019.

KEY PERFORMANCE
PEOPLE

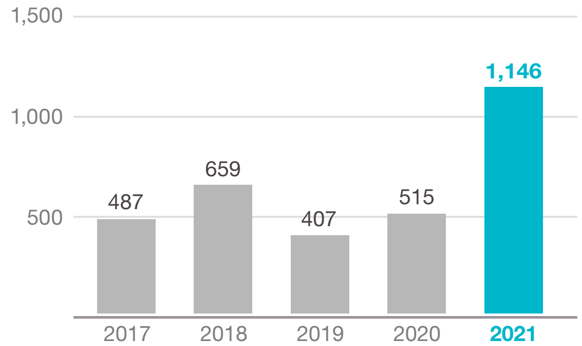
Employees



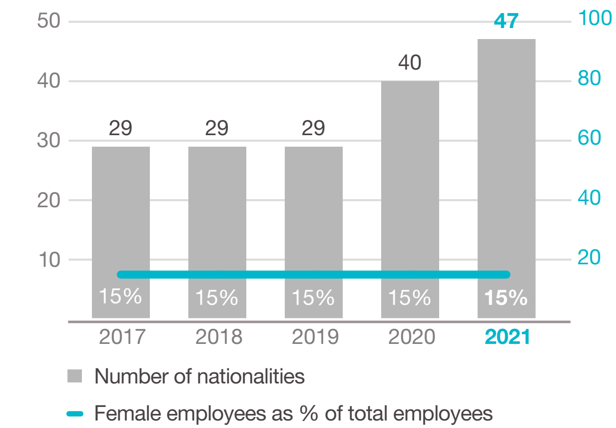
People in R&D



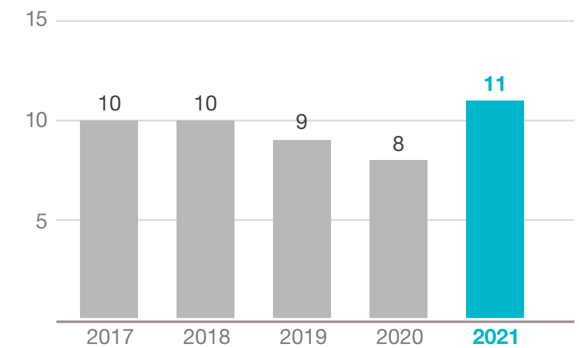
New hires



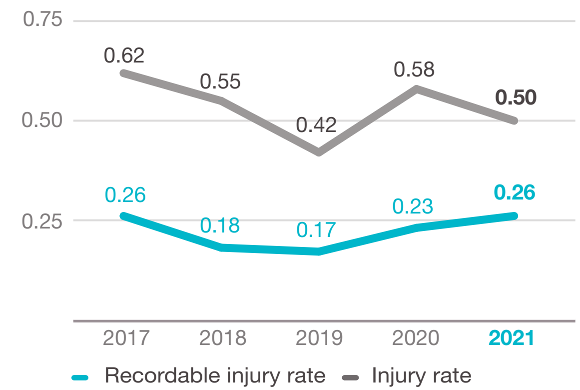
Diversity



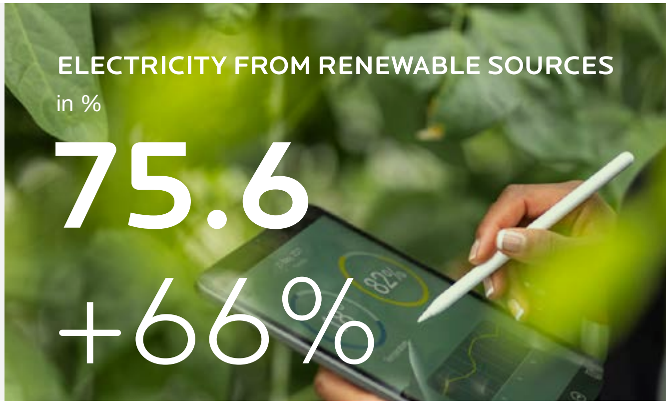
Voluntary attrition in %



Global injury and recordable rates

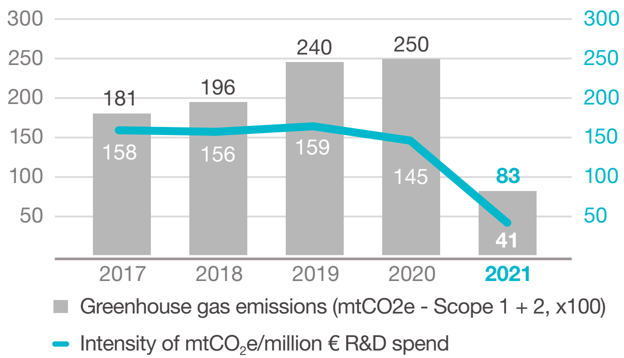


KEY PERFORMANCE
PLANET



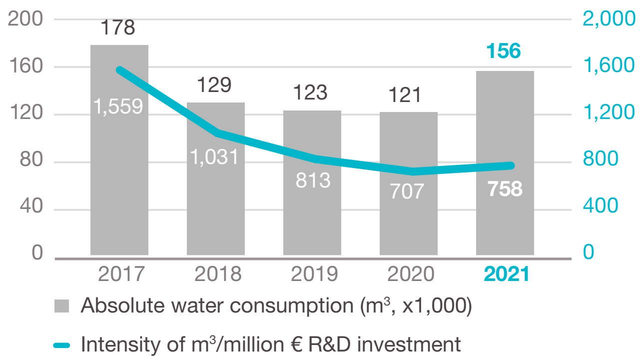
Greenhouse gas (GHG) emissions*

(Scope 1 and 2 emissions and normalized per R&D investment)



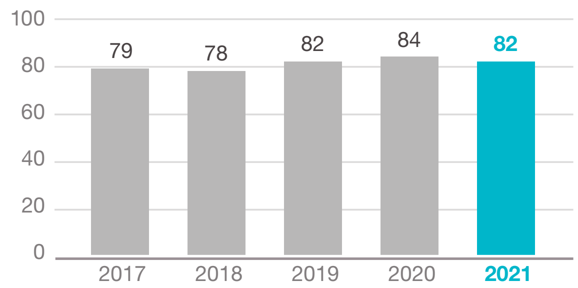
Water withdrawals

(Absolute and normalized per R&D investment)



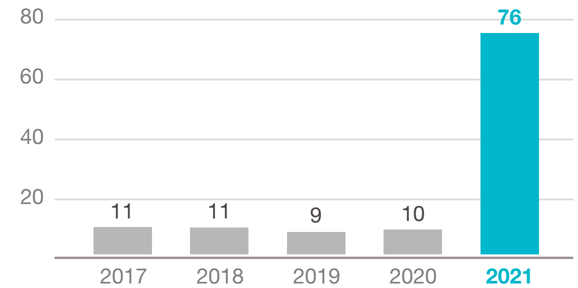
Landfill diversion rate (in %)

Primary manufacturing and engineering sites



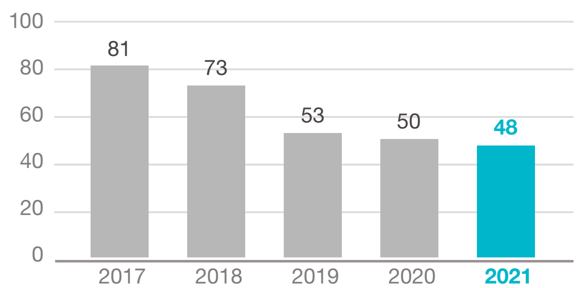
Electricity from renewable sources (in %)

Primary manufacturing and engineering sites



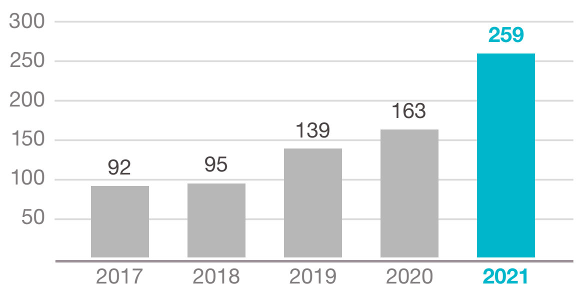
Water from stressed regions (in %)

WRI water stress high and extremely high rankings



Landfill diversion (in metric tons)

(All product packaging reuse - ASMI, Customer)



* 2021 Scope 2 emissions presented are based on the market-based method.

VALUE CREATION

Our purpose is to improve people's lives through advancing technologies that unlock new potential. Our focus is on long-term sustainable value creation for all our stakeholders.

We focus on value creation for our customers, by continuously improving our products to support their technology roadmaps, increase productivity, and lower operating costs per wafer. Our people are our key asset. Our role is to create an inclusive workplace and culture that allows everyone to grow, thrive, and develop a fulfilling long-term career. We are committed to creating long-term shareholder value. ASMI's growth and innovation have driven investment in manufacturing, supply chain, and key talent to keep up with, and stay ahead of, technology and market demands. We do all of this with innovation and sustainability top of mind.

Sustainability is an integral part of our Growth through Innovation strategy. In 2021, we defined our sustainability focus and priorities for the next horizon: the years 2021 to 2025 and beyond.

LONG-TERM VALUE CREATION

We create value through our technologies by enabling leading semiconductor manufacturers to deliver the world of tomorrow through our innovative processing solutions, equipment, and services. The process solutions delivered on our equipment enable a range of chip technologies, such as more powerful microprocessors and higher density memory devices, all operating at lower power. The advancements of new semiconductor technologies benefit our society and improve people's lives.

GREATER PERFORMANCE, REDUCED ENERGY CONSUMPTION

Our advanced deposition technologies support cost-effective products that enable the electronic devices of today and of the future – devices that deliver ever-greater performance while using less energy. The industry's relentless push to follow Moore's Law, and complex new device architectures, leads to the continuous demand for smaller, faster, and cheaper semiconductor components. The technologies required to achieve these advancements depend heavily on equipment such as ASMI's process tools. Furthermore many advanced processes require developing new materials. Innovation is the growth engine that drives our R&D programs to develop the equipment and processes that our customers' roadmaps require. For example, ASMI's ALD and Epi tools are critical to creating high-performance transistors that can operate at lower power levels. This is a key enabler for products such as smartphones, Internet-of-Things (IoT) devices, which have substantial functionality in a small form factor with good battery life. More powerful and energy-efficient processors and memory chips also enable new end-market applications such as artificial intelligence, which in turn can contribute to advances in healthcare, education, and many other industries.

This value creation benefits all our stakeholders. Our people are our key asset, our role is to create an inclusive workplace and culture. Thanks to our leading position in advanced deposition solutions, our employees can enjoy the challenge of developing cutting-edge solutions. Our suppliers, in addition to a higher activity level, benefit from improved quality and efficiencies resulting from our supplier process control program. Consumers benefit from the enhanced functionality and added value provided by the new electronic products enabled by advanced semiconductors. A great example of this is the widespread use of smartphones. Continuous advancements in chips empower global consumers: they have extensive computing power in the palm of their hand that increasingly drives their daily activities.

OUR BUSINESS MODEL

We strive to create value for the company and all of our stakeholders. Our technology enables the precision deposition of thin films in various steps in the fabrication of semiconductor chips. This helps our customers build the most advanced chips used in 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, employees, society, and other stakeholders. Our products and process solutions benefit society by helping to enable a wide range of advanced 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. One of our strengths is more than two decades of accumulated know-how in ALD materials and chemistries.

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 our customers can ramp their fabrication plants. We support our customers globally with process and equipment services, and spare parts. We are increasing our focus on integrating sustainability and circularity in our product lifecycle in the areas of innovation, design, system operation, refurbishment, and services.

HOW WE CREATE VALUE: GROWTH THROUGH INNOVATION

RESOURCE INPUTS

FINANCIAL
- Strong financial position
- €492 million cash position

MANUFACTURING & SUPPLY CHAIN
- Cost of sales €902 million
- Steep ramp of our new manufacturing facility
- Suppliers in more than 20 countries

INNOVATION
- Gross R&D spending of €206 million
- More than two decades of know-how in ALD materials

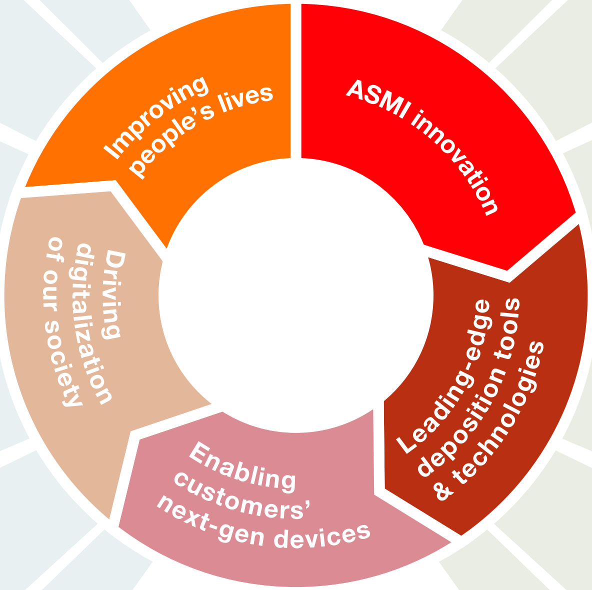
PEOPLE
- 3,312 talented and skilled employees
- 47 different nationalities

COLLABORATION
- Partnerships with universities/imec
- Strategic relationships with universities/imec

NATURAL
- 54,998 MWh, 76% from electricity from renewable sources, and 156k cubic meters water used

PURPOSE
Improve people's lives through advancing technologies that unlock new potential

MISSION
Enable our customers' success by creating leading-edge semiconductor process products, services, and new materials



STRATEGIC OBJECTIVES
- Maintain leadership in ALD market
- Grow share in Epi market
- Selective growth in PECVD & vertical furnace niches
- Grow spares & services through outcome-based offering
- Drive continued strong financial performance
- Accelerate sustainability in key focus areas: Innovation, People, Planet, Responsible supply chain, Governance

VALUE OUTPUTS

FINANCIAL
- 30% increase in revenue
- €266 million free cash flow

IMPACT
- Driving long-term value for all stakeholders

MANUFACTURING & SUPPLY CHAIN
- Delivering on customer requirements with record shipments in 2021 despite supply chain constraints

IMPACT
- Creating growth opportunities for our suppliers and encouraging them to follow best practices in sustainability
- Continued investment in state-of-the-art infrastructure

INNOVATION
- Strong pipeline of new applications for 2nm and beyond
- 2,250 patents in force

IMPACT
- Our advanced deposition technologies enable next-gen semiconductors, driving the digitalization of our society

PEOPLE
- 1,146 new hires
- 11.1% voluntary attrition rate

IMPACT
- Creating an inspiring, diverse, and safe workplace where our people can excel, pursue a career, and develop themselves

COLLABORATION
- New partnership with IBM
- Several new JDPs* for next technology nodes

IMPACT
- By working together with customers and partners we contribute to continued innovation in our industry

NATURAL
- Transitioned most key sites to electricity from renewable sources in 2021
- 59% improvement landfill diversion (all sources)

IMPACT
- Net Zero emissions by 2035
- Reducing our environmental footprint

* Joint development programs

Numbers refer to 2021 unless indicated otherwise.

ASMI's enterprise value creation and reporting models are informed by the Value Reporting Foundation's integrated reporting framework and SASB Semiconductor Accounting Standard.

HOW WE ENHANCE SUSTAINABILITY

Our focus is on long-term sustainable value creation for all our stakeholders. Sustainability is an integral part of our Growth through Innovation strategy. In 2021, we defined our sustainability focus and priorities for the next horizon – the years 2021 to 2025, and beyond. These are: innovation, people, planet, responsible supply chain, and sustainability governance. We've identified priorities for each area, and address these in detail later in the report. Below is an overview of our five sustainability focus areas.

INNOVATION

- **Product sustainability**
  Improving the energy and resource efficiency of our products
- **Product safety**
  Improving the safety of our products and our customer's operations

PEOPLE

- **Safety**
  Making a positive impact on the safety of our industry
- **Our team**
  Unleashing everyone's potential at ASMI
- **Community, industry, society impact**
  Positively impacting our communities, industry, and the world around us

PLANET

- **Net Zero**
  Achieving our Net Zero 2035 target
- **Climate adaptation**
  Addressing climate change risks and opportunities

RESPONSIBLE SUPPLY CHAIN

- **Safety**
  Ensuring safety throughout our supply chain
- **Net Zero**
  Collaborating to address our carbon footprint
- **Product sustainability**
  Improving ASMI product sustainability
- **Human rights**
  Ensuring the ethical treatment of people throughout our supply chain

SUSTAINABILITY GOVERNANCE

- **Cybersecurity and IP protection**
  Assuring robust cybersecurity and IP protection
- **Disclosures**
  Providing transparency, integrity, and assurance

CUSTOMERS AND MARKETS

Wafer fab equipment (WFE) grew significantly in 2021, driven by customer demand across logic/foundry and memory leading-edge nodes. There was also solid growth in segments such as analog and power, due mostly to the Internet of Things (IoT), autonomous driving, and 5G connectivity. The service and support of this equipment is also driving customized, outcome-based solutions. As the industry approaches US$100 billion in WFE, and the market for leading-edge solutions continues to grow, ASMI's strong track record of innovation in materials, hardware, and process continues to support our customers. We enable their roadmaps, which are focused on technology acceleration, manufacturing efficiency, cost optimization, and sustainability.

MARKETS

With the ever-increasing digitalization of global economies, advanced semiconductors are playing a key role in creating this more connected world. As a result, new end-market products and applications are being developed, including:

- Edge and cloud computing, and big data analysis;
- Artificial intelligence;
- 5G smartphones;
- Autonomous and electric vehicles;
- IoT for smart connected devices; and
- Ultrafast wideband 5G communication networks.

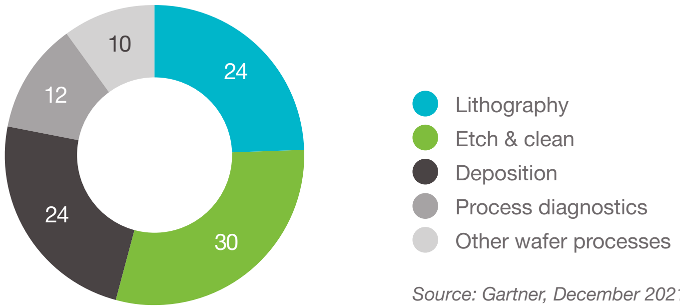
In 2021, the semiconductor industry was driven by a US$2.5 trillion global electronics industry (VLSI Research, December 2021) that required around US$578 billion of semiconductors, up 24% compared to 2020. The increased need for semiconductors was driven by growing demand for data processing in the work-from-home economy, and by higher prices in memory devices, as supply and demand of the memory market began to balance out.

In turn, the semiconductor industry supported the around US$125 billion semiconductor capital equipment industry, which supplies the required production systems and services. WFE spending was up about 38% in 2021. It reached US$88 billion (VLSI Research, January 2022), due to increased spending for advanced logic and foundry, as leading customers stepped up spending on the most advanced nodes.

Within wafer processing equipment, the major segments include lithography, etch & clean, deposition, and process diagnostics. Our focus is on deposition equipment, which comprises about 20-25% of WFE. Within deposition, ALD and Epi are fast-growing market segments. The single-wafer ALD market is expected to grow from ~US$1.5 billion in 2020 (ASMI estimate) to around US$3.1 - $3.7 billion in 2025 (ASMI estimates). The Epi market is expected to grow from ~US$0.8 billion in 2020 (VLSI Research April 2021) to about ~US$1.5 - US$1.8 billion in 2025 (ASMI estimates). Based on these estimates, the ALD and Epi markets are expected to outgrow the total WFE market.

Looking ahead, market researchers are predicting the semiconductor market will almost double, to reach at least US$1 trillion by 2030. This is driven by the digital transformation megatrends, which ultimately will also grow the WFE market.

Wafer fab equipment in %



Source: Gartner, December 2021

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 and device architectures, and complex process steps, which are also driving more ALD and Epi applications. With each new technology node, the challenge grows to reduce the environmental footprint of the manufacturing equipment, and processes used to make these chips.

Consequently, we see that each new technology node requires increasing investment in process equipment. Given that the semiconductor production market is so capital intensive, only a limited number of companies are able to participate. This means our customer base has become more concentrated over time. It is only 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. This 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 United States, Asia and Europe. Notably, the China region has become a significant growth area for new fab investments. This includes both domestic Chinese companies and foreign companies building fabs there for the local market. To better serve this growing market, we are continuing to increase our investment in people and support infrastructure in China.

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 creating 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 fabs 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.

OTHER MARKETS

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, vehicles, telecommunications, and other applications. Wafer manufacturing is another relatively small segment we participate in. This is for the processing of bare silicon wafers before they are delivered to semiconductor fabs.

CUSTOMERS

The goal of customers 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 our stakeholders. We serve society by helping our customers produce the chips needed for the advanced electronics that deliver a world of improvements and opportunities.

We are engaged with, responsive, and committed to addressing the collectively broad range of our customer's sustainability expectations, which include detailed inquiries and periodic audits. We collaborate with our customers on sustainability topics wherever possible, to expand our contributions and impact.

2021 CUSTOMER ACCOMPLISHMENTS

ASMI is committed to providing its customers with the best products and services. We work closely with our customers to make sure our products meet their roadmap requirements. Our service teams are on hand at their global fabs to deliver ongoing support for equipment and processes.

Throughout 2021, we were recognized by several key customers for equipment performance and support.

In January, a customer in China recognized ASMI with a Best Supplier award. In April, another customer in China presented us with its Excellent Support Award.

GROWTH THROUGH INNOVATION

COLLABORATING WITH OUR CUSTOMERS

"WE SUPPORT OUR CUSTOMERS' ROADMAPS FROM THE EARLY STAGES, UP TO 10 YEARS IN THE FUTURE."

ASMI's R&D teams are driving innovation by collaborating with our customers and aligning our developments with their roadmaps. A critical component of our success is close and early collaboration with global research institutions, such as imec, key universities, suppliers and leading customers.

Through our advanced R&D organizations in Helsinki, Finland, and Leuven, Belgium, we initially work with R&D partners and customers on new process and materials technology that is about four to eight years away from expected manufacturing. In our key product units, we work with customers on technology that is about two to six years away from volume manufacturing on their roadmaps.

High-k metal gate technology was first developed for logic/foundry and, more recently, is being used in DRAM memory devices. ALD patterning applications were initially developed for spacer-defined double patterning (SDDP) in memory, and subsequently for logic/foundry. ALD gap-fill processes were initially focused on 3D-NAND, and are now also targeted at a wide range of applications across all device types.

In Q1, we were recognized by a top customer in Taiwan for Safety Leadership, and by the Taiwan government's Industrial Safety and Health Association for zero recordable accident hours.

In January, a large multinational customer presented ASMI with its 2020 Excellent Supplier Award for activities at its fab in China. In Q3, another multinational customer in China gave us its Sustaining Excellence award.

In March, Intel recognized ASMI with a Preferred Quality Supplier (PQS) Award, and Distinguished Performance in Safety for 2020.

In November, a large customer in South Korea presented ASMI with its 2021 Best Collaboration Award.

In December, ASMI was awarded the Excellent Performance Award from TSMC for Excellent Production Support.

In 2021, our service team was honored with the Top Supplier Award in Safety from a leading memory customer in Taiwan for their annual safety performance. It was the second year in a row that ASMI received this award. This underlines how we value safety, both among our teams and in our workings with customers to improve our shared safety.

In 2020, a key customer invited ASMI to join its highly select Sustainability Leaders program. Our 2021 accomplishments exceeded their expectations, positioning ASMI as a sustainability leader in our industry.

LOOKING FORWARD

Strong digitalization trends are driving significant growth in the semiconductor and WFE markets. ASMI is preparing to support its customers and grow its business in that environment. ASMI is the leader in ALD and is expanding in Epi. These technologies are expected to outgrow the WFE market, driven by key inflections such as GAA transistors. Strategic objectives include: maintaining leadership in logic/foundry, expanding in memory, gaining share in the Epi market, and growing spares & services. Strengths in innovation, early customer engagement, and product differentiation enable advanced, cost-effective solutions for our customers.

INNOVATION AND PRODUCTS

We continually improve our products through innovation, the growth engine of ASMI. Our products and innovations are crucial to advancing our customers' technology roadmaps, and enabling the industry to advance to the next technology node. ASMI's ALD, Epi, PECVD and vertical furnace systems are important growth areas, and we focus a large part of our R&D investments on these technologies. Our innovations and product stewardship are geared to making our tools more productive and efficient. Also, to enhance their safety and energy efficiency, so reducing their environmental impact.

GLOBAL RESEARCH

The industry's relentless push to follow Moore's Law, and complex new device architectures, leads to the continuous demand for smaller, faster, and cheaper semiconductor components. The technologies required to achieve these advancements depend heavily on equipment such as ASMI's process tools. Furthermore, many advanced processes require developing new materials. Innovation is the growth engine that drives our R&D programs to develop the equipment and processes our customers' roadmaps require.

ASMI has a globally decentralized R&D and engineering organization, with a corporate R&D group. Resources are located mainly in Helsinki, Finland, and Leuven, Belgium, with additional resources in our product-development sites in the Netherlands (Almere), the US (Phoenix), Japan (Tama) and South Korea (Dongtan). The R&D effort is centrally managed from our headquarters in the Netherlands.

The corporate R&D group addresses common needs for advanced process and materials development. It also looks at process integration work for the advanced nodes that are four to eight years away from initial semiconductor production at our customers.

The product-development sites are centers of excellence for a subset of products and technology. For example, the site in the Netherlands is focused on vertical furnaces. In Phoenix, it's on Epi and thermal ALD. In Dongtan, it's on PEALD, and in Tama, it's on PECVD and PEALD, in collaboration with Dongtan.

A global platform engineering group addresses the need 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 throughout the organization.

We collaborate globally with R&D partners, suppliers, and customers. Our R&D portfolio, and technology and product roadmaps, are aligned with our customers, and mutually, with a defined controlled process. We perform quarterly reviews of our R&D programs and portfolio to make sure they align with our strategy and short-term industry needs. We also perform annual roadmap and technology reviews to match up with the long-term needs of the industry.

An important aspect of our operating model is to engage with customers early in the R&D process. This means we are better able to align our roadmap and R&D portfolio with that of our customers. It also means we can down-select candidate materials and processes more effectively. Through our advanced R&D organizations in Helsinki and Leuven, we work with customers on the technology that is expected to be used in manufacturing in about four to eight years time. In our key product units, we work with customers on the technology that is closer to being used in manufacturing, in less than six years time.

2021 R&D ACHIEVEMENTS

In 2021, we significantly increased our capital investment related to R&D activities, and grew the number of R&D employees from 613 to 649. These investments included demo, R&D, and metrology tools. To accommodate our strong performance in the ALD growth market, we expanded our Tama R&D facility, and are planning to grow our Dongtan Korea R&D footprint. We also have an expansion plan for our Helsinki R&D facilities, to increase our capability in materials development. To support our strong increases in the ALD and Epi growth markets, we invested significantly in modernizing the equipment base in our Phoenix R&D facility, including investments in the advanced metrology tools we use in our labs.

Our global R&D network is well suited to initiate and coordinate collaborations globally, and manage them centrally. Accordingly, as an integral part of our roadmap-driven R&D efforts, we have expanded our external R&D engagements with new collaborators.

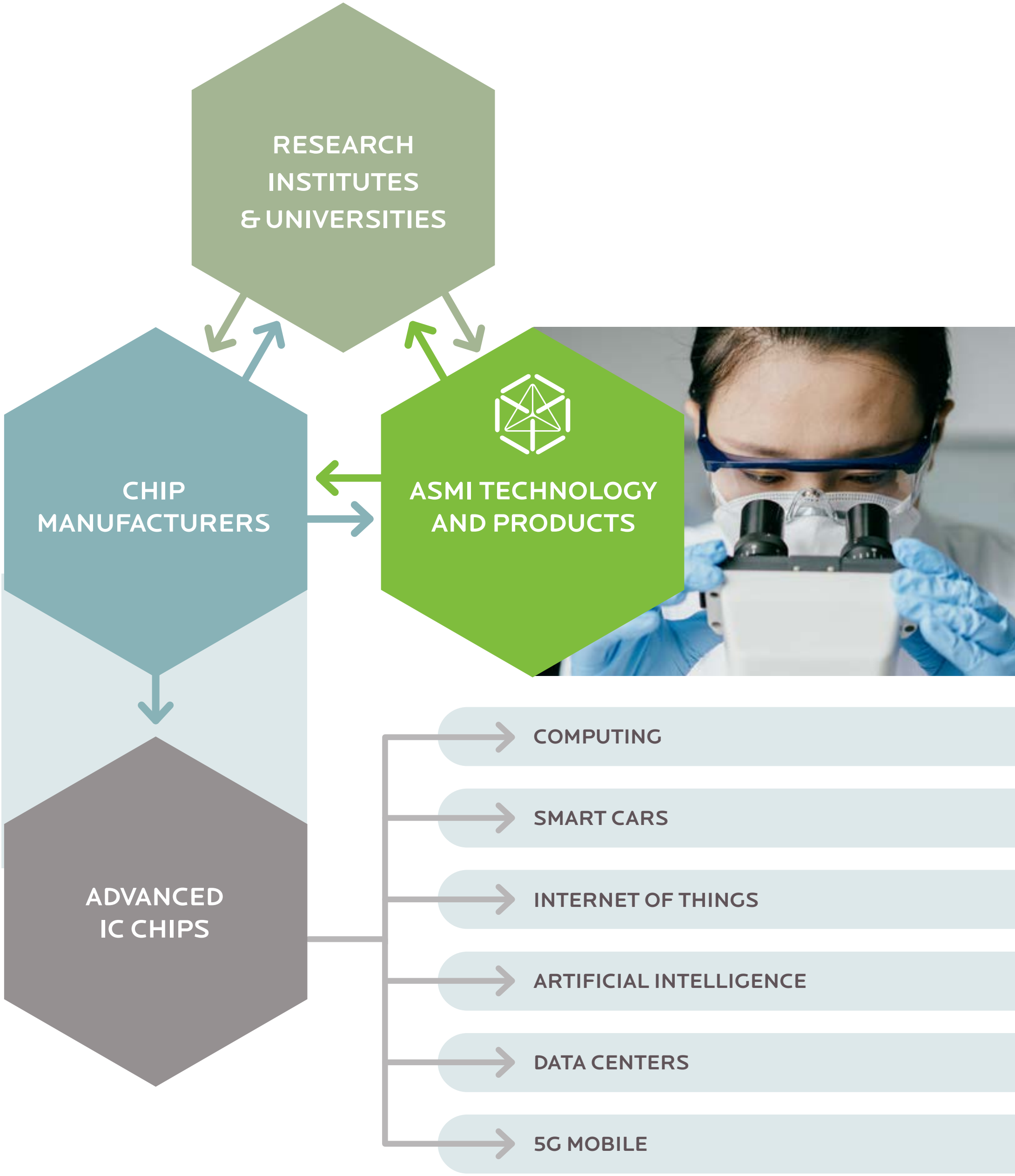
In 2021, we continued our strategic partnership – that was renewed for the third time in 2017 – with the Interuniversity Microelectronics Center (imec) in Leuven, Belgium, the world-leading R&D institute in our industry. We have now renewed this for the fourth time, extending through to 2025. We intend to significantly expand the scope of this collaboration, equivalent to roughly doubling R&D spend over the next four years. The statement of work includes many of our state-of-the-art 300mm products. It also includes work aimed at disruptive inflections in our industry that may materialize beyond 2026. The imec collaboration gives us the opportunity to investigate, both jointly and independently, the integration of individual process steps and new materials in electrically active devices. We have partnered with imec since 1990, with significant on-site representation since 1994.

In February 2022, we signed a new five year agreement with the University of Helsinki to form and fund the Atomic Layer Deposition Center of Excellence (ALD CoE). This is a significant expansion of the nearly two-decade collaboration with the University that first started in 2004. The ALD CoE will focus on research around ALD that is necessary for future semiconductor technologies. The ultimate aim is the design of new precursors, processes and materials that will have great scientific and technical impact. We are co-located with the university, allowing for a close collaboration on creating new ALD chemistries and developing new materials deposited by ALD. The intended timeline to bring most of these targeted innovations into production is towards the end of our horizon of 2028, and beyond.

We engaged in a new three-year contract with the Semiconductor Research Corporation in their nanostructured materials program (NMP). We expect this collaboration will expand our connection

DRIVING INNOVATIONS

ASMI in the value chain



with academia, mainly in the United States, but some other countries too. Also in 2021, we engaged in a three-year program with IBM in their Albany SUNY research center. This will enable us to test our Epi and ALD materials in GAA devices.

Through our network, we collaborate with universities in several countries on a bilateral basis, including, among others, academic institutions in the Netherlands, Belgium, Finland, the United States, Canada, Japan and South Korea.

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***.

We applied for membership of the European Industrial Alliance for Processors and Semiconductor Technologies. Its two main objectives are to reinforce the European electronics design ecosystem, and establish the necessary manufacturing capacity along a twin track towards 16nm to 10nm, and below 5nm to 2nm, and beyond. We are discussing partnerships in projects related to the Important Project of Common European Interest (IPCEI) on Microelectronics and Communications Technology.

We participate in select publicly funded programs to research and develop 'More than Moore' technologies. This is a strongly growing market of various types of analog chips that are not driven by the same Moore's Law technology scaling inflections of mainstream logic and memory chips. We are also a member of the Association for European NanoElectronics Activities (AENEAS), and participate in roadmap activities.

We occasionally cooperate with other semiconductor capital equipment suppliers in complementary fields. Our aim is to gain knowledge of the performance of our own deposition processes, in cooperation with other processes, either in bilateral or consortia projects.

In 2021, we were engaged in several formal joint-development programs (JDPs) with customers for 300mm applications of our products. We were also 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.

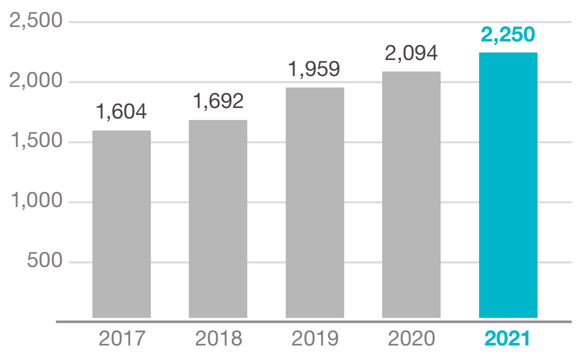
PATENTS, TRADEMARKS, & IP SECURITY

New deposition technologies and chemistries continue to be a major driver for new intellectual property (IP) for ASMI. Patents give us the right to protect our innovative processes, products, services, or aspects thereof, so enabling us to speak more openly about our innovations and share ideas in the marketplace that benefit our customers. At the same time, failure to adequately protect our IP and/or leakage of our IP, trade secrets, or confidential information, could result in the loss of our competitive advantage, and adversely impact our customers and suppliers, or our financial performance.

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

We strategically develop our IP portfolio via strong interaction with the ASMI technical community to ensure freedom to market, and a competitive advantage as a shareholder asset. Recent research by LexisNexis® PatentSight® shows that ASMI was listed among the top 20 patent owners in the technology field of semiconductor manufacturing, and that ASMI leads the Patent Asset Index™ in ALD****. On an annual basis, we review our portfolio to optimize its strength, while limiting the increase in maintenance costs associated with an expanding portfolio. As of December 31, 2021, we had 2,250 patents in force worldwide protecting our various products.

Patents in force



* De Nederlandse Organisatie voor Wetenschappelijk Onderzoek ("Dutch Organization for Scientific Research")
** Domein Toegepaste en Technische Wetenschappen ("Domain for Technical and Applied Sciences")
*** Vlaams Agentschap Innoveren & Ondernemen ("Flemish Agency for Innovation and Entrepreneurship")
**** www.patentsight.com/en/ip-analytics-blog/atomic-layer-deposition-thin-layers-are-a-big-thing

We have registered a number of trademarks covering our product portfolio in the principal countries where we do business (as of December 31, 2021):

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

IP and confidential information security and cybersecurity are fundamental aspects of our business. Responsibility for intellectual asset security is assigned to the Senior Director, IP and Licensing, and responsibility for cybersecurity is assigned to the CIO. These leaders work closely together to ensure full coverage of these important matters and areas of overlap. We took further steps in 2021, completing a business-wide intellectual asset security and cybersecurity assessment with the combined engagement of a recognized expert third party, our Internal Audit function, and our key business area leaders. This assessment, its findings, and the resulting improvement roadmap and progress is reviewed with the Management Board, and the Audit Committee of the Supervisory Board.

As a baseline, we protect ASMI, customer, supplier, and partner confidential information by training all employees on the importance of intellectual asset protection, as well as how to recognize and report possible violations. This training is provided to all new hires and employees are given regular refresher training. We have also implemented an information rights management (IRM) system to further structurally improve protection. We anticipate additional systems and processes will be utilized to further enhance our IP and confidential information protection program.

In addition to implementing IRM, we have focused on strengthening our cybersecurity posture in a number of ways: Shortening patching intervals, securing endpoints with best-in-class anti-malware technology, increasing resilience against phishing campaigns, and implementing tools that enable continuous threat detection and monitoring of our most commonly used IT systems and operational technology devices. This increased proactive approach towards cyber defense helps limit and contain impacts from a potential cybersecurity incident. It also builds our readiness to respond to potential risks introduced from new and existing vulnerabilities.

OUR PRODUCTS

Our products include wafer processing deposition systems for ALD, Epi, PECVD and vertical furnaces. We continuously drive innovation of our products and services to address the technology needs of our customers, and the industry's focus on reducing costs and improving the environmental footprint. Our development programs are aimed at increasing throughput, equipment reliability and yield in our customers' manufacturing line, and lowering the energy and resource intensity and cost of ownership. This benefits our customers through reduced operating costs, as many of our products use the same parts and consumables, while a common control architecture improves ease of use.

ALD

ASMI is the leader in the fast-growing single-wafer ALD market – with an estimated market share of about 55% in 2020, as presented at the Investor Day in September 2021. Using ALD technology, we can scale devices to smaller dimensions while reducing the power consumption of transistors. This helps the industry follow Moore's Law, and create smaller, more powerful semiconductors. ALD allows us to deposit thin films atom-by-atom on silicon wafers. This means we can deliver atomic-scale thickness control, high-quality deposition film properties, and large area uniformity. Such precision allows us to use materials that could previously not be considered, and develop 3D structures vital to the future of electronics. 3D technology provides several benefits. This includes saving space while delivering chips with higher performance that consume less power. Many new applications are emerging where ALD is the technology of choice, and in some cases it is the only solution able to meet the challenging technology requirements. For example, ALD high-k gates are now in production for high-performance DRAM devices. We are seeing customers requiring more ALD applications for each new technology node.

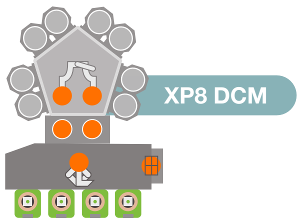
In PEALD, plasma is used to provide the reaction energy for the process, enabling us to use lower temperatures for low-thermal budget applications. This technology was introduced in DRAM and planar NAND flash manufacturing for spacer-defined double patterning (SDDP). This technique can reduce device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

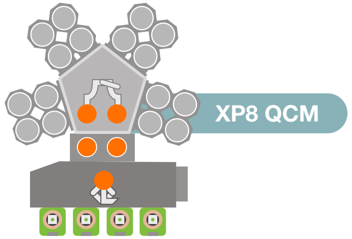
ASMI has the broadest portfolio of ALD products. On our XP platform, we offer Pulsar and EmerALD single-chamber ALD process modules for high-k dielectric and metal gate films respectively. The Synergis ALD tool uses the XP8 platform, and leverages the core technologies from our Pulsar and EmerALD ALD products for high-productivity thermal ALD applications. Synergis is available for a range of films, including high-k metal oxides, metal nitrides and metals.

OUR PLATFORMS

We make two types of process tools: single-wafer and batch. Most of our business comes from single-wafer tools, designed to process an individual wafer in each processing chamber on the tool. In contrast, our vertical furnaces are batch tools, designed in such a way that a large number of wafers are processed at the same time, in a larger processing chamber, to achieve a higher throughput. Single-wafer tools typically achieve a higher level of process performance and control, especially for complex, critical applications, and a shorter cycle time. 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.

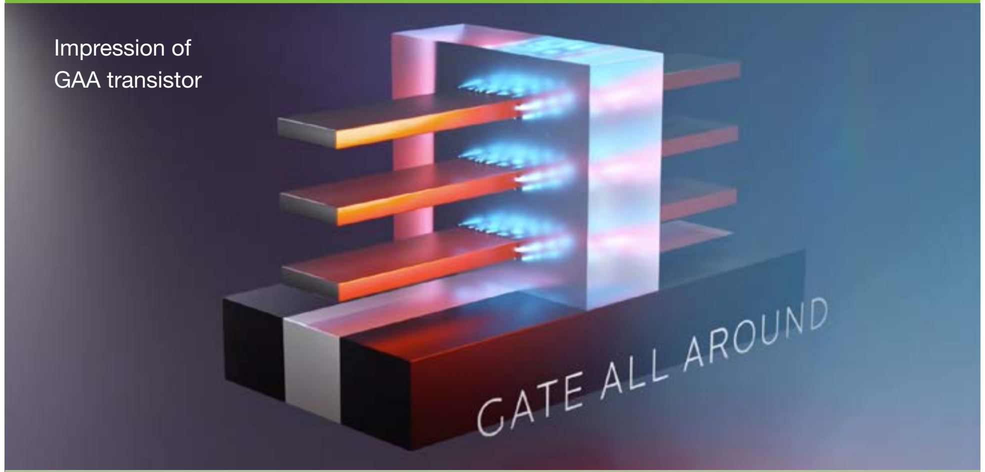
Our single wafer tools are designed for use on a common platform architecture. The XP platform is a high-productivity, common 300mm single-wafer platform that can be configured with up to four process modules. The XP platform enables high-volume multi-chamber parallel processing or integration of sequential process steps on one platform. 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 integrated chambers on the same platform.





GROWTH THROUGH INNOVATION

GATE ALL AROUND (GAA) for logic/foundry advanced-node transistors



"OUR R&D TEAM IS SHAPING THE FUTURE OF TECHNOLOGY."

ASMI's ALD and Epi innovations are helping to enable critical new technology inflections such as GAA for logic/foundry advanced-node transistors. ALD and Epi processes will play a crucial role in the device architecture migration from FinFET to GAA transistors. Here, the ALD high-k gate material surrounds the epi channel material on all four sides to improve electrical performance. Compared to FinFET, where the gate surrounds the channel on three sides only, the GAA will also consume less power per operation.

To fabricate the GAA device, the channel is formed by depositing a stack of multiple alternating Epi silicon and silicon germanium layers. ALD is used for depositing the high-k metal gate layers conformally around those channel structures. While a FinFET device extends the gate area vertically for improved transistor switching control, the GAA architecture extends that control area further by wrapping 'all around' each of the stacked channels.

Leveraging more than two decades of ALD innovation experience, ASMI's ALD tools are the industry standard for depositing high-k metal gates. Our Epi tools enable precise deposition of silicon and silicon germanium transistor channel materials.

Also on the XP8 common platform architecture, we offer PEALD processes for a wide range of applications. The Eagle XP8 uses DCM module configurations for high-productivity silicon oxides, metal oxides and nitrides. Our XP8 QCM tool offers PEALD processing on quad chamber modules for very high productivity. A wide range of silicon oxide and silicon nitride process applications are available with the QCM tool. Our XP8 QCM tool excels in the 3D-NAND high aspect ratio dielectric gap-fill application. This is where silicon oxide films are deposited void-free in deep trenches that are up to 100 times deeper than their width.

EPITAXY

Epitaxy (Epi) is a critical process technology for creating advanced transistors and memories. The Epi process is used for depositing precisely controlled crystalline silicon-based layers, important for the electrical properties of a semiconductor device. In some cases, the epitaxy films incorporate dopant atoms to achieve specific material properties. ASMI's estimated share of the Epi market was about 15% in 2020, as communicated during the Investor Day.

Our most advanced Epi tool is the Intrepid ES for CMOS transistor applications, using our XP platform to configure up to four Intrepid reactors on the same tool. Temperature control is extremely important in Epi reactors. We have developed new methods of temperature control in our Intrepid ES Epi tool that enable improved film performance and repeatability in volume production. Intrepid's closed-loop reactor temperature control also allows for enhanced stability in production. In 2021, we further improved the Intrepid temperature control performance with Verace-CL. We gained an additional key customer win in 2021 for advanced node CMOS transistor applications.

For enhanced Epi film performance, we introduced a pre-deposition wafer surface clean technology. This is performed in our new Previum process module, integrated 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. This is critical for achieving the most advanced node transistor-performance requirements.

In 2021, we strengthened our Epi product offerings with the launch of the Intrepid ESA tool for 300mm silicon-based epitaxy for power devices and wafer-manufacturing applications. The Intrepid reactor architecture allows for thick Epi deposition in a single pass, a significant productivity benefit for our power and wafer customers.

For 200mm epitaxy applications, we offer the Epsilon 2000 tool.

A400 DUO

INTREPID ES EPITAXY

SYNERGIS ALD

PECVD

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

VERTICAL FURNACE

Vertical furnaces use a batch configuration. This means a large number of wafers are processed at the same time for productivity and cost savings. Our furnace tools are designed with dual-batch reactors for even more productivity. Our furnace 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 analog, power, RF, and MEMS applications. Our newest furnace tools, the A400 DUO, has achieved significant wins in the China market. A wide range of process applications are available on our furnace tools, including LPCVD, oxidation, diffusion and cure.

SPARES & SERVICES

ASMI systems are complex and operate under extreme conditions. To start them up and keep them running requires highly trained service engineers and a complete set of spare parts. ASMI spares & services is our customer frontline. It is there to install and qualify our new systems shipped to the customer, as well as maintain the systems via spare parts and services through their lifecycle. In 2021, we gained strong traction globally, with new multi-year contracts of our newest outcome-based service, Complete Kit Management (CKM), as well as our outcome-based offering, spares-as-a-service (SaaS).

ASMI has always provided service engineers locally, along with spare parts partially stocked locally. Otherwise, it has made these parts available with some lead time on demand. Recently, we have become more proactive in our spares & services business model, focusing on outcome-based services. These are products that deliver a quantifiable and verifiable value for a price, and the onus is on us to deliver the defined value. This is in contrast to a historical model where the customer purchased parts and people in a transactional way. This translates into ASMI putting concerted effort into developing new services that enable customers to enjoy improved system performance, higher output, and lower costs per wafer for their installed base.

Periodically, our systems require proactive maintenance to continue to perform well, and this is where CKM – our fastest-growing outcome-based service of the year – comes in. In effect, CKM is a little like taking your vehicle for a routine oil change, that comes with fluid-level checks, an air-filter replacement, etc. With CKM, ASMI makes sure the right, quality parts and expertise is there for when customers need it. ASMI is also working constantly towards reducing the costs and downtime associated with these maintenance. With ASMI having developed the system, and with our resources and learning scale available, we can deliver superior value in this area. This compares favorably to the past when customers had to manage most of this process, if not all of it, themselves.

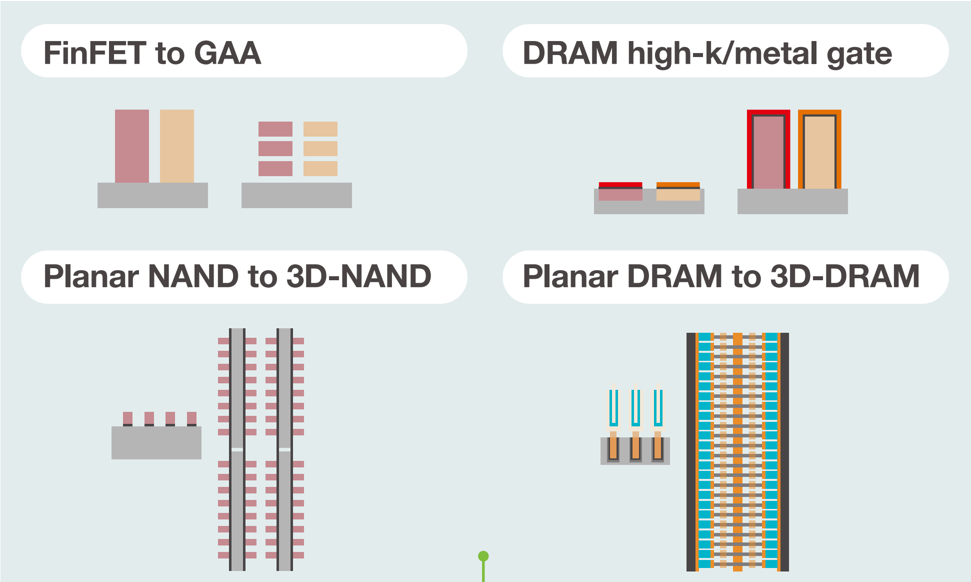
Our second fastest-growing outcome-based service is dubbed 'SaaS' or spares-as-a-service. Periodically, parts in a system wear out, like tires on a car. These are called 'consumables'. Other parts stop functioning over a longer period, and in a less predictable way, like a lock on a car door. These are called 'non-consumables'. In both cases, a relatively low-cost part can keep a much more expensive system idle, as the system waits for the part to enable it to function. In the past, in line with the normal business model, we would fulfill orders for parts when we received them. But this process can take a long time, even months. Customers, generally, have had to take responsibility for parts planning to make sure they had stock when needed. With SaaS, ASMI takes on this planning and inventory. As ASMI builds this service globally, our ability to have the part a customer needs, at any time, improves. It also means customers' systems will not be down as they wait for a part to come in.

For the second year running, we have also focused on improving our operational efficiencies in service. We have a full suite of operational metrics – from how long it takes us to install and qualify a new system, to how our service team is used globally, and 31 other metrics in between. On a 100-point scale, we've successively driven up our score globally, from 36 in 2019 to 85 in 2021. These improvements allow us to deliver a better, and more cost-effective service experience to our customers.

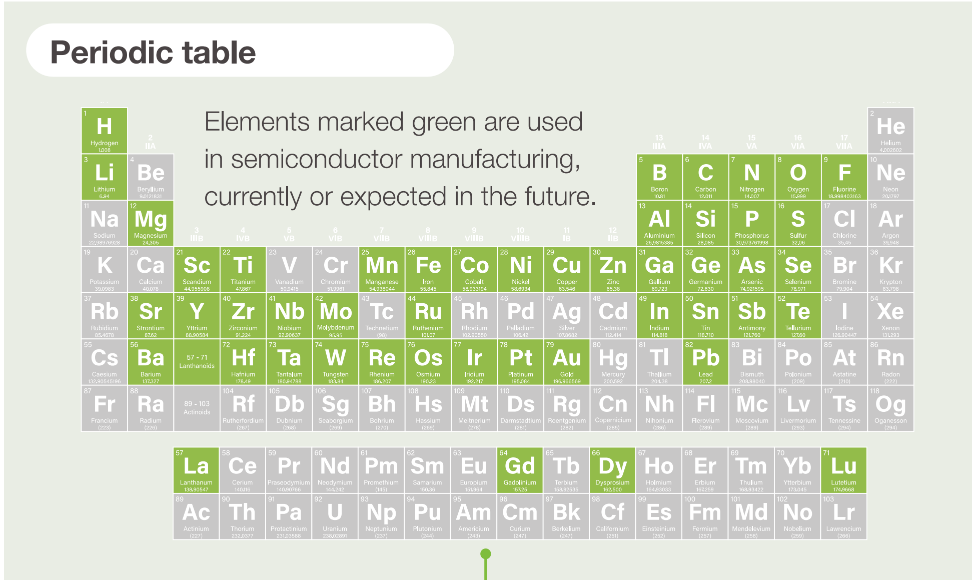
3D AND NEW MATERIALS

Next-generation semiconductors increasingly require:

3D STRUCTURES



AND NEW MATERIALS



3D AND NEW MATERIALS INCREASINGLY REQUIRED FOR NEXT-GENERATION SEMICONDUCTORS

TECHNOLOGY TRENDS LOOKING FORWARD

At ASMI, we believe that as long as there is growing demand for semiconductors, Moore's Law – or at least a generalized version of it – will continue. Scaling of the smallest dimension through lithography is no longer enough to increase density and decrease cost-per-function. Increasingly, scaling is complemented with a move to the vertical dimension '3D'. A first example of this was the transition from 2D-NAND to 3D-NAND non-volatile memory with, currently, as many as 128 transistors aligned vertically along a single vertical channel.

A second example of 3D is the GAA transistor, poised to take over in a few years, following five or more generations of FinFET. This stacks up to four channels on top of each other, significantly multiplying the current a particular transistor can carry. Simultaneously, this improves the control over that current. Third, chips are now stacked vertically in a package to reduce the package size and shorten the connection lengths between the chips. For example, a high-bandwidth DRAM device integrates a logic chip, formerly 'the periphery' in a single chip, with multiple vertically stacked memory arrays in a single package. And fourth, the difficulties in scaling the cost and size of a DRAM is expected to lead to a transition to stack transistors vertically in a 3D-DRAM beyond 2026.

ALD

Due to its ability to create substantially uniform and high-quality layers of complex materials over 3D structures ('conformality') at relatively low temperature, the share of ALD (including PEALD) in the deposition market will grow substantially with this trend towards 3D. On the one hand, existing technologies like LPCVD will be replaced by single-wafer ALD. On the other hand, new ALD processes will enable further changes in device architecture that could not have occurred with other deposition technologies. New materials, such as better conductors and insulators, for example, will be needed to maintain adequate electrical performance. Materials need to be deposited in narrow, deep gaps, without any holes or seams. More and more of these critical process steps are expected to migrate towards ALD and PEALD.

EPI

The GAA transistors will rely on an epitaxial superlattice of as many as 8 to 10 silicon and silicon-germanium layers. For 3D-DRAM, this superlattice is expected to be even taller: starting with around 64 layers. This is expected to scale quickly to even more layers. The new GAA transistors will also require new epitaxial contact layers, selectively grown bottom up with high doping. In addition, power electronics for, among others, electric vehicles, will require thick epitaxial layers.

Overall, we believe ALD and Epi are the most important growth markets – at least in the next five years. Accordingly, we have focused most of our R&D spend on these technologies.

PRODUCT SUSTAINABILITY

Developing tools and processes more efficiently helps improve energy and resource usage. We are working to achieve this in various ways, including:

- Developing process technologies that enable advanced semiconductor chips with lower power consumption;
- Designing our equipment to use less power when operating in our customers' fabs.

In 2021, ASMI continued its strong focus and commitment to reduce energy and resource consumption across our product portfolio. Using Epi as an example, we demonstrated significant energy savings with development in multiple areas. Our unique Epi chamber architecture inherently shows advantages with reduced gas consumption and net power consumption per wafer due to its reduced chamber volume. Additional hardware engineering innovations, and the use of green certified components, have been implemented as well. Process recipe optimization, including the use of multi-wafer clean schemes, helped to minimize clean chemistry consumption with a further energy savings per wafer realized. Finally, tool settings have been optimized for periods of time when the tools are not in use creating a "smart idle" state.

SUSTAINABILITY IN R&D

We have taken several initiatives that contribute to an improved environmental impact of our R&D operations. Our road-mapping process, led globally by the Office of the CTO, and the associated controls, are intended to prioritize our work towards the most likely technologies needed for future technology nodes. Vertical collaboration leads to more efficiency in R&D as down-selection of options can be done more effectively. These two processes, prioritization and vertical collaboration, result in fewer materials and wafers being wasted in experiments.

Executing 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 minimizes the number of experimental trials needed to conclude a development. This reduces energy and chemicals consumption, as well as silicon wafer usage.

In our selection process for chemistries, during our initial pathfinding, we investigate many different precursors and chemistries. A sustainability review of these chemistries is becoming an integral part of our selection process. Although ASMI uses only a relatively small amount of these chemicals internally in its R&D process, their use down the value chain by customers can be very large. These initial chemistry choices are therefore important in minimizing the environmental footprint of our equipment in operation at our customers.

Additionally, in 2021 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. Thus far, our internal analyses shows that these R&D process optimizations led to a reduction in wafer and chemical use per research topic in the range of 25 to 50%.

We use proprietary techniques in data science in planning and conducting our R&D. This serves to optimize the efficiency and effectiveness of product and process development, and knowledge transfer. This in turn has proved to significantly reduce energy and resource consumption. With advanced models of process and hardware behaviors, we are better able to identify and robustly validate further improvement opportunities. Such advanced techniques are necessary in working at atomic scale, to balance deposition performance with energy and resource consumption.

ENABLING MORE ENERGY-EFFICIENT CHIPS

Some of the materials and processes we work on with our customers enable more energy-efficient chips, with transistors and memory elements that consume less power per operation, and interconnect with lower power losses. In 2021, 2.1-2.4% of the world's energy* was already used for processing (1%) and communicating (1.1-1.4%) data across the internet, and in data centers. This energy use roughly doubles every three years, growing much faster than overall global energy use.

New materials and process technologies developed by ASMI help to reduce the power consumption in advanced semiconductor devices, while increasing their performance. For example, ALD gate dielectrics and new work function (WF) metals enabled reductions in gate leakage current by 1000x. ALD, due to its near-perfect conformality, also enabled the transition of device architectures from planar to 3D FinFET structures. FinFETs have a lower power consumption per operation than planar FETs.

Going forward, ALD and Epi processes will play a crucial role in the next device architecture migration from FinFET to GAA nanosheet transistors. Compared to FinFET, the GAA will consume less power per operation. The migration of DRAM periphery to high-k dielectric and metal gate will significantly reduce its dynamic and static power consumption, just like it did for logic devices. Also, we expect that the new materials for memory that ASMI is currently researching – such as phase-change materials and ferroelectric materials – will play a critical role in future energy-efficient memory devices, and energy-efficient AI architectures.

PRODUCT SAFETY

Product safety is central to ASMI's innovation process, and is realized through the design, development, manufacturing, delivery, and ongoing use and support of our products. The Product Safety Program is defined and championed by a new Strategic Safety Council, which includes the leaders of ASMI's EHS and Product Safety Engineering and their executive management. This council sets strategic direction and provides governance to strategy execution and ongoing program management. This embodies our 'Stronger Together' philosophy, where EHS and Product Safety strive to work together optimally. It includes improvements in business processes and systems, safety culture, training, and ensuring continued industry-safety leadership.

Product Safety Engineering makes use of a compliance scorecard to track key regulatory and compliance requirements through all product lifecycle stages. These compliance requirements include country legislation, the extensive standards defined by the semiconductor industry and its customers, and ASMI-specific requirements. We analyze if the safety requirements can be met during the concept and design phases, as part of safety-risk assessments. We confirm compliance through independent third-party validations during the product validation phase.

We integrate the identification of opportunities for safety-design improvements from our global safety-reporting system. This system enables our engineers and technicians who work with our equipment to report incidents, areas of concern, or opportunities for improvement. Corrective and preventive actions and lessons learned are captured, prioritized, and acted upon, providing an invaluable link between end-users and the design process. All those working with our equipment rely on this process of continual assessment and improvement to make sure they can safely work with our products.

Key advancements in our safety program in 2021:

- **Expanded product safety education:** Each year, we look at new regulations, advancements in standards, and lessons learned. We update our training material accordingly, and customize it with specific product line examples for respective product design teams. ASMI's product safety engineering training classes address the latest lessons learned, and changes to compliance regulation and standards.
- **Successful third-party virtual safety audits during COVID-19 restrictions:** ASMI's Product Safety Engineers performed virtual third-party audits in all regions globally. Due to travel restrictions, these required significant additional preparation and coordination. Also, the number of audits globally increased markedly due to the significant increase in new product-development programs.
- **Semiconductor industry product-safety engineering leadership:** We presented to the international semiconductor industry forum (SESHA) on three key innovations in product safety engineering:
  1. Challenges in risk assessment and risk reduction;
  2. The world of virtual SEMI S2+ audits; and
  3. Focused IH activities to minimize maintenance downtime.

Looking ahead, in line with our safety leadership ambitions, we will continue our strong engagement in key industry efforts to advance product safety, as well as our own capabilities, methodologies, and systems.

* www.iea.org/reports/data-centres-and-data-transmission-networks.

ASMI aims to comply with applicable hazardous substance equipment content regulations as they become applicable. We engage with industry associations regularly to stay informed, and provide a voice on industry positions and value-chain compliance. Regulations related to product content, such as RoHS, REACH, and PFAS, are regularly revised and applicability redefined. ASMI has engaged a third party to support us in evaluating the hazardous substance content of our suppliers' parts, and will continue to drive compliance in this important area.

PRODUCT SAFETY INNOVATION

Product safety is the ability of a product to be safe for its intended use (safely delivered, installed, operated, updated, maintained), against 'reasonably foreseeable misuse', 'designed so that a reasonably foreseeable single point failure fault or reasonably foreseeable set of concurrent failures accumulation of faults does not result in an unsafe condition'. It includes the intrinsic ability to mitigate the risk or impact of equipment or broader damage even if other layers of safety fail. The safety of a product is evaluated against a myriad set of established standards (e.g. SEMI S2 and S8) and rules, which grow in number and become more complex with time.

The safety of products represents the risk of harm to people, environment, facilities, business continuity, reputation (ASMI and customer), and other, whether the product is operating in our facility or a customer site, or another environment. A single event (e.g. explosion, fire) can result in serious injuries or fatality, potentially destroy major portions of or even an entire fab, and potentially disrupt large segments of industry supply chains. Our customers expect us to comply with all applicable standards, verify compliance by a certified independent authority, and maintain compliance coincident with design, configuration, and use-case changes over time. Certain customers require adherence to their own special conditions, which can drive the cost of compliance up for all. We firmly believe there can be no compromise on safety, and the industry should not increase its risk appetite.

We are focused on ensuring compliance with all regulations, standards, and best practices to maximize product and operational safety, striving to perform at the highest levels. As recognized safety leaders in our industry, and leveraging our innovation heritage, we also see significant opportunity for innovations that meaningfully reduce safety risk, and improve safety-related fab economics.

In 2021, we brought such a key innovation to the market. It reduces purge gas and exhaust volume, lowering energy and resource use while maintaining equipment and operational safety. We are evaluating this key innovation with a leading customer.

We are developing our product-safety innovation roadmap, and look forward to sharing more about these innovations in the coming periods.

PRODUCT LIFECYCLE MANAGEMENT

Product stewardship and product lifecycle (PLC) management are the foundation of our product development efforts. This involves in-depth understanding of our markets and the challenges our customers face. It is also about translating this into market requirements and product-development programs to address our customers' challenges and enable their roadmaps.

It also involves taking responsibility for reducing our products' environmental impact along their entire lifecycle, from cradle-to-grave. Ultimately, this approach enables us to develop products more efficiently. It results in products that are more efficient and productive, while providing for a more circular product by extending its useful life.

Our product lifecycle 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 throughout 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, design, and validation reviews), and phase exit meetings through the various lifecycle stages of the product.

We maintain the certification ISO9001-2015, relating to the scope 'design, sell, make, install, and customer support of front-end semiconductor processing equipment', which was recertified on August 1, 2019. The next recertification audit is in April 2022. We did not have any product quality recalls or related material financial impact in 2021.

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. At the same time, many of our older systems remain in full or partial use today.

For systems no longer in use, there is an after-market where our customers reuse these systems. ASMI has selectively been participating in this market. We continue to explore how to participate more broadly, in a way that will help to lower costs and deliver a higher ROI to our customers.

For those systems not operating optimally, we have a team that works on refurbishment and upgrade solutions for our installed base. We actively work with customers to understand and implement improvement opportunities. In 2021, we continued to see a significant amount of system-level refurbishment business, and expect this to grow in the future.

SUSTAINABLE PARTS LIFECYCLE

Customers want parts that last, increase the output and lifetime of the system, and reduce the cost of ownership. We have integrated technologies, such as a soft remote plasma clean, in place of in-situ plasma cleaning, which helps to extend the life of these parts. We have a team in our services group tasked with improving the intrinsic lifetime of parts. This means focusing on surface technologies that will make internal chamber parts more resistant, so they will not need to be replaced as often.

The team also looks at how to reuse the parts that need to be replaced, rather than replacing with new parts. This involves the original new-part surface technology, as well as the used-part surface technologies, to find ways to refurbish the used part to lower costs and extend life parts. We are evolving our supply base to be more local to our customers. We are also focusing on the refurbishment of existing parts, rather than the costly and less sustainable approach of manufacturing new ones. Our team also seeks to find solutions for the components that will inevitably become obsolete in the supply chain. The aim is to continue repairing existing installed base components, rather than replace them with new ones, and keep our systems running long into the future.

PEOPLE

Our people are our key asset. They drive ASMI's strong growth through their actions, innovative ideas, and passion for delivering every day. Our role is to create an inclusive workplace and culture that allows everyone to grow, thrive, and develop a fulfilling long-term career. Engaging with and contributing to the communities where we do business is a significant opportunity to make a positive impact.

PEOPLE - OUR TEAM

To ensure the long-term success of our employees and our company, ASMI's people initiatives and roadmap focus on establishing us as an industry employer of choice.

DRIVING TALENT ATTRACTION

In 2021, we introduced numerous employee branding initiatives to help ASMI achieve its growth ambitions by attracting the best in our industry. Activities throughout 2021 led to the strong growth of our workforce.

Some of our initiatives:

- Introduced ASM Accelerate, an intensive PhD graduate program;
- Launched a global employee referral program, a strategic recruitment program that encourages employees to refer top talent;
- Leveraged our award-winning employee value proposition, 'Power of an Open Mind', successfully using it across multiple recruitment campaigns;
- Adapted and introduced virtual recruitment webinars worldwide, targeting key groups, including PhD graduates, IT, and global operations;
- First-ever out-of-home recruitment campaign ran in Singapore. ASMI appeared on buses, at train stations, and other busy spots around the city; and
- Ramped up social media, building our employer brand presence and online community.

This multi-pronged approach has resulted in a structural improvement in ASMI's talent-acquisition approach. It has raised brand awareness, strengthened our identity, and built pride, all of which are helping to establish ASMI as an employer of choice for new and experienced talent.

This approach has resulted in ASMI's most successful year for talent acquisition, with a total of 1,146 people joining us in 2021. Our total workforce grew from 2,583 to 3,312, a total increase of 28%. The increase in our voluntary attrition rate from 8.3% in 2020 to 11.1% in 2021 can be explained by strong growth in our industry and the recovery in the economy.

WORKFORCE	2017	2018	2019	2020	2021
Employees	1,900	2,181	2,337	2,583	**3,312**
Employees including temp	2,043	2,327	2,444	2,689	**3,462**
% temporary workers	7.0%	6.3%	4.4%	3.9%	**4.3%**
Number of workers under Collective Bargaining	224	260	278	328	**254**
% workers under Collective Bargaining	11.8%	9.1%	10.8%	11.7%	**7.7%**
Nationalities	29	29	29	40	**47**
Male	85%	85%	85%	85%	**85%**
Female	15%	15%	15%	15%	**15%**
Voluntary attrition rate	10.4%	9.9%	8.7%	8.3%	**11.1%**

GROWTH THROUGH INNOVATION

OUR PEOPLE ARE OUR POWER

Claire Lin
Software engineer
Kurokawa, Japan

"I TRULY BELIEVE THAT ASMI CONSTANTLY INNOVATES, IN LINE WITH OUR COMPANY VALUES."

Growing up in Taiwan, Claire Lin had a keen interest in the Japanese language and culture. After graduating from university, ASMI's global network made moving to Japan possible. Claire has been with ASMI for four years, joining us straight after graduating from university. We ask Claire about working at ASMI, personal growth, and her drive to innovate.

You started your career with ASMI. Can you tell us how you've grown with us in that time?

"I joined ASMI at an exciting time; the semiconductor industry is very important to the whole world, and ASMI is a key member of the semiconductor supply chain. I get to use my software skills at ASMI and develop wider knowledge beyond technology. This helps me work smoother as I know more about the whole semiconductor equipment structure. That's how I experience personal growth and progress – not only last years, but continuously in the last years."

Can you tell me what innovation means to you in your role?

"To me, innovation at ASMI means that I am always being challenged by customer requirements, new technology, and developments in software engineering. Innovation comes from thinking constantly. To me, new ideas emerge in the process of improvement. It makes me feel like the content of my work is not set in stone and this helps me keep progressing."

How important is innovation to you and life at ASMI?

"I truly believe that ASMI constantly innovates, in line with our company values: We Care, We Innovate, We Deliver, we are encouraged to improve our work, and I am always enabled to do my best. The nature of my role also involves a lot of international, cross-cultural collaboration, which allows me to use my language skills and experience the power of teamwork on a global and local level. For example, last year, I had the opportunity to work closely with colleagues from Korea on a project. It was a lot of fun, and we all learned and shared a lot."

Can you tell me how you see your future with ASMI?

"I really like being part of this software team; it's not only about the contents of my work, but also my colleagues that make my role enjoyable. I believe my growth at ASMI will continue in the next few years. As the supply and demand of the world's semiconductor supply chain continue to increase, we will face some challenges, but this motivates me. Another factor is ASMI's 'We Care', which incorporates our well-being and creates a good working environment, making me believe that ASMI and I can grow together."

LEADERSHIP AND DEVELOPMENT

Long-term career progression is core to retaining our employees. We are in a strong, new growth phase and need to continually develop our people and managers. To this end, ASMI implemented a talent-management approach built around employees' strengths. This provides tailored support and career development opportunities. In 2021, hundreds of our people were assessed, with actions designed to tap into their potential. This will continue into 2022, with individual development plans implemented for all employees.

We also worked to identify roles that are critical to our continued success. These positions form a central part in our succession planning, a process that maps our internal talent against critical positions. It ensures that ASMI has continuity in key roles, and helps us strengthen our internal talent pipeline. We also implemented development centers alongside a relaunched leadership academy. These focus on a smaller group of business leaders, empowering them and preparing them to be future leaders at ASMI.

We extended our e-learning platform (Harvard ManageMentor) to all employees globally. As a result, we have seen an increase of 72% in active learners, with a 53% increase in the average learning time. As we continue to foster a learning culture, we expect to double these numbers.

To retain existing talent and attract new people, ASMI has taken a robust approach to its people agenda, innovating at every turn as it looks to drive itself as an employer of choice.

PEOPLE ARE OUR BIGGEST ASSET

To unleash everyone's potential at ASMI, and to allow each employee to build and establish a long-term and sustainable career, we are focusing on four areas.

STRENGTHENING OUR CULTURE

Unleash our renewed focus on ASMI's culture and values. Shaping a culture of compassion, inclusivity, innovation, and drive to deliver.

GROWING ENGAGEMENT

We are making the changes that matter. Focusing on engagement initiatives defined by our employees, the driving force behind improvements for everyone at ASMI.

LEADERSHIP & DEVELOPMENT

We are strengthening our talent pool by focusing on long-term career progression with training for all employees and our future leaders.

INCLUSION & DIVERSITY

We are a company that acts with integrity, compassion, and respect always. Together we are inclusive, inspired by others, and always growing.

STRENGTHENING CULTURE AND GROWING ENGAGEMENT

CULTURE

At ASMI, we believe that people are our differentiating factor. So we will only achieve true potential by attracting and retaining the best talent in the industry. To do this, we are focusing on further strengthening our culture, and shaping a workplace centered around compassion, trust, accountability, delivery, and innovation.

In 2021, we took an essential step in defining who we are at ASMI, and what we stand for, by launching our core values – We Care, We Innovate, We Deliver.

These core values have been embedded throughout the organization, top-down and bottom-up. In addition, hundreds of our employees have played a critical part in helping to shape our culture further, taking part in interviews, focus groups, and surveys. The results have reinforced our strengths, and shown us where we can still improve.

But we are not stopping here: creating one ASMI is a continuous journey.

Ultimately, we aim to build connections between our employees' personal values and ASMI's purpose. We will work with all employees to help them understand their roles in shaping their own futures, and the future of ASMI.

Developing a culture unique to ASMI will help us create an even more engaged workplace – and we know that an engaged workplace can increase productivity, quality of work, and help to retain top talent.

ENGAGEMENT INITIATIVES

Our first employee engagement survey, held in late 2020, achieved a solid 94% participation rate. In 2021, the mission was clear: our employees were keen to participate in the company's change journey. They were all instrumental, therefore, in putting actions into place throughout the year to increase engagement.

ASMI took a local approach to implementing improvement initiatives, tasking people managers and their teams with creating 'action plans'. These plans represent ideas and improvements, suggested by the individual team members, to help boost engagement and create a work environment suited to each team's unique needs.

Alongside action planning, we identified other immediate priorities. This included a need for more consistent, transparent, and open communication. As a result, two major initiatives were undertaken in 2021.

CO-TALKS is a quarterly virtual all-hands meeting, with the CEO and senior management team. Throughout 2021, thousands of our employees joined us online to listen to company updates and take part in Q&As. Employees were encouraged to ask the senior management team questions, either anonymously or face-to-face. This allowed for honest, open discussions between management and employees.

CONNECT, another employee communications tool, relaunched as an online news platform in February 2021. The platform has gone from strength to strength, with many employees submitting stories and sharing their successes. More than 100 articles were featured during the year, including 60+ interviews with our people, and 34 videos, and we're racing towards the million page-views mark.

Following one year of activity, we held a pulse survey in November 2021 to track our progress.

PULSE SURVEY

The pulse survey had a 79% participation rate, and offered us valuable insight into progress in our engagement journey. The survey, a quick check-in with colleagues old and new, came one year after our first company-wide engagement survey.

The survey focused on team action plans and an inclusivity index. The survey revealed solid progress in engagement, and strong recognition of the inclusive culture at ASMI. We will continue to support teams that require additional training and coaching to prepare for our next full biannual engagement global survey in 2022.

Survey results at a glance

- **Great communication of engagement survey results by leadership and local management, with 79% rating it as excellent ('5' – 50%) or good ('4' – 29%);**
- **70% of employees report participating in a good ('4' – 33%) or even great ('5' – 37%) action-planning session;**
- **65% of employees rated either great ('5' – 29%) or good ('4' – 36%) progress on their engagement plans; and**
- **High scores on both local follow-through on the 2020 Engagement Survey (accountability) and perceptions of inclusion highlight positive changes across ASMI.**

The pulse survey monitored our collaborative action-planning, as well as offering crucial insights into the current status of inclusion and diversity (I&D) at ASMI.

TOTAL REWARDS

Alongside culture-driven actions, we have taken steps to improve our total rewards to safeguard ASMI's position in the semiconductor labor market, which has become increasingly competitive in recent years. Being able to attract and retain talented employees is key at ASMI as we focus on growing and strengthening our organization. The demand for highly skilled people is increasing in all the countries we operate in.

To ensure ASMI's continued success, and further reinforce our position as an attractive employer to both potential and current employees, we undertook a total rewards strategic diagnostic review in 2021. This focused primarily on global benchmarking and an in-depth analysis of compensation programs. Recommendations following this review have led to progressive changes in our compensation approach and policy.

A second benchmarking exercise and review of all employee benefits programs globally will take place in the first half of 2022. These activities will ensure ASMI offers competitive pay and packages, safeguarding our people and their role in supporting the company.

With our rapid growth and onboarding of more than a thousand new colleagues in 2021, it's more crucial than ever that we focus on giving all employees a clear sense of direction and purpose to come to work each day, beyond just monetary reward.

INCLUSION & DIVERSITY

At ASMI, we aim to be a truly inclusive and diverse company, a place where everyone is enabled to do their best and be their whole self.

To help achieve this, we launched a flagship initiative in 2021. Our new employee resource group, ConvERGe, will form the backbone of our inclusion and diversity (I&D) agenda at ASMI.

We announced ConvERGe in March 2021, during a week of events centered around International Women's Day. More than 500 of our employees from all locations and backgrounds joined us for training, talks, and Q&As hosted by two of our female Supervisory Board members, with other internal and external speakers.

ConvERGe is made up of ASMI's business leaders and employee volunteers worldwide.
Its members identified three objectives, strongly linked to our ESG ambitions:
1. Drive an inclusive culture
2. Lead in gender pay equality
3. Foster recruitment and retention of women across ASMI

ConvERGe is committing to:
- **Collaborating with our leadership team to target and drive for 20% women working at ASMI by 2025. This is the first time we have committed to such a target, and this will drive much of the ConvERGe activities in the coming year;**
- **Creating an internal awareness campaign and recruitment drive resulting in 100 volunteer employees joining ConvERGe, creating communities globally and locally;**
- **Sponsoring training for managers and employees worldwide; and**
- **Helping to set the I&D agenda at ASMI, considering the results of the pulse survey, identifying additional employee resource groups and activities centered around the needs and expectations of ASMI's people.**

ASMI has a proven track record for equal pay, 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 compares 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 2021, we saw a limited downward shift from 99% to 95% in our gender pay ratio. This was calculated using the relative salary position (RSP), comparing female and male employees. The decrease is largely due to ASMI's growth and record year for recruitment. We conducted a strategic diagnostic review of ASMI's compensation in 2021, with resulting actions to be implemented in 2022. This will help support our continued focus on making sure all employees are rewarded fairly, and in line with local, regional, and global best practices.

Median RSP (female/male)	2020	2021
Senior management/executives	103%	91%
Middle management	102%	91%
Non-management	100%	97%
Total	**99%**	**95%**

GLOBAL EMPLOYMENT STANDARDS AND HUMAN RIGHTS

ASMI is dedicated to creating a safe and healthy workplace. We also take responsibility for international employment standards across our supply chain. Our Global Employment Standards (GES) summarize our policy and standards regarding 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 labor standards framework, including the following:

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

In 2021, we had no reports or evidence of any human rights violations or abuses within our global hiring or employment practices.

The full text of our Global Employment Standards is published on our website.

LIVING WAGE

ASMI is a member of the Responsible Business Alliance (RBA), the world's largest industry coalition dedicated to corporate social responsibility in global supply chains. Our employees are paid above the local minimum wage, and we are committed to paying at least a living wage.

We also care about the living conditions of our workforce. To this end, we actively engage with outside organizations to benchmark best practices in line with the Anker methodology, a relevant survey practice for corporate organizations. We also make use of the WageIndicator Foundation definition and data, which is dedicated to labor-market transparency.

The scope of the living-wage assessment conducted in 2021 included all countries where we have ASMI employees or contractors (currently 16). As with the assessment in 2020, we did not identify any cases where employee wages were below the agreed living wage. This is also driven by the fact that we have a predominantly highly educated workforce, with competitive remuneration levels. Our wage commitments also align with our 'We Care' value and 'employer of choice' ambitions.

ASMI collaborates on bringing visibility and action to this important topic outside our value chain. Starting in 2020, we co-proposed with three other companies to add 'living wage' as an amendment to the RBA Code of Conduct. The proposed amendment was not adopted in the latest version of the code, but 'living wage' was formally added to the RBA's strategic plan in 2021. Our advocacy efforts culminated in the RBA forming a Living Wage Task Force in 2021 to study the impacts and recommend best practices for RBA member consideration and potential implementation.

WORKING HOURS AND DAYS

The standard working week varies by region and country and is often dictated by local regulations and norms. One consistent standard across ASMI is aligned with the fundamental principle in the RBA Code of Conduct that addresses working hours and days for hourly employees involved in the production of goods and services. The RBA code limits working hours to 60 hours per week, or the local limit, whichever is lower. And such employees shall be allowed at least one day off every seven days.

There is an allowance for emergency situations, such as when COVID-19 unexpectedly disrupts schedules with lockdowns, quarantines, and production worker availability. With some impact within these guidelines, ASMI was able to perform within the RBA limits for both working hours and days. We were able to achieve this because of our existing management framework around the control of working hours and days. The adherence to these criteria is part of a corporate-level dashboard and is monitored and reported closely to ensure compliance.

BUSINESS ETHICS

ASMI's Code of Business Conduct (COBC) management system includes 18 underlying policies, including fair competition, gifts, entertainment and hospitality, corruption and improper advantages, and anti-fraud.

The refreshed COBC is more comprehensive and comes with training for all employees in multiple languages. The training is 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. This includes a dedicated web page on ASMI's intranet, reference material, and tools for specific areas, such as gifts and entertainment, the Whistleblower program, and SpeakUp!, an anonymous way to voice concerns or violations of the COBC.

The COBC applies to our Supervisory Board, Management Board, all employees, consultants, contractors, temporary employees, and critical suppliers.

SPEAKING UP

The SpeakUp! program enables employees, suppliers, customers, and other stakeholders to report ethics issues and concerns anonymously and in their own language. People can report potential violations of our COBC through the SpeakUp! process, or directly to management, the People team, or the Global Compliance Officer. The Ethics Committee investigates any reports. Independent of how an issue is reported, our COBC includes a non-retaliation policy that applies to any person making use of this process.

In 2021, eight concerns were reported through our SpeakUp! system, while four cases were reported via other channels to the Ethics Committee. We reviewed and responded to all incidents. In one case, the investigation revealed a non-conformity with the COBC and related policies, and appropriate action was taken.

PRIVACY

We have adopted and rolled out a privacy policy and practice, which is in line with GDPR, and have established privacy-protection agreements with third parties where applicable. In our effort to protect the confidentiality of our employees' data, we conduct regular audits and act on any filed reports. The same applies to the privacy of our customers and suppliers.

HEALTH AND SAFETY

The protection of the health and safety of our employees, customers, suppliers, contractors, and others in our value chain is an uncompromising principle. We measure our success against our vision of ZERO HARM!, a commitment we have across our operations. Our ultimate goal is ZERO HARM!, whereby we strive to eliminate all harm within our operations, and are collaborating, influencing, and enabling others to do the same.

BE SAFE SAFETY LEADERSHIP FRAMEWORK

EXPECTATIONS
Set the foundation for our safety culture

EXEMPLIFY
Lead by example, in words and actions

EDUCATE
Know for yourself, require timely completion of safety training

EMPOWER
Everyone is a leader for safety

ELIMINATE
Prevention always comes first, eliminate hazards up front

EVALUATE
Your and your organization's safety leadership

SAFETY LEADERSHIP

Empowering safety leaders in all areas of the company regardless of role is a fundamental part of our approach to safety. Safety is both 'in the moment' and is influenced by the world around us every day. What we say, how we say it, and what we do influences everyone we work with. We recognize this and continue to promote our 6Es of Safety Leadership to instill the philosophy that anyone can be a safety leader.

A prestigious ASMI award recognizes safety leaders every quarter. Employees who demonstrate notable contributions – scaled for their role, positive attributes, and leadership – in safety can be nominated by peers for a global quarterly Safety Leadership Award.

We honor these safety leaders at ASMI:

QUARTERLY SAFETY AWARD WINNERS

Q1

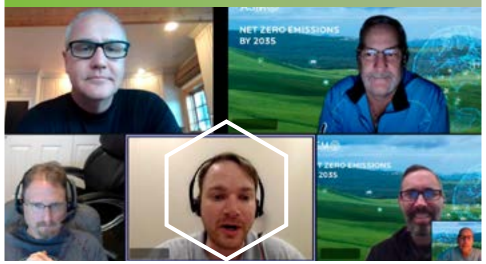
Senior Field Service Engineer
Japan - For sustained team safety motivation

Q2

Senior Manufacturing Manager
Singapore - Consistently exemplified safety through his leadership

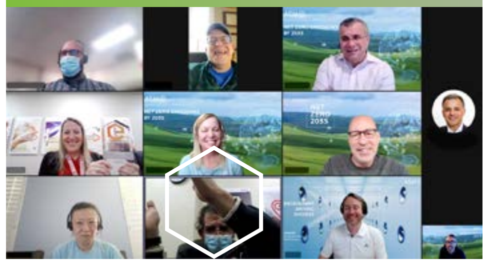
Q3

Field Service Engineer
US - For exemplary safety leadership in an extraordinary moment



Q4

Manager Product Support
Phoenix - Safety leadership inspiring others around the ASMI global lab operations



In 2021, we started or continued key focus areas of our safety systems, including:

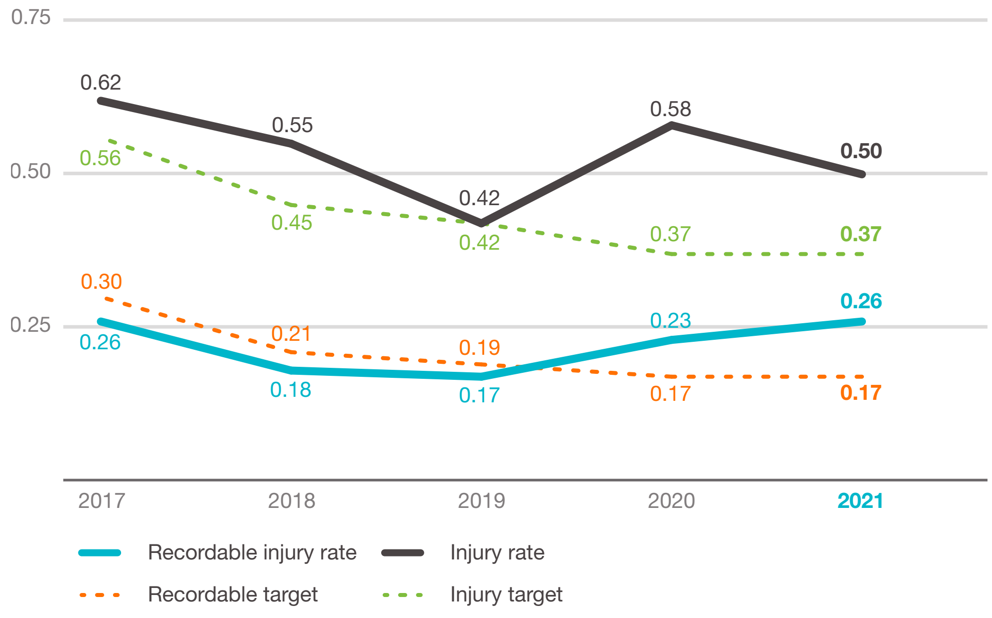
- **Blueprinting and development of a new, digital platform for Environmental, Health & Safety (EHS) applications based on industry-leading architecture** – This project is called SHIELD and the first application being developed is an upgrade to our Safety Incident Reporting (SIR) platform. The transformation of this system will allow us to better understand and improve our safety performance, particularly with predictive capabilities. We have a three-year roadmap to grow SHIELD beyond activity and action planning, and integrate it with other key control and workflow processes.
- **Safety leadership collaborations** – During the COVID-19 pandemic, we continued to drive our industry-leading safety leadership collaborations with our customers virtually. To collaboratively reduce our shared risks, we compare our observations and data, understand mutual challenges, and identify areas we can work together to improve. We plan to engage with additional customers to broaden this collaboration.
- **Lab safety plans** – We are seeing significant growth in our engineering and R&D operations, and that means expansion of our R&D labs. How we expand safely, and continue to drive overall safety performance and risk reduction in these high-risk labs is a key focus.
- **Manufacturing safety plans** – Even with a new state-of-the-art manufacturing facility in Singapore, we continue to focus on reducing risk in our manufacturing processes there, as well as in our operations in South Korea and the Netherlands.
- **Service safety plans** – Our service organization faces unique risks at customer sites, which are shared work environments with customers, other suppliers, and trades. We have a focused annual plan for risk reduction and customer engagement in this critical area of our operations.
- **Industry engagement and collaboration** – With a view to collaboration and engagement around health and safety, we continue to be a platinum sponsor of SESHA, a multi-industry association focused on furthering safety, health, sustainability, and environmental knowledge and processes. We actively engage with and contribute to working groups at SEMI (the global electronic products industry association) working groups that drive standards and knowledge-sharing for the industry.

SAFETY MANAGEMENT SYSTEMS

Our safety management system includes a robust set of safety policies and processes across all aspects of health and safety management. Our policies address core philosophies and practices, including but not limited to:

- **ASMI Safety Program** - Our vision is ZERO HARM! This means we strive to prevent all incidents and injuries, regardless of severity or impact. This vision is supported with the appropriate range of policies, programs, and governance. Our safety mantra, whether for prevention or response, is

Global injury and recordable rates
(Case rate per 100 employees)



'Learn once anywhere, address everywhere, in as close to real-time as possible'. ASMI is committed to conducting business, both in our own operations and throughout our supply chain, in a manner consistent with RBA principles to protect our employees, customers, business partners, communities, and the environment.

- **Stop Work** – Everyone has a right to 'Stop Work' when they encounter a situation at any level that involves safety or health. Even if an employee feels unsafe without any event occurring, we encourage and support them to call a 'Stop Work', seek a safe setting, get help or advice on how to proceed safely, or escalate the situation to someone who can help them do so.
- **Proactivity** – Programs that focus on the early detection of hazards and risks including our Safety Management by Walking Around (SMBWA) and Good Catch reporting. These are forms of hazard identification that engage employees and managers in their work areas. Through this engagement, we use our eyes every day across our company to identify and eliminate risks and hazards.
- **Energy safety** – Policies and procedures for safely working around energies of all forms, and how to safely de-energize.

- **Chemical safety** – Protocols for the request, review, and approval to safely use chemicals and gases. This incorporates protocols for determining safe handling, storage, and exposure prevention through the hierarchy of controls. It is integrated with our environmental policies for the planning of proper treatment or disposal as applicable.
- **Industrial hygiene** – Understanding exposure controls for chemicals and other physical hazards is a key part of our focus on health and safety. Our industrial hygiene program aims to prevent occupational exposures that could cause harm or disease.
- **Risk and incident reporting, prevention, and response** – Our safety incident reporting (SIR) system is the foundation of driving risk and incident reporting, prevention, and response. This includes what to do when a risk is detected or an incident occurs, policies around immediately reporting when it is safe to do so, getting the right attention to properly contain the situation first, and then focusing on the structural improvements necessary to prevent a risk or incident from happening again.
- **Employee engagement** – Employees are empowered members of safety committees and working groups across our organization and sites. They have the ability to submit a 'Safety Good Catch' into the SIR system. SIRs are reviewed daily by EHS and managers across the company, and acted upon where appropriate. Employees frequently receive personal thank-you notes from our executive team for their safety leadership, and submitting their observations and findings to further preventive measures. It's a collective, collaborative effort by everyone to keep safety ingrained in everything we do.
- **Contractor safety** – Program for collaborating with contractors to keep them safe while performing their scope of work at ASMI. This includes 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 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.
- **Management of change** – When changes occur, this set of protocols serves as a guide through a risk assessment of the change, aimed at establishing if new or improvement safety, health, or environmental protection measures and controls are necessary.
- **Training** – Safety is not just a part of 'safety training'. We embed it in equipment-specific training, so it is part of the equipment maintenance and manufacturing experience, and not something that is only covered by policy. We also engage every new employee around the basics of safety during our new-hire orientation course. This is in addition to the safety training specific to working in high-hazard areas or high-hazard conditions.
- **Management review** – There are quarterly reviews of Lab, Manufacturing, and Service strategic plans and progress. Health and safety is a standing topic for the Senior Management Team meetings, with performance to targets and objectives included.

KEY RESULTS

We measure our success not in the number of serious injuries, or the number of days away from work, but in the total injury rate, which includes all injuries requiring first aid or more. Our vision is ZERO HARM! Only when our Injury Rate reaches and is sustained at zero will we reach that vision. Our progress towards this vision started in 2012, when we set this ambitious objective. We have seen our total injury rate fall significantly since then, from 1.09 to 0.50. In the same period, we have seen our recordable incident rate improve from 0.54 to 0.26.

As we strive for ZERO HARM!, each stage of our journey gets progressively more challenging. Our Injury Rate improvement progress has recently slowed - our 2021 total Injury Rate of 0.50 did not meet our target of <0.37. We believe this underperformance is largely due to the challenges of the business growth and intensity level and matriculating many new employees into our safety program and culture. This also informs where and how we must improve. As such we plan to continue this challenging target of <0.37 in 2022.

We target completing an analysis and safety strategic plan in the first half of 2022, the actions from which will target bringing us back on track to our improvement trend ambitions. We continue to challenge ourselves every day to culturally and structurally eliminate or mitigate risks, toward eliminating every incident and injury.

LOOKING FORWARD

Collaboration is key to collectively improving the safety of the industry. It starts with us, but grows when seeded with engagement. We seek and engage in initiatives that strengthen collaboration with our customers, as well as looking to build more collaboration between our own operations, across R&D labs, production floors, and service regions. We are also focusing on strengthening collaboration in industry groups, including SESHA and SEMI.

We strive to achieve ZERO HARM! and we are constantly looking for ways to further improve.

PEOPLE - COMMUNITY

We care about the communities where we do business, engaging with them and making a positive impact. Whether individually or in teams, our people around the world show their commitment to community through volunteer service.

ASMI CHINA SHOWS 'WE CARE' ABOUT CHILD EDUCATION

ASM China employees sponsored access to equipment for online English learning and video meetings. Also, a group of volunteers traveled to Guizhou province to support a special three-day program at the Yanjiao Primary School. This involved face-to-face classes and interactive activities aimed at increasing the children's interest in English. An ASM China charity auction held during the event raised sufficient funds to pay the school fees for more than 50 children.

ASMI EMPLOYEES SHOW 'WE CARE' ABOUT CHILDREN'S HEALTH

More than 150 ASMI employees from Ireland, the UK, Israel, China, Singapore, the US, and the Netherlands joined a month-long charity event to raise money for a children's hospital in Ireland. ASMI colleagues, friends and families walked, ran, cycled, and swam 50km within 31 days. Participants completed around 7,500km of exercise as volunteers aimed to do '50K My Way'. ASMI matched the funds raised.

In 2021, ASMI donated to Red Cross India – a non-profit organization providing humanitarian aid to victims of COVID-19 – in support of our employees with roots in India. ASMI also donated to Save the Children, a non-profit that provides humanitarian, life-saving relief to children.

ASM Singapore facilitated donations by employees to the Sembawang Family Services Center (FSC). The funds were for the purchase and distribution of food and other essential items to at least 40 low-income families living near ASM Singapore's Woodlands Heights operations.

ASMI employee volunteer team with Yanjiao Primary School students
"Thanks to all the hard work by ASMI China volunteers. I hope our charity team will keep going. ASMI will consistently contribute to public welfare." - Lai Xu, General Manager, ASM China

50K My Way Team Donation to Children's Health Foundation, Crumlin, Ireland
"The team spirit and support from across the company has brought our core value 'We Care' to life," - David Connell, Director of Service and Spares.

COVID-19 RESPONSE

“A TEAM THAT MANAGES THROUGH CRISIS TOGETHER, LEARNS TOGETHER AND STAYS TOGETHER.”

In 2021, the COVID-19 pandemic continued to impact the world in unprecedented ways. Every person and every company in the world has felt its effects in some way – and ASMI is no exception. Whether it was the impact on our employees and their families, or in our own operations, supply chain, or customers – COVID-19 has left an indelible impression.

As this report is written and released, we continue to take measures to minimize risk from this virus. Within our own operations, we continue to maximize work from home as a key control for those able to do their jobs remotely. For those who must come to our sites or customer or supplier sites, we have robust control measures in place, including screening protocols, masks, social distancing, increased ventilation, and general hygiene measures.

We also recognize the risk of travel and continue to implement a travel restriction and approval policy. Only critical travel is approved.

Manufacturing

ASMI was affected by the pandemic as it surged globally, through waves of community outbreak and exposure. We monitored the potential for interruption to our product facilities, and guarded onsite access closely. Strict protocols were in place, often going above and beyond local requirements to minimize the risk of exposure at ASMI. We used regular testing at our production facilities in Singapore to help ensure early detection of positive cases. When the situation warranted it, we provided employees with temporary accommodation to mitigate potential risk of exposure and maximize social distancing when off work.

While some employees tested positive for COVID-19, our case tracking and investigations did not indicate likely exposure while at ASMI production sites. Our teams are proud of the effort they made to mitigate the risk and come together to implement creative solutions to ship orders on time – all in keeping with our culture of ‘We Care’. Our Corporate Director of Global Manufacturing was inspired by teams’ efforts saying “A team that manages through crisis together, learns together and stays together.”

Customers

As our customers responded to the pandemic, we worked closely with them to ensure continuity of their policies and exposure controls with our employees. We also ensured continuity of our commitments to provide them with leading products and service. In 2020 and 2021, we were able to adjust how we support and respond to customer requirements, including improving our remote training abilities and leveraging remote expertise. There are still challenges related to travel, as our engineering and customer support, and customer base, spans the globe. Border restrictions mean it may be difficult to get an expert into a country or new service team-members to an engineering center to help strengthen knowledge and skills. We continue to address the challenges and minimize the setbacks.

Supply chain

The impact from COVID-19 was felt at all levels of ASMI’s supply chain in 2021. Around 75% of the manufacturing sites of ASMI’s direct suppliers were shut down for a period during the year. Additionally, nearly all suppliers were impacted by lockdown-related workforce capacity limitations. The full discussion of impact on our supply chain can be found in the section ‘Global operations’ of this report.

GLOBAL OPERATIONS

ASMI's growth and innovation have driven investment in manufacturing, supply chain, and key talent to keep up with and stay ahead of, technology and market demands. We do all of this with sustainability top of mind. Our focus starts with finding ways to move faster and smarter to support engineering in new product introduction, improve efficiencies in manufacturing, and provide full supply-chain support through the after-market. With the continuing impact from COVID-19, we are taking further steps to increase the robustness and flexibility of our supply chain and manufacturing. We are also continuing to improve and revise our own risk management and business continuity plans, as well as those of our supply chain.

MANUFACTURING OPERATIONS

ASMI has global manufacturing sites in Singapore, the Netherlands, and South Korea. Our manufacturing strategy is guided by a Plan of Record (PoR) process. This consists of detailed analyses of all the critical parameters that will allow us to deliver tools in the most efficient manner – maximizing our global footprint while aiming to be closer to our customers. Our manufacturing facilities comply with RBA Code of Conduct requirements, and have self-assessed as 'low risk' using the RBA SAQ tool.

On top of ASMI's new facility in Singapore, which we completed at the end of 2020, our manufacturing footprint and capacity have increased steadily through initiatives such as innovative line design, modular test expansion, and facility enhancements. Globally, ASMI will continue to expand even more in 2022 and beyond. As announced in September 2021, we started the design work on the second manufacturing floor in our new Singapore facility, which we expect to be ready for production in early 2023. This will further expand our capacity, and provide us with the flexibility to deliver on our 2025 growth plans.

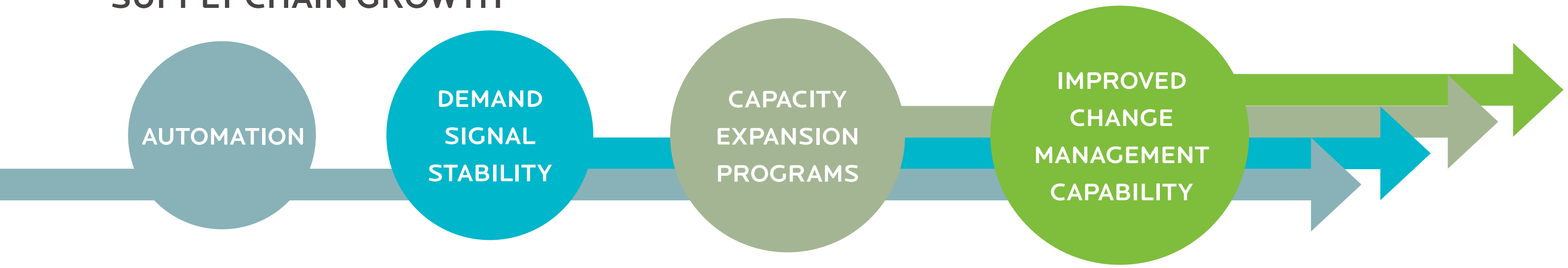
In addition to infrastructure and capacity expansion, improving product quality remains a top priority. We continue to enhance quality standards by identifying risk early within production processes, and eliminating it. This process includes the expansion of process standardization, the use of failure mode and effect analysis (FMEA), tools, and enhanced training capabilities.

GLOBAL SUPPLY CHAIN

ASMI operates globally and has partnerships with suppliers in more than 20 countries across Asia, North America, and Europe. ASMI has high expectations of suppliers around operational flexibility and responsiveness. This means working proactively with supplier partners to make sure they are able to assess and manage risks. The impact of COVID-19, global shortages, and limited labor force, have tested this flexibility and responsiveness over the past two years.

In spite of the challenges, ASMI continues to strive to build a global, world-class supply chain to enable its growth and innovation. The speed and volume of product development and production ramps, continues to challenge the supply chain. With engineering teams located around the world, setting up improved support and faster turnaround of supply is key to feeding the innovation and product-development engine.

SUPPLY CHAIN GROWTH



Automation, demand signal stability, capacity expansion programs, and improved change-management capabilities.

TOWARDS BUILDING A RESPONSIVE SUPPLY CHAIN

ASMI continues to invest in its supply chain systems and business processes to improve responsiveness to the continuously changing needs of our customers. Increased speed, responsiveness and flexibility in the supply chain is critical to our growth and differentiation in the marketplace. We have four main strategies in place to drive agility in our supply chain: automation, demand signal stability, capacity expansion programs, and improved change-management capabilities.

In 2021, ASMI continued to roll out its supplier collaboration tool, ASCENT, to more suppliers. The tool is currently in use by suppliers that cover 80% of our spend. The plan is to complete the roll-out to all direct material suppliers by the end of 2022. The ASCENT platform drives automation and digitalization of our supplier communication. This will allow us to dramatically scale our business without significantly increasing resources. In 2021, ASMI also began to implement the advanced planning and forecasting system, FERP. This will allow us to dampen the demand variability that we pass onto our suppliers. The system will make it easier for them to respond to demand changes, while improving the stability and level loading of their production lines. In 2022, the target is to complete the roll-out of the FERP system to all targeted suppliers.

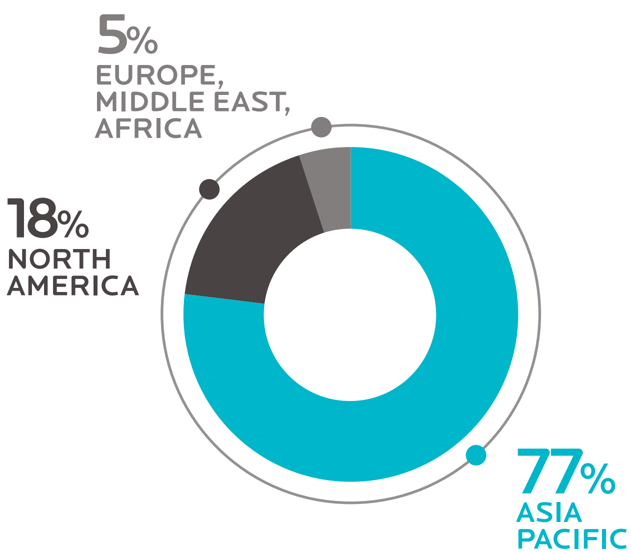
Another critical tool that ASMI kicked off in 2021 is the long-range capacity planning tool for critical suppliers and commodities. The tool enables ASMI to identify capacity gaps and develop plans to address them ahead of time. It does this by leveraging long-range market projections, and translating them into longer-term supplier needs.

SUPPLIER DEVELOPMENT AND PERFORMANCE MANAGEMENT

ASMI's supplier engineering team is committed to total quality, while accelerating product commercialization through supply-base development. A new supplier technology (STE) team has added subject-matter experts (SMEs), who define supplier roadmaps in key technology areas. The supplier development (SDE) and supplier quality engineering (SQE) teams continue to expand globally, adjacent to both supplier and customer sites. All three teams work to ensure that a 'quality first' mindset is designed into our products and processes.

Supplier engineering and supply chain teams seek partners to meet our future technical challenges together. After selection, suppliers are trained to document and share manufacturing processes to minimize part-to-part variability, while scaling to meet ASMI's growth. Focus areas for suppliers continue to be technical capability, capacity flexibility, and commercial commitment.

SUPPLY CHAIN SPEND BY REGION



COVID-19 IMPACT ON SUPPLY CHAIN

The impact of COVID-19 has been felt across all levels of our supply chain. In 2021, around 75% of the manufacturing sites of ASMI's direct suppliers were shut down for a period. Also, nearly all suppliers were impacted by limitations on reduced workforce. There were efficiency losses due to protocols on social distancing, working hours, disinfectant protocols, movement-control restrictions, and work-from-home mandates.

Recovery from pandemic shutdowns has been slow. In many areas, ASMI is still working with suppliers on recovery plans and prioritized deliveries, and providing support in ramping operations. We are fortunate to have a global supply base across more than 20 countries. This means that while the impact of the pandemic was severe at times, the natural spread of the virus across the globe did not cause a full-scale shutdown at any point.

The impact of COVID-19 has also complicated supplier-delivery performance deep into supply chains that were previously not as actively managed – from raw materials to simple off-the-shelf components and capital equipment needed for expansion. The ripple effects of these shortages and constraints put further pressure on suppliers to deliver.

Early on in the pandemic cycle, ASMI was proactive in working with suppliers to understand its impact, increasing purchase-order coverage, staying close to suppliers, and securing critical parts. We also established a real-time COVID-19 impact reporting system to monitor the impact of shutdowns and local restrictions. Due to these measures, ASMI has for the most part continued to deliver on customer demand for tools throughout 2021.

SUPPLIER DAY AND CELEBRATING SUSTAINABILITY

On November 2, 2021, we hosted a virtual Supplier Day, inviting key suppliers from across the globe to join the event. Our annual Supplier Day gives us an opportunity to share ASMI's business strategies and priorities. It includes a focus on technology, quality, sustainability expectations, and growth. For ASMI to continue to be successful, these are key areas for suppliers to understand and support. During the event, suppliers heard from members of ASMI's leadership team, including our CEO and key members of the executive team, on how to shape better relationships between companies. We also presented three awards, recognizing suppliers for their performances and outstanding support:

› Kawasaki Heavy Industries
› VDL Enabling Technology Group
› Song Tat Precision

ASMI is committed to collaborating with suppliers to increase the impact of sustainability initiatives and recognize their success. For instance, these initiatives may address the climate crisis, human rights in the supply chain, as well as other important social topics and safeguards. In 2021, ASMI introduced its PRISM Sustainability Award, including Leadership and Innovation categories. The winners of the inaugural 2021 ASM PRISM Sustainability Award in Supply Chain were:

› Leadership - XP Power
› Innovation - CEVA Logistics

RESPONSIBLE AND SUSTAINABLE SUPPLY CHAIN

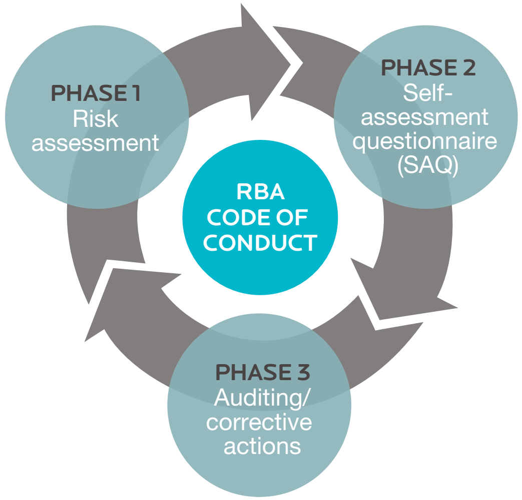
Ensuring a responsible and sustainable supply chain is a key focus of our overall sustainability program. Our priorities include: Health & safety, Net Zero, helping ASMI improve the energy and resource efficiency of its products, and human rights.

- **Health & safety** – Extending ASMI's vision of ZERO HARM!, and its intensive commitment to safety, we expect our critical and strategic suppliers to have a robust safety program, culture, and results. As such, we have communicated this expectation to our key suppliers and intend to set safety-performance targets for these suppliers, which is intended to set an industry standard. Read more in the 'People', 'Health and safety' section.
- **Net Zero** – To support ASMI in achieving its Net Zero by 2035 target, we intend to collaborate with suppliers to address our own and their environmental footprint, to accelerate progress and achieve impact beyond each other's individual scale. Key priorities will include working together to measure and address our Scope 3 emissions, encouraging our suppliers to maximize their use of energy from renewable sources, setting their own ambitious Net Zero targets, and disclosing their environmental performance through CDP. Read more in the 'Planet/Net Zero' section.
- **Product environmental footprint** – Improving the energy and resource efficiency of ASMI products is one of our key product-development priorities. But we know we cannot achieve our ambitions alone. We are collaborating with our supply chain, as a key component of our global innovation network, to maximize innovation and impact to benefit our customers and the industry overall. Read more in the 'Innovation and products'/'Product lifecycle management' section.
- **Human rights** – We care about the ethical treatment of people throughout our supply chain. We strive to identify and address the key risks, wherever and however they may exist, as further discussed below.

SUPPLY CHAIN CODE OF CONDUCT

Our supply chain code of conduct is the foundation of our efforts. We hold our suppliers to the same high standard as ourselves, requiring their commitment to and compliance with the Responsible Business Alliance (RBA) Code of Conduct. Critical and strategic suppliers are required to commit to the code, and complete the RBA self-assessment questionnaire (SAQ) to assess and provide evidence of their compliance biennially through the RBA-Online platform. Our process for managing code commitment, supplier self-assessment, auditing, and corrective action is consistent with RBA requirements. In 2021, 100% of our critical and strategic suppliers committed to the code and 98.7% completed the RBA self-assessment questionnaire (RBA SAQ).

Critical supplier responsibility strategy



The RBA online platform has strict criteria for scoring SAQs for supplier risk-level. Suppliers that complete the RBA SAQ and self-assess as high risk are required to complete a corrective action plan, and may be audited. In 2021, ASMI had no suppliers rated high risk.

SUPPLIER EXPECTATIONS

We communicate our expectations to our suppliers, with a particular focus on our critical and strategic suppliers that represent the majority of our 2021 spend. This approach manages our supply chain risks by focusing on the primary areas of material origin and spend.

We expect our critical and strategic suppliers to commit to:

- RBA Code of Conduct
- ASMI Corporate Responsibility policy
- ASMI Code of Business Conduct
- ASMI Intellectual Property policies
- Ensuring a safe working environment, including a Recordable Case Rate (RCR) target
- Support of ASMI Net Zero 2035 target
- Innovation to support ASMI product energy and resource efficiency improvement
- Conflict materials identification and disclosure
- Global trade compliance and export controls

HUMAN RIGHTS

Ensuring the protection of human rights is a critical element of our code. We are committed to maintaining and improving our systems and processes to assure respect for human rights related to our own operations, supply chain, or products. We are increasing due diligence and management controls to identify, assess, and address human rights-related risks and potential impacts. ASMI is co-leading efforts in the newly formed RBA Living Wage Task Force to provide the necessary due-diligence processes and infrastructure to ensure workers in our supply chain receive a living wage.

The protection of human rights has been fundamental for ASMI and an important aspect of the RBA Code of Conduct and the introduction of our Global Employment Standards. We stand against any form of forced or bonded labor, human trafficking, and all forms of human rights abuses.

In 2021, we had no reports or evidence of human rights violations or abuses within our global supply chain.

RESPONSIBLE MINERALS SOURCING

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 are committed to preventing such human-rights violations.

We require our critical and strategic suppliers to source tin, tantalum, tungsten, and gold (3TGs) responsibly, and to use certified, conflict-free smelters from recognized certification organizations. Our goal is to trace 3TG sourcing, ensure the use of certified conflict-free smelters, and confirm that our sourcing funds do not finance conflict in the covered countries.

We conduct due diligence based on Organisation for Economic Co-operation and Development (OECD) guidance, and detailed data verification with identified suppliers' smelters, This process establishes traceability to the smelters. It also confirms that they are on the validated conflict-free smelters (CFS) list published by the Responsible Minerals Initiative (RMI). This helps us ensure that the products and components we source are free of DRC conflict minerals.

Current information on our policy and due diligence process can be found on our website in the Supply chain section under Corporate responsibility.

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.

We joined and are actively engaged in the widely recognized Responsible Minerals Initiative (RMI), including to extend supply chain due diligence measures to other minerals, such as cobalt and mica. The RMI brings together the electronics, automotive, and other industries to improve conditions in the extractives industry.

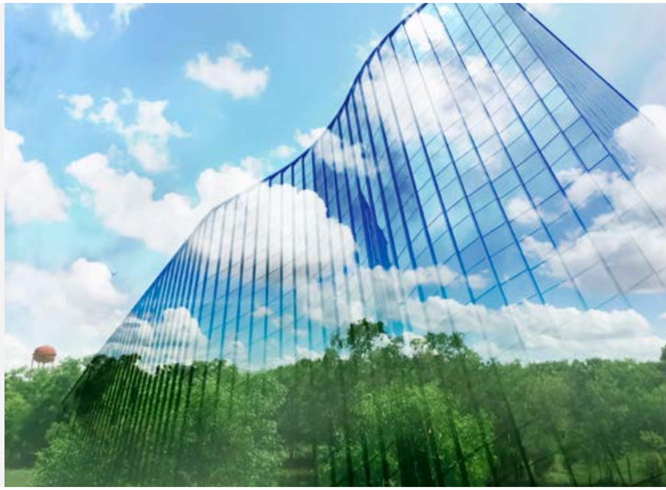
FORCED LABOR/BONDED LABOR

We also go beyond the RBA Code, to map our contract manufacturer labor-sourcing process to prevent forced and bonded labor (FLBL). In 2021, we reviewed our FLBL mapping for COVID-19 impacts on the migrant labor-sourcing practices of our contract manufacturers. We found that migrant labor programs had been suspended due to restrictions on employee travel. We continue to monitor the situation and will update maps and due diligence as travel restrictions may ease in 2022. To date, no forced or bonded labor has been identified with our contract manufacturers through our initiatives.

SUPPLY CHAIN DIVERSITY

ASMI is actively engaged in the SEMI MOD workgroup, which has engaged participation from all aspects of SEMI membership. The SEMI MOD workgroup commits to increasing the number and overall impact of diverse owned and operated companies serving the semiconductor industry. In 2021, ASMI increased its commitment to diversity of supply by forming a committee focused on increasing supply chain diversity. We also added diversity-ownership requirements to our new supplier selection and qualification process. Through these efforts we are seeking to increase our spend with diverse owned and operated companies.

SUSTAINABILITY



At ASMI, sustainability is about understanding our impact and increasing our value as an integral part of our business strategy. We engage with stakeholders to assess and understand our impact on society. Aligning our strategy and sustainability focus with their priorities, we strive to maximize long-term value creation.

LONG-TERM VALUE CREATION AND IMPACT

In this section, we provide an overview of our sustainability focus areas that are aligned with and responsive to our stakeholder priorities – all with our focus on delivering long-term sustainable value creation, and striving to make a positive impact in the world.

As sustainability is integral to our business, you can find a more detailed discussion of these focus areas in the appropriate sections of this report, that build on this overview.

From the foundation of progress built in previous years, in 2020 we focused on developing our sustainability priorities for the next horizon, building the internal engagement and commitment, meaningful engagement with our stakeholders, an assessment of our capabilities and progress, and assembling the network of partners needed to accelerate progress. Our updated materiality assessment, the UN Sustainable Development Goals, and company strategy inform our sustainability focus areas for the next horizon – 2021-2025 and beyond. The plan was reviewed with our Senior Management Team, and approved by the Management Board and Supervisory Board. These focus areas reflect ASMI's ambition to create sustainable, long-term value and increase our positive contribution to the world.

ASMI ESG HISTORY

ASMI's sustainability journey started in earnest in 2012, with first coverage in our annual report. We committed to what is now the Responsible Business Alliance (RBA) Code of Conduct and set our first multi-year targets for GHG emissions, water conservation, and solid waste diversion.

In these early years, we also built a foundation for further progress, addressing key policy and priority topics. These included building our safety program toward our vision of ZERO HARM!, progressively ensuring compliance with the RBA Code of Conduct, and extending the RBA Code to our supply chain. From 2014 through 2016 we published dedicated Corporate Responsibility Reports.

In 2015, we set our 2016-2020 objectives with an environmental focus: furthering GHG emissions reduction; water conservation, solid waste diversion, and that any new facility exceed local energy-efficiency standards.

For 2017, we moved our CR disclosure back into our annual report, towards a goal of integrated reporting, with further progress continuing in this report.

In 2019, we set our ambition for a big step forward in our sustainability focus. Our 2019 employee survey revealed that 98% of employee respondents said 'ASMI's commitment to sustainability is very important to me', and 58% said 'I want to help'.

SUSTAINABILITY FOCUS AREAS

Our sustainability focus areas are: innovation, people, planet, responsible supply chain, and sustainability governance. Each focus area and its priorities are further described below, and more information can be found in the respective chapters/sections in this Annual Report.

INNOVATION

Innovation is our DNA. Through our technology, which is our greatest contributor to society, we bring our innovation DNA to the challenges and opportunities of sustainability.

Product environmental footprint – Our technology contributes to our industry and society overall, but it also has a significant environmental impact. This lies in the energy and resource consumption of our products – both in our own operations and especially in our customers' fabs across its often 20+ year useful operating life. This is an important sustainability factor for our customers, as a key source of their Scope 1 and 2 GHG emissions and their operating cost. For ASMI, it is a significant component of our Scope 3 GHG emissions. Thus, we are focused on improving the energy and resource efficiency of our products.

Product safety innovation – A semiconductor fab is a highly complex system, with many potential and serious hazards. It relies on compliance to equally complex design standards, operational controls, and many other factors to ensure safe operation. The controls have considerable risk and operational impact. We see opportunities to innovate that can significantly reduce risk and improve the fab operational impact of ensuring safety.

PEOPLE

We strive to enrich the lives of everyone we engage with, and make a positive, enduring impact in our communities, industry, and society overall.

Safety – The safety of our people, and everyone in our value chain, is of paramount importance. Our aim is to be safety leaders and influence improvements across the industry. We strive to deliver safe products to our customers, and collaborate to make sure shared work environments are safe.

Our team - We strive to unleash everyone's potential at ASMI, and to enable each employee to build and establish a long-term and sustainable career we are focused on four areas: Strengthening our Culture, Growing Engagement, Leadership & Development, and Inclusion & Diversity.

Community, industry, and society impact – Engaging with and contributing to the communities where we do business is a significant opportunity to make a positive difference, and enhance our license to operate. It is also a key expectation of and motivation for our employees, as they want to be part of a broader cause. Participating in such activities can play a powerful role in employee team-building, retention, and attracting new employees.

We also recognize the opportunity to make an enduring positive impact to our industry and society overall by participating in and collaborating on important opportunities.

PLANET

The world needs commitment from all levels of society in addressing the environmental issues facing our planet. Our actions today decide the future of tomorrow. It is from this principle that ASMI is working collaboratively to take action today.

Net Zero – We recognize the importance of the climate crisis to all stakeholders. Accordingly, our carbon footprint is a priority in ASMI's sustainability strategy. In September 2021, we set an ambitious target of Net Zero 2035. Collaboration across our value chain is a requirement in achieving this goal.

Climate adaptation – We recognize the importance of climate change and the potential risks and opportunities it can represent, now and into the future. As such, it is important to carefully assess the climate adaptation risks and opportunities for our business, from which we can determine priorities and plans to address them.

RESPONSIBLE SUPPLY CHAIN

Our suppliers are our partners in progress. More than just supporting our business, we share values and opportunities. We are progressively expanding the sustainability expectations for our suppliers, and will grow to accelerate progress and amplify impact beyond our individual scale.

Safety – We hold our supply chain to the same high standards as we do ourselves. This includes extending our vision for ZERO HARM! to our supply chain partners.

Environmental footprint – Our supply chain is a substantial portion of our Scope 3 emissions, and we must all work together to address the climate crisis. We intend to collaborate with our supply chain to address our environmental footprint. This includes collaborating and innovating to address the challenges of improving the energy and resource efficiency of our products.

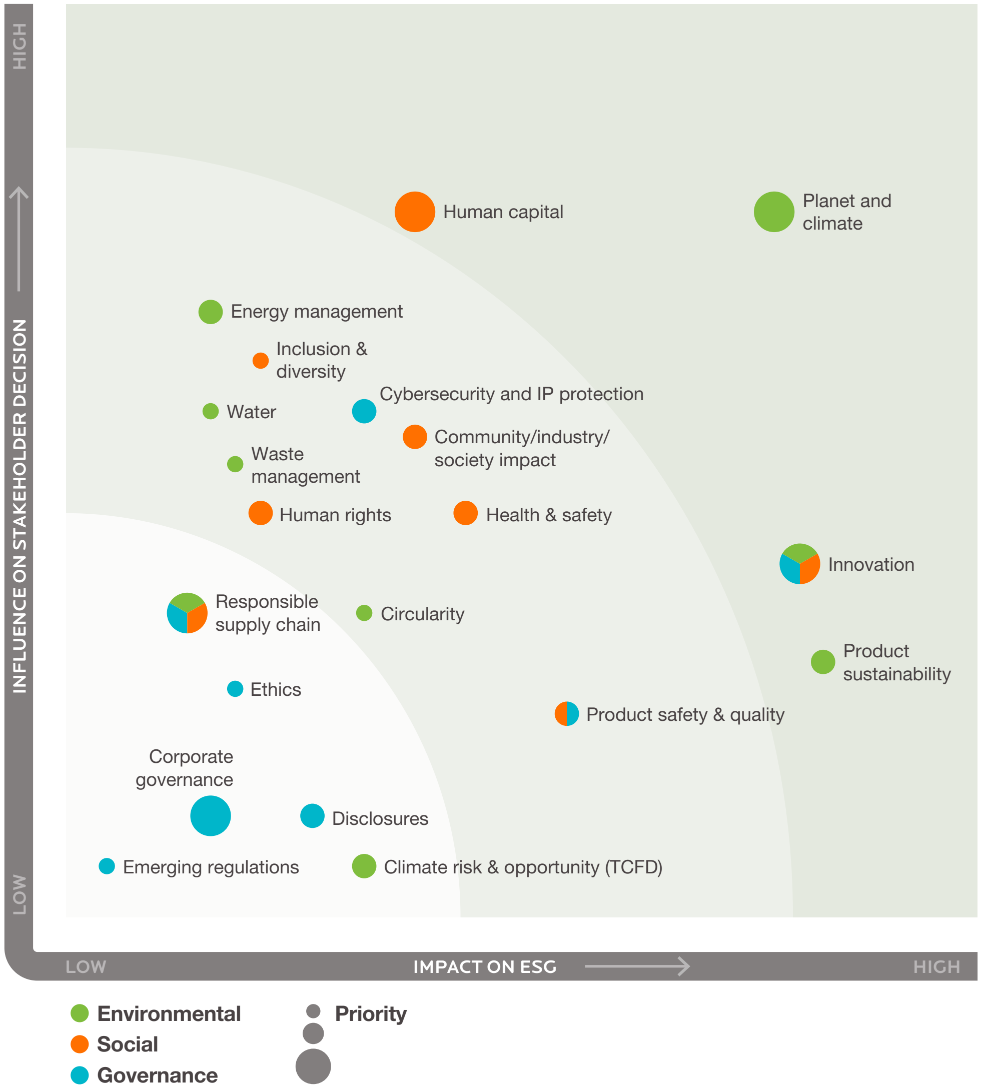
Human rights – We are committed to protecting human rights throughout our supply chain. We strive to identify and address the key risks, wherever and however they may exist.

SUSTAINABILITY GOVERNANCE

We are connected and responsive to our stakeholders. We are building sustainability into our governance structure and systems.

Disclosures and assurance – Our stakeholders place a high priority on the transparency and integrity of our disclosures, and their trust is of paramount importance. A considerable portion of our Annual Report contains non-financial and sustainability-related information. We expect that assurance of non-financial information will become a requirement in the future. As such, starting with this report, key non-financial aspects receive limited assurance.

Cybersecurity and intellectual property (IP) protection – Assuring robust cybersecurity and IP protection is critical to protect our business and the trust of our partners and stakeholders. Protecting our computer systems and networks is vital to our business operations and continuity. These threats and risks are rapidly becoming more sophisticated and intense.



INFORMING OUR FOCUS

Our sustainability focus areas and priorities were informed by meaningful engagement with our stakeholders through our materiality assessment and ongoing stakeholder engagement, and the UN Sustainable Development Goals.

MATERIALITY ASSESSMENT

To best inform our future focus areas, we conducted a significant update of our materiality assessment, guided by an expert third party. Our process follows the sustainability materiality steps and matrix based on the Global Reporting Initiative's (GRI) G4 sustainability reporting framework.

Stakeholders engaged include: key investors, top customers, our employee 'Thought Leader' group, key suppliers, and engaged NGOs. The process included peer-group benchmarking. The collected inputs were initially reviewed and prioritized in a workshop with key employees facilitated by the expert third party. This output was then finalized with the Management Board, resulting in the materiality analysis presented here.

STAKEHOLDER ENGAGEMENT

Stakeholder	How we engage	Our applicable focus areas	Included in materiality assessment	Progress in 2021	Resulting strategy changes
Customers	› We engage directly with our customers on important issues through recurring meetings and development sessions › We have direct innovation engagement to enable customer roadmaps	› Innovation › Planet › People › Responsible supply chain	Yes, desktop research	› Key Innovation successes › Customer recognition › Continued partnership in key customer sustainability leadership program › Safety Leadership Collaborations with key customers	Climate strategy
Employees	› Quarterly CEO led all-employee meetings and open Q&A › CONNECT all-employee dialog intranet site › Engagement and other key topic surveys › Safety culture survey of service, R&D labs, and manufacturing employees	› People › Planet › Innovation	Yes, through direct surveys with all employees and thought leader surveys	› Significant increase in leadership and employee dialog through CEO led all-employee meetings and through CONNECT intranet communication › Engagement pulse survey and engagement plans and progress › Service, lab, and manufacturing safety plan very high response rate	High safety risk work areas strategic plans
Investors	› Direct engagement discussions › Responsive to their sustainability questionnaires and ESG ratings	› Innovation › Planet › People › Responsible supply chain › Governance	Yes, direct engagement sessions	› Responsive to key investor inquiries › Engagement in key ESG ratings (See 'ESG ratings')	Comprehensive sustainability plan informed Climate strategy
Suppliers	› Executive and commodity manager engagement › Annual Supplier Day › Direct interviews	› Innovation › People › Planet › Responsible supply chain	Yes, direct engagement sessions	Two suppliers received inaugural PRISM Sustainability Award - Supply chain, Innovation and leadership categories	Supplier Day sustainability focus
NGOs	› NGO engagement letters › Direct engagement sessions › CDP Climate and Water Security disclosure	› Governance › Planet › People › Responsible supply chain	Yes, desktop research and recurring engagements	› Invited to influence key NGO future priorities › CDP Climate and Water Security scores improved from C to B	› Net Zero target › Climate adaptation risk and opportunity assessment › Diversity & Inclusion focus and targets › Responsible supply chain
Industry consortiums	› R&D partnerships such as imec and University of Helsinki › Industry associations include SEMI and SIA memberships, and SESHA (board seat) › Responsible Business Alliance (RBA) members	› Innovation › People › Planet › Responsible supply chain › Governance	Yes, desktop research and active engagement in committees and working groups	› Significant innovation progress through R&D consortia › SESHA strategic direction through board seat › Actively engaged in Living Wage, RMI, and other RBA efforts	› Expanded innovation network › Safety strategic plan › Sustainability strategy Human Rights priority topic
Communities	› Employee volunteering and contributions to local communities	› People › Planet › Governance	No	See 'Community' section	Sustainability strategy Community, Industry, Society engagement and impact as a priority

Below are the seven United Nations Sustainable Development Goals (SDGs) we have selected, to guide and align our efforts and ambitions with:

	UNITED NATIONS SUSTAINABLE DEVELOPMENT GOALS (UN SDGs)	ACTIONS BY ASMI	SEE SECTION
5 GENDER EQUALITY	**Achieve gender equality and empower all women and girls**		
	5.5 Ensure women's full and effective participation and equal opportunities for leadership at all levels of decision-making in political, economic, and public life	Established employee resource group "ConvERGe" We launched the strategic target to increase women working at ASMI from 15% in 2021 to 20% in 2025	**People**
	5.6 Enhance the use of enabling technology, in particular information and communications technology, to promote the empowerment of women	Provides training during International Women's Day (IWD) events through virtual learnings, and promotes ASMI women in leadership through our communication platform Connect and in social media	**People**
7 AFFORDABLE AND CLEAN ENERGY	**Ensure access to affordable, reliable, sustainable, and modern energy for all**		
	7.2 By 2030, increase substantially the share of renewable energy in the global energy mix	100% renewable electricity procurement by 2024 with focus on high-quality EACs that bring additionality to markets when available	**Sustainability**
	7.3 By 2030, double the global rate of improvement in energy efficiency	ASMI enables this through our innovation and support of customer roadmaps	**Innovation and products**
8 DECENT WORK AND ECONOMIC GROWTH	**Promote sustained, inclusive and sustainable economic growth, full and productive employment, and decent work for all**		
	8.7 Take immediate and effective measures to eradicate forced labour, end modern slavery and human trafficking, and secure the prohibition and elimination of the worst forms of child labour, including recruitment and use of child soldiers, and by 2025 end child labour in all its forms	ASMI engagement with supply chain on force labor/bonded labor (FLBL) mapping and initiatives	**Global operations**
	8.8 Protect labour rights and promote safe and secure working environments for all workers, including migrant workers, in particular women migrants, and those in precarious employment	ASMI engagement with supply chain on force labor/bonded labor (FLBL) mapping and initiatives	**Global operations**
9 INDUSTRY, INNOVATION AND INFRASTRUCTURE	**Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation**		
	9.4 By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes, with all countries taking action in accordance with their respective capabilities	ASMI's continued investment in modernizing its infrastructure, including with recent upgrades and investment in operations and infrastructure in South Korea and Singapore	**Global operations**
	9.5 Enhance scientific research, upgrade the technological capabilities of industrial sectors in all countries, in particular developing countries, including, by 2030, encouraging innovation and substantially increasing the number of research and development workers per one million people, and public and private research and development spending	ASMI's core focus everywhere we operate	**Innovation and products**

UNITED NATIONS SUSTAINABLE DEVELOPMENT GOALS (UN SDGs)	ACTIONS BY ASMI	SEE SECTION
10 REDUCED INEQUALITIES – **Reduce inequality within and among countries**		
10.2 By 2030, empower and promote the social, economic and political inclusion of all, irrespective of age, sex, disability, race, ethnicity, origin, religion or economic or other status	› Renewed Business Code of Conduct, including enhanced focus on inclusion & diversity (I&D), career development opportunities of female leadership, and benchmarking living wage levels globally	**People**
10.4 Adopt policies, especially fiscal, wage and social protection policies, and progressively achieve greater equality	› Adoption of Global Employment Standard (GES) including social protection policies. Active monitoring of gender pay ratios, living wage levels, and CEO pay ratio, and transparency of these in our Annual Reports	**People**
12 RESPONSIBLE CONSUMPTION AND PRODUCTION – **Ensure sustainable consumption and production patterns**		
12.2 By 2030, achieve the sustainable management and efficient use of natural resources	› Wood crate responsible wood source and certification policy	**Sustainability**
12.4 By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their lifecycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water, and soil in order to minimize their adverse impacts on human health and the environment	› ASMI waste minimization and management protocols, including objectives to eliminate all hazardous waste to landfill, and implementation of air emission control devices on process modules	**Sustainability**
12.5 By 2030, substantially reduce waste generation through prevention, reduction, recycling, and reuse	› ASMI waste minimization and management protocols, including objectives to eliminate all hazardous waste to landfill, and implementation of air emission control devices on process modules	**Sustainability**
12.6 Encourage companies, especially large and transnational companies, to adopt sustainable practices and to integrate sustainability information into their reporting cycle	› ASMI annual and sustainability reporting, including CDP	**Sustainability**
13 CLIMATE ACTION – **Take urgent action to combat climate change and its impacts**		
13.2 Integrate climate change measures into national policies, strategies and planning	› 100% renewable electricity procurement by 2024 with focus on high-quality EACs that bring additionality to markets when available	**Sustainability**

PLANET

Our commitment to help fight climate change and care for our planet – one of our five sustainability focus areas – means we take steps to reduce greenhouse gas (GHG) emissions, use water and other resources responsibly, and limit waste production. Reducing our environmental footprint goes hand in hand with steps towards a circular business model. In this section of the report, we provide information on progress made towards achieving these environmental targets.

Innovating for the future should not come at its own cost. Our technologies will help people live better, tackle challenges, and connect like never before. We aim to enable this by playing our part today to make tomorrow's world worth living in.

The issues facing our planet require bold and collaborative action from all companies, governments, and society. In 2016, ASMI set objectives for 2020 in important areas relevant to our impact: greenhouse gas emissions, water withdrawals, solid waste disposal, and responsible construction. Those were a starting point for our future ambitions below. We aim to collaborate across all industries to bring faster and more meaningful change to the environmental challenges facing the world today.

CLIMATE

Climate change is a risk the whole planet is facing together. It presents extreme weather events, habitat and biodiversity loss, increased risk of more frequent pandemics, among other global impacts. It also poses increasing risks to ASMI and its stakeholders, including the supply chain. We recognize these risks and are taking action to do our part to mitigate them.

NET ZERO

In 2021, ASMI announced its target to achieve Net Zero emissions by 2035. This includes setting targets for Scopes 1, 2, and 3 GHG emissions, with the aim of reducing emissions as near to zero as possible. We aim to further conserve energy use, maximize the use of renewable electricity, and neutralize remaining emissions.

As the climate crisis transcends the actions of any one company, industry, or country, we look to collaborate across our value chain for a collective global impact. We strive to embody high standards in the definition, scope, transparency, and realization of this target.

ASMI's next steps in its Net Zero by 2035 target will be:

- ASMI has completed a detailed study of its Scope 2 emissions with the assistance of a recognized external expert. Based on this, we will source 100% of our electricity from renewable sources for all our global operations from 2024 onwards;
- We intend to align our target to the Paris Agreement 1.5°C pathway;
- Size ASMI's Scope 3 footprint and set a target for all scopes before the end of 2022;
- Accelerate the further energy and resource efficiency-improvement of our products;
- Provide further interim goals on the pathway to Net Zero; and
- Develop an emissions compensation and neutralization strategy to address residual emissions.

RENEWABLE ELECTRICITY

ASMI's first major step toward Net Zero is reducing our Scope 1 and Scope 2 emissions. In 2021, for our six key sites, our renewable electricity market-based purchases reduced our location-based Scope 2 GHG emissions by 70%. Our aim is to source 100% of our electricity from renewable sources for all of our global operations by 2024, with the following path to that goal:

- Source 100% of electricity from renewable sources for key sites in the United States, the Netherlands, Finland, Japan, and Singapore, from 2021 onwards. Relative to its 2020 baseline, this represented a 67% reduction of ASM Scope 1 and 2 GHG emissions.
- Source 100% of electricity from renewable sources for the remainder of global operations from 2024 onwards. Relative to its 2020 baseline, we estimate this will represent an estimated 90% reduction of ASMI Scope 1 and 2 GHG emissions.

ASMI achieved its 2021 goals through market-based electricity purchases of high-quality Energy Attribute Certificates (EACs). The market-based method uses contractual arrangements where electricity is procured from specific sources, instead of a location-based approach of procuring energy available from local grids only. ASMI targets the procurement of high-quality certificates, intended to focus on in-market sourcing and focused on providing additionality, which means the funds contribute to the continued growth of renewables capacity in the markets where we operate.

In 2021, the purchases included the following types of EACs by region:

- **Europe** – the Netherlands and Finland - 100% in-market EU GoOs and EKOenergy labeled wind
- **United States** – 100% in-market Green-e Renewable Energy Certificates (RECs) of wind
- **Singapore** – 92.5% in-market TIGRs of solar, and 7.5% from Thai Gold Power Solar
- **Japan** – 100% in-market J-credits of renewable biomass

Currently, ASMI is not subject to any energy regulations or policies, including any that would restrict our renewable electricity purchases.

ASMI operates a key facility in South Korea, where the renewable electricity market recently opened and is developing. We are monitoring this market carefully in relation to our 2024 target to power our South Korean location, in the event it becomes feasible to meet this target earlier.

We included our global service and sales offices in our 2024 target, and are also evaluating if or how we may address these locations earlier.

GHG EMISSIONS

Purchased electricity and its indirect GHG emissions are only a part of our overall emissions inventory, yet they account for a significant portion of our Scope 2 emissions potential. Continuing to move towards a Net Zero objective requires a full understanding of all emissions.

At ASMI, our GHG emissions are attributable to the following:

- **Scope 1** – Chemical and by-product emissions such as NF3; fuel from onsite heating and abatement units; fuel from emergency generators
- **Scope 2** – Purchased electricity; district heating in limited locations
- **Scope 3** – A full inventory will be conducted in 2022; this will include applicable upstream/downstream sources

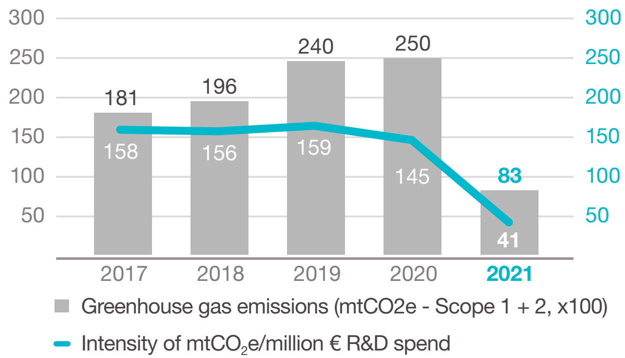
In calculating the related emissions of these sources, for 2021 the emission factors used for calculating our Scope 1 and Scope 2 (location-based) emissions were sourced from the IEA and the US EPA.

In 2021, we achieved a 66.5% reduction in our Scope 1 and Scope 2 (market-based) GHG emissions from our 2020 baseline, versus our estimate of 70%. This was the result of both our increase in use of renewable electricity, from 9.9% to 75.6% globally, as well as a reduction in our Scope 1 emissions. We still aim to reduce our Scope 1 and 2 emissions by 90% from the 2020 baseline by 2024.

We have assessed that our climate response is also our greatest contribution to protecting the biodiversity of our planet. We have previously assessed that while Singapore is within the greater Sundaland Biodiversity Hotspot, we have not identified any sensitive biodiversity areas adjacent to our facility, nor near any of our facilities worldwide. We recognize that climate change impacts

Greenhouse gas (GHG) emissions

(Scope 1 and 2* emissions and normalized per R&D investment)



* 2021 Scope 2 emissions presented are based on the market-based method

broader regions that have an impact on the biodiversity of our planet as a whole. Our climate response is contributing to reducing the risks of further biodiversity impacts.

CLIMATE ADAPTATION

ASMI has started its journey toward alignment with the Task Force on Climate-Related Financial Disclosure (TCFD), an initiative created by the Financial Stability Board. This is ASMI's first alignment toward TCFD disclosure, reflecting our actions and processes as of December 31, 2021. We aim to provide a full TCFD disclosure in the future.

Governance - Climate adaptation response

The Management Board has final responsibility and approval of ASMI's ESG and sustainability strategy, including climate targets and related matters. The Management Board has tasked the Corporate Vice-President of Sustainability to provide input on ESG and sustainability strategic matters, including matters regarding climate change. On a quarterly basis, the Corporate Vice President of Sustainability reviews the organization's environmental (which includes climate-related) strategy, policies, performance against agreed major plans of actions, and specific KPIs, and reports the findings to ASMI's Management Board. The Senior Director Global Environmental, Health and Safety/Sustainability (reporting to the Corporate VP of Sustainability) is responsible for identifying, creating, and managing environmental goals, targets, and policies, including matters involving climate change. Climate-related risks and opportunities are included in the risk mapping, and reviewed as part of the periodic reviews of risks and opportunities identified at corporate level by the Enterprise Risk Committee.

Strategy - Assessing climate risk and opportunity

In addition to the environmental risks and processes identified and disclosed previously in ASMI's 2020 Annual Report, and in alignment with the recommendations of the TCFD, a climate-scenario analysis is being conducted to better understand ASMI's exposure to climate change. For this, ASMI is implementing a process called climate-adaptation risk and opportunity assessment (CAROA). Within this process, ASMI intends to routinely identify, assess, and manage its top physical and transition climate risks and opportunities:

Physical risks

The goal is to assess the risk of various physical hazards likely to be exacerbated by climate change, and have an impact on ASMI or its value chain. These hazards are analyzed under a '4° scenario' Representative Concentration Pathway (RCP) 8.5 climate scenario, and for two time horizons: a medium-term (2030) and a long-term (2050). It is important to identify key regions and hazards important for ASMI. For this, the nine most important countries based on revenue per region, and a number of facilities and employees, were included in the analysis. These are the Netherlands, Belgium, Finland, Japan, South Korea, Taiwan, China, Singapore, and the United States. Within these countries, the most relevant hazards for ASMI are being identified. They include water scarcity, drought, heavy snow, heavy precipitation and flooding, heat waves/extreme temperatures, tropical storms and sea level rise, and coastal flooding.

From a financial perspective, at this stage we have not identified any current physical risks that have a material impact on our current accounts and disclosures, including judgements and estimates in the financial statements.

Transition risks

The objective of the transition risk analysis is to identify the risks and opportunities that may arise for ASMI in these main areas: policy and legal, technology, market, and reputation, in the context of the transition to a low-carbon economy. For this assessment a 'rapid transition' scenario, whereby warming is limited to below 2°C (in line with IEA SDS and other scenarios where relevant), is being used considering short (0-5 years) and medium-term (2030) time horizons. Five transition risks and opportunities are being assessed, including 1) stricter regulations on the reporting and reduction of fluorinated GHG emissions; 2) changes in carbon-pricing schemes; 3) mandatory compliance on measuring and reporting GHG emission; 4) improvements in energy efficiency in buildings; and 5) failure to respond or communicate climate-related product issues.

We will assess the findings of the analysis of both physical and transition risks in 2022, and use them to develop action plans to mitigate or adapt to climate-related risks.

Risk management

The overall approach of ASMI to risk management and a summary of the top risks identified can be found in the 'Risk management' section. We will continue to include climate-specific risk assessments and mitigation activities into the risk elements for consideration in the centralized company risk management framework.

Metrics and targets

As one of the key pillars toward TCFD disclosure, ASMI has developed metrics and targets related to climate. As noted earlier in this report, our target to achieve Net Zero by 2035 is a cornerstone of our response to climate impact, with an interim objective to source all renewable electricity across our operations by 2024. Within that plan are additional steps in 2022 and 2023 to progressively meet the renewable electricity target and achieve an estimated 90% absolute reduction in our Scope 1 and 2 GHG emissions by 2024.

Next steps

We intend to disclose the results of the climate scenario analysis and the corresponding financial impact assessments in our 2022 Annual Report. ASMI will establish the CAROA process as an ongoing business activity to continuously enable further transparency and alignment on TCFD climate-related disclosure. ASMI aims to continue to integrate climate-related risks into its risk management framework. In 2022, ASMI strives to size its Scope 3 footprint and aims to set science-based targets for all scopes aligned with the Paris Agreement 1.5°C pathway.

OTHER 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 are required to meet, and are continuously driving initiatives to improve our performance. At sites where we operate and permits are not required, we strive to use the best-known methods to help ensure our abatement equipment is operating at peak performance to minimize emissions. We closely monitor emissions and efficiencies of the air-abatement systems, which remove GHG and non-GHG effluents from gas exhaust. We engage outside consulting experts to help guide us with the best-known technologies in abatement for the processes we develop.

CARBON DISCLOSURE PROJECT (CDP)

Founded as the Carbon Disclosure Project, and with its first report published in 2003, CDP has evolved to become the trusted environmental disclosure platform. ASMI has participated in the annual climate disclosure since 2013, and water security since 2017.

The latest completed disclosure cycle is for calendar year 2020, reported in July 2021. ASMI reported to both the climate disclosure and water security disclosure, and their respective supply chain modules in coordination with requesting customers. Our CDP disclosures improve transparency of not only our GHG emissions and water impacts, but also risks and opportunities in these areas. In December 2021, scoring was released and ASMI received the following:

CDP DISCLOSER 2021

2021 CDP disclosure scores

Climate disclosure	Water security disclosure
B	**B**

This is an improvement over the 2020 reporting, which received C ratings for both climate disclosure and water security disclosure. With a strong focus on our transparency, and strengthening of our understanding of risks and opportunities related to climate and water, we aim to continue to improve our CDP reports in coming years.

The CDP supply chain reporting enables us to collaborate further with our customers in defining our collective impacts through the manufacturing and use of ASMI's products. This collaboration helps customers better understand a portion of their Scope 3 GHG emissions and water-security impacts. ASMI is driving CDP reporting into its own supply chain, and will engage through the CDP supply chain module in the same manner as we do for our customers.

Looking ahead, ASMI intends to continue to report our climate and water security progress to the CDP. We are encouraged by the stronger alignment of CDP with other disclosures such as the TCFD, and its alignment with the Science Based Targets Initiative (SBTi) to bring companies in line with 1.5°C targets.

WATER

Ecosystems depend on clean and available water. Our communities in high water-stress regions expect access to clean and sustainable supplies of it.

While ASMI does not need ultra-pure water for its equipment processes, our equipment relies on sanitary sources of water for cooling and abatement purposes. Taking into account the global and local need for water, ASMI has made it a priority in recent years to responsibly manage our water consumption. We also work on ensuring our discharges meet local requirements for adequate treatment and return to our ecosystems.

ASMI recognizes that it operates and takes water withdrawals in regions that are currently experiencing high water stress, according to the WRI Aqueduct 2019 assessment. Water stress is defined as the ratio of total water withdrawals to the available renewable surface and groundwater supplies.

Our three largest engineering centers in South Korea, Japan, and Phoenix, the US, account for 69% of our water consumption in 2021, and are all located in medium-high or extremely high water-stressed regions.

ASMI manages the risks through water efficiency and conservation measures. In all regions, regardless of water-stress level, ASMI focuses on proactive water conservation, and implementing a best-practice approach for that region. In previous years, ASMI has significantly reduced its absolute water withdrawals. The wastewater treatment systems at our engineering sites all have water reuse/recirculation systems to minimize consumption.

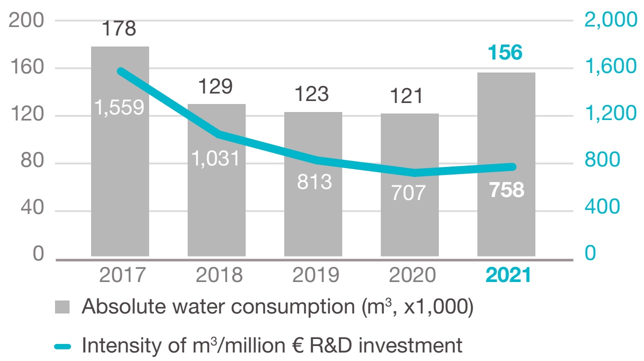
Location	Key operations	WRTI water stress	Withdrawals m^3 x 1000
Almere, the Netherlands	Special projects manufacturing	Low	2
Singapore	Manufacturing	Low	47
Dongtan, South Korea	Engineering, manufacturing	Medium-high	28
Tama, Japan	Engineering	Medium-high	5
Phoenix, Arizona, US	Engineering	Extremely High	74

WATER. WE CARE. WE CONSERVE. EVERY DROP.

Our impact on water resources associated with our operations, and the equipment we design and sell, includes supply-quality, availability, and discharge quality requirements. We continuously aim to reduce our impact through direct conservation efforts, responsible water discharge, and by addressing associated triggers to water security, including climate change. We engage with our stakeholders on water security, and through this aim for progress that exceeds minimum regulatory requirements wherever applicable. We strive to align our approach with recognized standards, policies, and guidelines, including the OECD, the United Nations SDGs, and recognized water-stress risk initiatives, and we set targets and objectives to measure our progress. We communicate our progress annually through the CDP's Global Water Report and our Annual Report, and aim to drive progress on water security in our supply chain.

Water withdrawals

(Absolute and normalized per R&D investment)



We continued to focus on sustaining our progress while conducting a water audit at our key engineering sites in 2021. The objective of the audit is to strengthen our understanding of our means of consumption, and identify where opportunities may exist for further conservation through equipment or system enhancements.

Water effluent quality is maintained within regulatory control parameters. Local requirements and capabilities for wastewater collection and control vary, but ASMI adheres to regulatory discharge limits and permit conditions. In some regions, we are able to pre-treat and discharge to a publicly operated treatment-works facility. In others, we need to collect wastewater for offsite transport, treatment, and management. In all cases, our first responsibility is to ensure our collection systems are robust, so we don't risk leaks or releases while the wastewater is in our system. Once ready for discharge, we make sure we are operating within permit or legal collection/disposal parameters to ensure the receiving treatment facility can manage the effluent.

Our absolute water consumption increased due to growth in our operations in Phoenix, and new manufacturing site in Woodland Heights, Singapore coming fully online. Due to additional capacity demands, we retained production capabilities in our Yishun factory. This additional capacity led to an increased absolute consumption, however our normalized consumption to both R&D spend and total revenue remained consistent with 2019 and 2020, demonstrating our current controls are working. Our challenge now will be to find further opportunities for improvement as we continue to grow in the coming years.

CIRCULARITY

ASMI has an ambition to move to a more circular economy. This means minimizing consumption at our sites and within our operations, designing out waste in our products, and focusing on reusing materials in a sustainable way until the end of their lifecycle. Most of the world, however, is designed around a linear economy, and has been for centuries. So the challenge to move past a linear economy towards a circular one is an ambitious one that requires collaboration across the value chain.

MINIMIZING RESOURCE CONSUMPTION

ASMI strives to focus on responsible resource consumption first. If we do not use the material, there is no need to reuse or recycle the material. Whether it is through innovation, engineering, or at our functional locations, we are focusing on putting resource consumption first.

Ways we reduce consumption

- **Data science** – As a technology and science-driven company, we are able to build theoretical models of our technology before the need to ever run processes on our equipment. See 'Global research' section for more information;
- **Parts refurbishment** – We can extend the life of some of our parts through refurbishment and reuse. See the 'Innovation and products' section to learn more about how we do this;
- **Product lifecycle** – Whether it is in the engineering and design of our products, or extending the useful life of the products, we make an effort in leveraging our innovation to reduce material needs. See the 'Product lifecycle management' section for more details on our sustainable parts lifecycle, and how we extend the life of our systems; and
- **Packaging** – Our packaging is a significant contributor to our potential for waste generation. The cycle of package use extends beyond our walls, and into our value chain. So collaboration to reduce packaging is key. See below for more information on how we do this.

PACKAGING

Across our global value chain, including customers and suppliers, moving final products, parts, spares, and engineering resources presents opportunities to significantly reduce the consumption of resources through reused packaging.

Our products are large when assembled, and due to the extreme performance and sensitivity of the equipment, they must have carefully engineered packaging. The industry standard practice for packaging has been one-time-use wood crating built around the product at the production site. After de-crating at the delivery site, the packaging materials may be recycled with other wood products. We recognize there is an opportunity to reduce the waste associated with this process, not only at our sites, but throughout our value chain.

We also focus on sustainable consumption for our packaging. It is our policy that only wood products certified by the Forest Stewardship Council (FSC) can be used in our crates. FSC is the 'gold standard' for wood harvested from forests that are responsibly and environmentally managed, and provide social and economic benefits. Procedures are developed in many instances that allow for the maintenance and continued operation of the crating to prolong its life. Only when it has been determined that the packaging is no longer fit for purpose, it will be taken out of service. At this point, we work with partners in our value chain on the responsible disposal of the materials. In many cases, that means the wood and metal parts can be recycled.

We are committed to increasing the use of reusable and sustainable product packaging across our value chain. This is measured through the avoidance of landfill disposal. In a one-time-use scheme, every shipment could have resulted in landfill disposal. So, through the reuse of these packaging materials, we avoided 259 metric tons of landfill disposal through ASMI's reuse packaging program in 2021, in these areas:

Circular program	Description	Metric tons of waste disposal avoided
ASMI to customer	Product and supporting equipment sales to customers	45
ASMI to supplier	Parts and sub-assemblies shipped between ASMI and suppliers as part of the production process	2
ASMI to contract manufacturer	Assembled equipment and sub-assemblies	213
ASMI to other vendors	Miscellaneous programs with indirect spend in engineering or other functions where commodities are transported	Programs under development starting in 2021

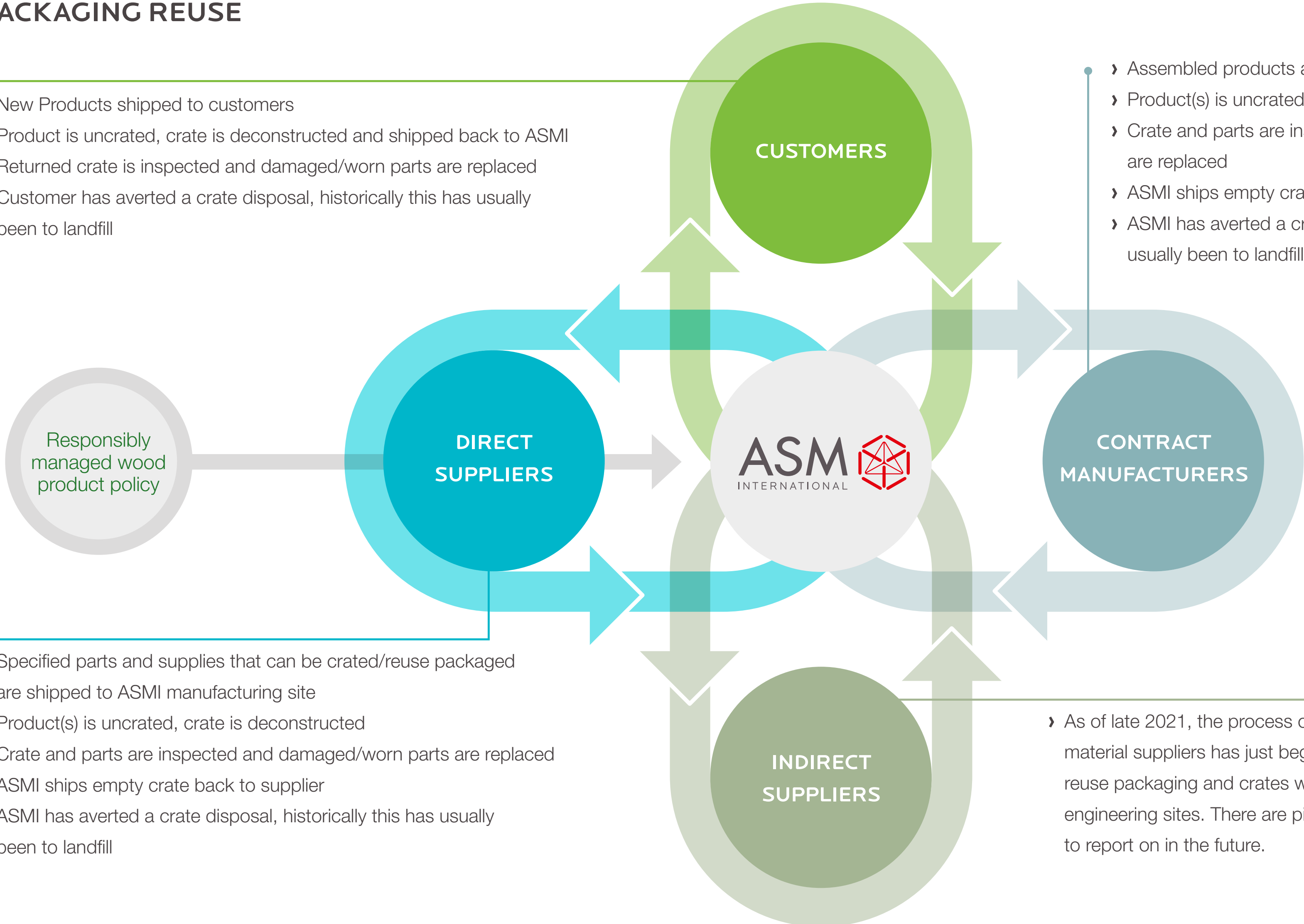
REUSE OF SHIPPING PACKAGING

Reuse of shipping packaging helped avoid **259 metric tons of combined disposal for ASMI and our value chain.**

PACKAGING REUSE

- New Products shipped to customers
- Product is uncrated, crate is deconstructed and shipped back to ASMI
- Returned crate is inspected and damaged/worn parts are replaced
- Customer has averted a crate disposal, historically this has usually been to landfill

- Assembled products and parts shipped to ASMI manufacturing site
- Product(s) is uncrated, crate is deconstructed
- Crate and parts are inspected and damaged/worn parts are replaced
- ASMI ships empty crate back to contract manufacturers
- ASMI has averted a crate disposal, historically this has usually been to landfill



- Specified parts and supplies that can be crated/reuse packaged are shipped to ASMI manufacturing site
- Product(s) is uncrated, crate is deconstructed
- Crate and parts are inspected and damaged/worn parts are replaced
- ASMI ships empty crate back to supplier
- ASMI has averted a crate disposal, historically this has usually been to landfill

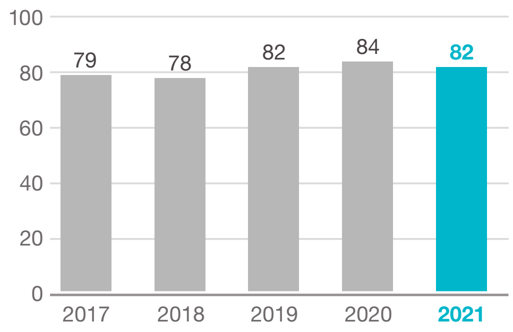
- As of late 2021, the process of identifying opportunities with indirect material suppliers has just begun. ASMI is investigating opportunities to reuse packaging and crates with materials that are provided to its engineering sites. There are pilots occurring in early 2022 that we hope to report on in the future.

“MINIMIZE WASTE TO LANDFILL FOR ASMI, CUSTOMERS, SUPPLIERS, AND CONTRACT MANUFACTURERS.”

SOLID WASTE GENERATION

Ultimately, waste materials are generated at ASMI sites in the course of production and engineering. We focus on maximizing reuse and recycling in those instances, under the limitations of regional service capabilities. Employees are encouraged to foster a recycling mentality, and look for continuous improvement opportunities.

Landfill diversion rate (in %)
Primary manufacturing and engineering sites



We currently measure our success through diversion from landfill disposal. The intensity measure is metric ton per revenue. For non-hazardous wastes, the inputs are all materials that are deemed waste at the end of a manufacturing, engineering, or logistics purpose, including site-supporting waste such as office materials. This includes:

› Production and engineering waste
› Packaging crates and materials
› Facilities support materials

Our landfill diversion rate amounted to 82% in 2021. While our progress remained flat last year, we will look for additional opportunities to increase diversion of landfill, particularly in the packaging reuse opportunities with our suppliers and contract manufacturers.

However, diversion is not the long-term way to measure this. An absolute reduction of disposal is our objective. As we get better, and our value chain engages further in structurally eliminating consumption and reusing resources, the materials identified as 'waste' for disposal will comprise our total waste. It is in this way of structurally moving to a circular economy, that we will change the way we view and report our success.

RESPONSIBLE CHEMICAL AND WASTE MANAGEMENT

ASMI's innovation and technology depends on a wide variety of chemicals and gases. Their safe storage and handling is of paramount importance in protecting our employees and communities. All our sites use engineered storage solutions to minimize the risk of incidents related to chemical storage, use, or handling.

The process of bringing new chemicals and gases into our facilities is structurally controlled through a robust chemical approval process. The review and approval process engages our own chemical experts from process engineering, EHS, product safety engineering, and facilities. The multidisciplinary team identifies the risks and compliance aspects of bringing the chemical onsite, connecting it to our equipment, using it in our processes, managing by-products and effluents, and preparing for any possible waste issues.

Controls to ensure safe use are implemented. They include gas and leak detection, exposure controls during maintenance, emission controls such as gas abatement and wastewater treatment, and storage controls such as reinforced storage rooms. This documented protocol has been in place for many years. It continues to be improved on and shared across all our engineering and research sites. The chemical change process also applies to our manufacturing sites, but the frequency of change is much less.

The chemical approval process affords us an opportunity to challenge ourselves in evaluating safer and more environmentally friendly alternatives. The chemicals and gases necessary to deposit a layer of atoms in a process-controlled chamber are limited, and in many cases unknown until an application is identified. This means every new chemical request is evaluated with environmental regulation and impact in mind. In some cases, chemicals are ruled out during the review process simply because of their environmental-impact potential.

ASMI stays abreast of the ever-changing landscape of chemicals and hazardous substances in our industry. We participate in industry working groups, such as SEMI, to help drive improved environmental and safety standards. These standards help with both hazardous substance management, and with safe processing in our equipment at ASMI and our customer sites. These industry engagements are a cornerstone of collaboration for the benefit of all.

Responsible waste management is always determined during the chemical selection process. In most cases, effluent is generated by our equipment, then processed and treated by air emission and water emission-control systems. In other cases, such as in the case of expired chemicals or unused chemicals, they must be managed according to local regulations. The regions in which waste is generated at ASMI are covered by the Basel Convention definition of waste, and properly managed – in some cases as hazardous waste. ASMI first focuses on hazardous waste minimization. For example, our Phoenix, Arizona, site has been a very small quantity generator (VSQG) for several years. This is the lowest classification of hazardous waste-generation status in the United States.

Where hazardous waste cannot be avoided, it is ASMI's objective to avoid landfill.

ENVIRONMENTAL MANAGEMENT SYSTEMS

ASMI is certified to the ISO 14001 environmental management system (EMS) globally for its primary engineering and manufacturing locations. The scope of having a global system helps ensure consistency in practice across our operations. The foundation of the EMS is in the environmental policy, which is included in the sustainability policy, published on our website.

Under our EMS, we did not sustain any significant (> US$10,000) environmental-related fines or penalties in 2021. We received one notice of violation for a brief water-quality excursion in our treatment system in Phoenix, due to a pump failure in that system.

LOOKING FORWARD

With our Net Zero by 2035 goal, and the evolving intensity of the climate crisis, we will continue to make our climate response a priority. We recognize the challenges in front of us, as ASMI grows in scope and size. Growth will mean greater absolute consumption of energy. But our focus is, and will continue to be, on sustainable growth and consumption. We are expanding our scope of surveillance and reporting, to include remote sales and service offices in 2022 and 2023. We aim to include those in our renewable electricity purchases as they are captured in scope, with a goal to achieve 100% renewable electricity footprint for all our global operations by 2024.

Circularity is an important aspect of ASMI's sustainability plan. We are continuing to challenge ourselves and our value chain to collaborate around responsible resource management, including:

- Expansion of product crate reuse with new products and customers. The introduction of new packaging and protocols requires pilot programs and adoption. We will partner with customers to collaborate for our shared successes in this area;
- Supplier and contract manufacturing engagement is critical, and will continue to be a focus of our efforts for packaging reuse;
- Innovate new methods to engage vendors at our engineering and non-manufacturing sites, to eliminate single-use materials, such as cardboard and plastics; and
- Engage our local waste-management providers to explore more sustainable options for the disposal needs we are currently unable to avoid.

EU TAXONOMY

EU taxonomy explanation:

In the course of 2021, the first delegated act of the EU taxonomy was adopted. It aims to provide a common language and methodology across European listed companies for reporting on sustainability and applies to large EU PIEs including financial and non-financial listed companies. For the first time this year, the EU taxonomy regulation requires companies, falling under NFRD, in accordance with European Regulation 2020/852 of June 18, 2020, and 'Besluit bekendmaking niet- financiële informatie' to report on the EU taxonomy. For fiscal year 2021, companies are only required to report what share of their economic activities are in scope of the EU taxonomy or are, in EU taxonomy terminology, considered to be 'eligible'. For fiscal year 2022, companies will also need to report on whether these eligible activities are considered to be 'green', or in EU taxonomy terminology 'aligned', following a three step approach including technical screening criteria set by the EU taxonomy. Finally, the key performance indicators (KPIs) for eligibility and alignment are reported as the proportion of turnover, capital expenditure (CapEx) and operating expenses (OpEx) in line with the EU taxonomy delegated acts.

ASMI eligibility for climate change mitigation and adaptation:

ASMI's technology and innovation allows its customers and, in turn their customers down the value chain to introduce electronic devices with superior performance and lower energy consumption. ASMI's innovative R&D activities, aimed at continuously improving technologies to help deliver further energy reductions, are key in this. As such, ASMI has an important role as an enabler in reducing the carbon footprint of its customers and end customers.

ASMI has performed continuous research since July 2021 with both internal and external stakeholders on the eligibility of their revenue, CapEx and OpEx under the EU taxonomy. ASMI underlines that the EU taxonomy is new and evolving. Furthermore, the specific category within the EU taxonomy (manufacturing of low carbon technologies (3.6)) applicable to ASMI, is subject to interpretation. ASMI has concluded that a conservative approach for this year would be most appropriate and that none of the revenue, CapEx and OpEx would at this stage be considered eligible under the climate delegate acts related to this specific category. This rational applies in the same way to the capital and operational expenditure for research and development for which also no eligibility is reported this year. Additionally ASM looked into eligibility for other capital and operational expenditures like transport, renovations and leases, and has concluded that only operational expenditure (€ 3.9 million equal to 2.9%) is eligible for ASMI this year.

Based on the important role that ASMI's R&D plays for energy reduction and the fact that energy reduction is always a key objective, ASMI will keep monitoring the developments of the EU taxonomy closely to ensure eligibility in the future to climate change mitigation or adaptation or any of the other environmental objectives is being monitored.

Looking forward:

ASMI has performed an assessment of its current initiatives related to the EU taxonomy environmental objectives to assess whether these support alignment if in the future any of ASMI's activities would be considered eligible. Initiatives currently performed in this area are the Net Zero initiative, the Climate Adaptation Risk and Opportunity Assessment (CAROA) process, the water security project, refurbishment initiatives and the human rights policies and due diligence activities. In the upcoming year, these and other initiatives will also be assessed against the EU taxonomy criteria and any gaps will be closed to take further control over becoming aligned to the EU taxonomy. ASMI understands where it stands at the moment and is ready for the journey ahead.

Climate change mitigation	Share of eligibility	Share of non-eligibility	Eligibility (EUR million)
Revenue share of eligible activities	0%	100%	–
CapEx share of eligible activities	0%	100%	–
OpEx share of eligible activities	2.9%	97.1%	3.9

Climate change adaptation	Share of eligibility	Share of non-eligibility	Eligibility (EUR million)
Revenue share of eligible activities	0%	100%	–
CapEx share of eligible activities	0%	100%	–
OpEx share of eligible activities	0%	100%	–

SHAREHOLDERS

Our Growth through Innovation strategy aims to create sustainable value for all our stakeholders. As part of this strategy, we are committed to long-term shareholder value. This section discusses ASMI's financial performance in 2021. It also provides information particularly relevant for shareholders and investors. This includes information related to our share listing and share price performance, dividends, and share buybacks.

FINANCIAL PERFORMANCE

ASMI again delivered a strong financial performance in 2021. At slightly over €1.7 billion, our revenue increased 30%, compared to €1.3 billion in 2020. Revenue grew 34% at constant currencies. The global economy recovered strongly in 2021, following negative growth in 2020. The global semiconductor market had a very strong year, increasing 24% to US$578 billion. The total wafer fab equipment market amounted to US$88 billion (VLSI Research, January 2022), up 38% compared to 2020. There was strong demand across the board, with solid capacity additions in the most advanced nodes, and significant growth in the older technology nodes. Supply chain conditions remained difficult during the year, and worsened in the second half. This included the effects of new lockdown measures on our supplies in Southeast Asia. Due to close cooperation with our suppliers, and measures such as maintaining buffer inventories, we were still able to increase our revenue by 15% from the first half to the second half of the year, excluding the impact from currencies.

In terms of customer segments, revenue for the full year was led by the foundry segment, followed by memory, and then logic. Revenue in the combined logic/foundry segment showed a strong increase, driven by solid investments throughout the year in leading-edge manufacturing capacity. We continued to benefit from the significant increase in ALD requirements in the most advanced nodes. These supported 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 2021, led by the DRAM segment. We benefited from strong demand for our high-k ALD solutions for high-performance DRAM devices.

The following table shows the operating performance for 2021 compared to 2020:

(EUR million)	2020	2021	Change
New orders	1,313.6	**2,195.7**	67%
Backlog	323.6	**811.3**	151%
Book-to-bill	1.0	**1.3**	
Revenue	1,328.1	**1,729.9**	30%
Gross profit	623.6	**828.1**	33%
Gross profit margin %	47.0%	**47.9%**	
Other income	–	**4.1**	–
Selling, general and administrative expenses	(157.4)	**(189.5)**	20%
Research and development expenses	(139.0)	**(151.2)**	9%
Operating result	327.1	**491.5**	50%
Operating margin %	24.6%	**28.4%**	
Net finance income (expense)	(1.9)	**(2.0)**	(0.1)
Foreign currency exchange gain (loss)	(23.1)	**33.5**	56.6
Income taxes	(48.7)	**(102.6)**	(53.9)
Net earnings before share in income of investments in associates	253.4	**420.3**	166.9
Share in income of investments in associates	32.0	**74.4**	42.4
Net earnings	285.4	**494.7**	209.3
Net earnings per share, diluted	€5.78	**€10.11**	€4.33
Net earnings per share excluding amortization from the sale of ASMPT shares in 2013	€6.04	**€10.36**	€4.32

The following table shows certain consolidated statement of profit or loss data as a percentage of revenue for 2020 and 2021:

	2020	2021
Revenue	100.0%	**100.0%**
Cost of sales	(53.0)%	**(52.1)%**
Gross profit	**47.0%**	**47.9%**
Other income	–%	**0.2%**
Selling, general and administrative expenses	(11.9)%	**(11.0)%**
Research and development expenses	(10.5)%	**(8.7)%**
Operating result	**24.6%**	**28.4%**
Net finance income (expense)	(0.1)%	**(0.1)%**
Foreign currency exchange gain (loss)	(1.7)%	**1.9 %**
Share in income of investments in associates	2.4 %	**4.3 %**
Earnings before income taxes	**25.2%**	**34.5%**
Income taxes	(3.7)%	**(5.9)%**
Net earnings from operations	**21.5%**	**28.6%**

Revenue

The revenue cycle from quotation to shipment for our equipment generally takes several months, depending on capacity utilization and urgency of the order. On average, acceptance is obtained four months after shipment. The revenue cycle is longer for equipment installed at the customer's site for evaluation prior to sale. The typical trial period is 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 2020 and 2021:

	Year ended December 31,			
(EUR million)	2020		2021	
United States	333.0	25.1%	**454.1**	**26.2%**
Europe	141.3	10.6%	**172.4**	**10.0%**
Asia	853.8	64.3%	**1,103.3**	**63.8%**
Total	**1,328.1**	**100.0%**	**1,729.9**	**100.0%**

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 10 largest customers accounted for 85.1% and 78.9% of revenue in 2020 and 2021, respectively. The three largest customers accounted for around 59.4% of revenue in 2021 (2020: 59.1%). The composition of our 10 largest customers changes from year to year. In 2021, we had three customers (2020: three customers) who contributed more than 10% of total revenue.

	Year ended December 31,		
(EUR million)	2020	2021	% Change
Equipment revenue	1,051.5	**1,408.1**	34%
Spares & service revenue	276.6	**321.8**	16%
Total	**1,328.1**	**1,729.9**	**30%**

Equipment sales accounted for 81% of total revenue. Equipment revenue grew by 34% in 2021, and by 38% at constant currencies. We recorded strong double-digit growth in our largest product line, ALD, which continued to account for more than half our total equipment revenue in 2021. We also booked very strong growth in our Epi product line, driven by both advanced CMOS applications, and the analog/power/wafer-maker customer segments.

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 16%, and by 18% at constant currencies. This was driven by growth in the installed base of equipment in recent years, as well as an increased contribution from our new value-added services such as Complete Kit Management (CKM). Growth was moderate compared to the 29% increase in 2020, when spares & services sales were driven, to a lesser extent, by customers increasing inventories in response to the COVID-19-related supply chain challenges. Spares & services represented 19% of total revenue in 2021.

By geography, our revenue was led by the Asia region, with a growth of 29% in 2021.

The following table shows the level of new orders and the backlog for 2020 and 2021:

	Year ended December 31,		
(EUR million)	2020	2021	% Change
Backlog at the beginning of the year	**351.2**	**323.6**	**(8)%**
New orders	1,313.6	**2,195.7**	67%
Revenue	(1,328.1)	**(1,729.9)**	30%
FX-effect	(13.1)	**21.9**	
Backlog at the end of the year	**323.6**	**811.3**	**151%**
Book-to-bill ratio (new orders divided by net revenues)	**1.0**	**1.3**	

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 time does not necessarily indicate actual revenue for any subsequent period.

For the year in total, our new bookings increased by 67% in 2021 to €2,196 million. New bookings grew by strong double-digit growth and reached record-high levels in all our product lines. The book-to-bill, as measured by orders divided by revenue, was 1.3 in 2021. Equipment bookings were led by the foundry segment, followed by logic and then memory. Bookings in smaller segments, such as analog/power and wafer-makers, also increased strongly. Bookings increased by 37% from the first half to the second half, reaching new record quarterly highs of €625 million in the third quarter, and €645 million in the fourth quarter of 2021. We finished the year with an order backlog of €811 million, up sharply from €324 million at the end of 2020.

Gross profit margin

Total gross profit developed as follows:

	Year ended December 31,				
	Gross profit		Gross profit margin		Increase (decrease) percentage points
(EUR million)	2020	2021	2020	2021	
Gross profit margin	623.6	**828.1**	47.0%	**47.9%**	0.9%

The gross margin increased from 47.0% in 2020 to 47.9%. Within the year, the gross margin moderated from 48.8% in the first half, which was supported by a relatively strong application mix, to 47.1% in the second half.

Currency changes led to a decrease of 3% in gross profit compared to 2020.

Other income

Other income of €4.1 million was related to the divestiture of property.

Selling, general and administrative expenses

Total selling, general and administrative expenses developed as follows:

	Year ended December 31,		
(EUR million)	2020	2021	% Change
Selling, general and administrative expenses	157.4	**189.5**	20%

Selling, general and administrative (SG&A) expenses increased by 20% in 2021 year-on-year. The increase was partly explained by the higher activity level; also, because of increased investments in IT and the strengthening of the sales and functional organization.

As a percentage of revenue, SG&A expenses in 2021 were 11%, down from 12% in 2020.

The impact of currency changes on SG&A expenses resulted in a decrease of 1% year-on-year.

Research and development (R&D) expenses

Gross R&D expenses increased by 20% in 2021, compared to the previous year. As a percentage of revenue, gross R&D expenses were slightly lower at 12% (13% in 2020). Currency changes resulted in a 3% decrease in R&D expenses year-on-year.

Total research and development expenses developed as follows:

	Year ended December 31,		
(EUR million)	2020	2021	% Change
Gross research and development expenses	171.8	**206.0**	20%
Capitalization of development expenses	(64.1)	**(82.0)**	28%
Amortization of capitalized development expenses	21.2	**25.2**	19%
Impairment of capitalized development expenses	10.1	**2.0**	80%
Net research and development expenses	**139.0**	**151.2**	**9%**

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 to gain 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.

Operating result

The operating result developed as follows:

	Year ended December 31,		
(EUR million)	2020	2021	% Change
Before special items	**337.2**	**493.5**	**46%**
Impairment charges	(10.1)	**(2.0)**	(80)%
After special items	**327.1**	**491.5**	**50%**

Operating profit increased by 50% to €491 million, from €327 million in 2020, resulting in an operating profit margin of 28.4% (2020: 24.6%).

Impairment charges in 2021 and 2020 are related to capitalized development expenditures and assets.

The impact of currency changes on operating results shows a decrease of 3% year-on-year.

Financing costs

Financing costs are mainly related to translation results. Financing costs in 2021 included translation gains of €34 million, compared to translation losses of €23 million in 2020. 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.

Share in income of investments in associates

Share in income of investments in associates, which reflect our shareholding in ASMPT, increased to €87 million from €45 million in 2020. This result exclude the amortization of intangible assets related to ASMPT. During the year, our stake in ASMPT decreased slightly from 25.07% to 24.96%.

Total revenues as reported by ASMPT increased by 49% to US$2.8 billion in 2021 from continuing operations. Revenues of the Semiconductor Solutions increased by 70% in 2021. Revenues of SMT Solutions increased by 25% in 2021. From continuing operations, ASMPT gross margin increased from 35.0% in 2020 to 40.6% in 2021 and net profits surged up by 399%. For further information on ASMPT, please visit www.asmpacific.com.

Income tax

The income tax expense of €103 million (2020: €49 million) reflects an effective tax rate of 17.2% (2020: 14.6%). 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)	2020	2021	Change
Before special items	**263.5**	**422.3**	**158.8**
Impairment charges	(10.1)	**(2.0)**	8.1
After special items	**253.4**	**420.3**	**166.9**
ASMPT			
Share in income from investments in associates	44.9	**86.6**	41.7
Amortization other intangible assets from purchase price allocation	(12.9)	**(12.2)**	0.7
Total income of investments in associates	**32.0**	**74.4**	**42.4**
Net earnings from operations	**285.4**	**494.7**	**209.3**

Working capital

Working capital as at December 31, 2021 was €316 million (2020: €243 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, decreased from 63 days as at December 31, 2020 to 58 days as at December 31, 2021. Our inventories increased year-on-year from €162 million at the end of 2020 to €212 million at the end of 2021. Our accounts receivable position increased from €280 million to €447 million. The percentage of overdue in accounts receivables did not change year-on-year, reflecting the healthiness of this position.

The working capital developed as follows:

(EUR million)	December 31, 2020	December 31, 2021
Inventories	162.2	**211.8**
Accounts receivable	280.1	**446.7**
Other current assets	72.9	**51.0**
Accounts payable	(124.5)	**(175.4)**
Provision for warranty	(19.0)	**(27.2)**
Accrued expenses and other payables	(128.9)	**(190.6)**
Working capital	**242.8**	**316.4**

Liquidity

Our liquidity is affected by many factors. Some of these relate to our ongoing operations. Others are related to the semiconductor and semiconductor-equipment industries, and the economies of the countries where 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 12 months.

On December 31, 2021, our principal sources of liquidity consisted of €492 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)	2020	2021
Net earnings from operations	**285.4**	**494.7**
Adjustments to reconcile net earnings to net cash from operating activities:		
Depreciation, amortization and impairments	89.0	**95.6**
Net loss (gain) on sale of property, plant and equipment	–	**(4.1)**
Share-based compensation	12.8	**17.2**
Net finance costs	12.0	**(23.5)**
Share in income of investments in associates	(32.0)	**(74.4)**
Income tax	48.7	**102.6**
Changes in evaluation tools at customers	(39.7)	**(8.0)**
Changes in employee benefits	(0.4)	**(0.3)**
Income tax paid	(8.1)	**(151.6)**
Operating cash flows before changes in working capital [1]	**367.7**	**448.2**
Decrease (increase) in working capital [1]		
Accounts receivable	(93.0)	**(154.0)**
Other current assets	(2.0)	**15.4**
Inventories	0.5	**(39.1)**
Provision for warranty	3.8	**7.1**
Accounts payable, accrued expenses and other payables	(12.7)	**103.1**
Net cash from operating activities	**264.4**	**380.6**
Capital expenditures	(95.4)	**(72.2)**
Proceeds from sale of property, plant and equipment	2.3	**6.2**
Capitalized development expenditures	(64.1)	**(82.0)**
Purchase of intangible assets	(3.2)	**(2.7)**
Dividend received from associates	16.1	**36.3**
Net cash used in investing activities	**(144.3)**	**(114.4)**
Cash flows from operating activities after investing activities [1]	**120.0**	**266.2**
Payment of lease liabilities	(7.8)	**(7.9)**
Purchase treasury shares	(66.7)	**(140.1)**
Proceeds from issuance of treasury shares	2.8	**4.6**
Dividend to common shareholders	(98.7)	**(96.9)**
Net cash used in financing activities	**(170.4)**	**(240.3)**
Foreign currency translation effect on cash and cash equivalents	**(12.3)**	**30.3**
Net increase (decrease) in cash and cash equivalents	**(62.6)**	**56.3**

[1] Non-IFRS performance measure. Please see Glossary and definitions.

We generated cash from operating activities of €381 million in 2021 (2020: €264 million). We used €114 million cash in investing activities (2020: €144 million) and used €240 million in financing activities (2020: €170 million). CapEx dropped from €95 million in 2020 to €72 million in 2021, with a meaningful part spent on expanding and upgrading our R&D lab facilities.

DEBT

We were debt-free as at December 31, 2021.

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, 2021, 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 compliant with these financial covenants as per December 31, 2021.

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

ASM PACIFIC TECHNOLOGY (ASMPT)

We have a 24.96% stake in ASMPT, a leading semiconductor assembly and packaging equipment and surface mount technology solutions. Net cash of our 24.96%-owned associate was €530 million on December 31, 2021. The cash resources and borrowing capacity of ASMPT are not available to ASMI.

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 2021 were €16 million and €36 million, respectively.

The market value of our 24.96% investment in ASMPT was approximately €982 million as per December 31, 2021.

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 LIQUIDITY NEEDS

We have developed forecasts and projections of cash flows and liquidity needs for the upcoming year. These take into account: Current market conditions; reasonable possible changes in trading performance based on such conditions; 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 €492 million on December 31, 2021; the ability to renew debt arrangements and 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 2021 is adequate to fund our operations and our investments in capital expenditures, and to fulfill our existing contractual obligations for the next 12 months.

TAX PRINCIPLE

We view tax as an integrated part of doing business, and that tax should follow business. This resonates with our core value 'We Care', and contributes to the societies in which we operate. The respective taxes are determined and paid in the countries where the respective value is created, in accordance with all relevant rules and regulations. See Note 22 of this Annual Report for the total income tax expense in the Netherlands and abroad. Tax is one of the many factors we take into account when doing business, including locally available tax incentives and exemptions. We seek to establish and maintain an open and constructive relationship with the tax authorities in the countries where we operate. We do not use artificial tax structures aimed at tax avoidance; we aim to follow both the letter as well as the spirit of the law.

We support 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

ASMI has a tax control framework in place, including the use of certain tax technology that ensures correct data for tax purposes. As part of this, we continuously monitor our tax positions and tax developments, and review key tax positions quarterly in accordance with the respective processes. As part of our tax strategy, the tax department recommends a balanced approach in the interests 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. It is supervised by the Management Board via the CFO, who discusses the tax strategy with the Supervisory Board's Audit Committee. 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 certainty upfront by requesting a tax ruling from the respective tax authority. We believe such certainty is valuable for our stakeholders, including the respective tax authority.

SHAREHOLDER INFORMATION

On December 31, 2021, the total number of ASMI issued common shares amounted to 49,297,394 compared to 49,797,394 at year-end 2020. This decrease was the result of the cancellation of 500,000 treasury shares approved by the Annual General Meeting of Shareholders (AGM) on May 17, 2021, and became effective on July 21, 2021.

	2020	2021
As at January 1:		
Issued shares	51,297,394	**49,797,394**
Treasury shares	2,431,174	**1,082,712**
Outstanding shares	**48,866,220**	**48,714,682**
Cancellation of treasury shares	1,500,000	**500,000**
Share buybacks	508,685	**462,988**
Treasury shares used for share-based performance programs	357,147	**316,983**
As at December 31:		
Issued shares	49,797,394	**49,297,394**
Treasury shares	1,082,712	**728,717**
Outstanding shares	**48,714,682**	**48,568,677**

On December 31, 2021, we had 48,568,677 outstanding common shares, excluding 728,717 treasury shares. This compared to 48,714,682 outstanding common shares and 1,082,712 treasury shares at year-end 2020. Besides the cancellation of 500,000 treasury shares in July 2021, the change in the number of treasury shares in 2021 was the result of 462,988 repurchased shares and 316,983 treasury shares that were used as part of share-based payments.

On December 31, 2021, 48,282,085 of the outstanding common shares were registered with our transfer agent in the Netherlands, ABN AMRO Bank N.V., and 286,592 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 and are included in the MSCI index. MSCI announced on February 9, 2021 that, as part of their quarterly review, ASMI would be included in the MSCI Global indexes as of February 26, 2021. The MSCI indexes are widely tracked by investors and serve as the basis for many index funds, and so-called exchange traded funds ('trackers'). The addition to the MSCI index follows significant increases in ASMI's market capitalization. The valuation of our shares on the stock market increased to €9 billion at the end of 2020, up from approximately €5 billion in 2019, and €2 billion in 2018. In January 2021, our market capitalization exceeded €10 billion for the first time. ASMI was added to the AEX Index – the 25 largest companies listed on Euronext Amsterdam measured by free-float adjusted market capitalization – in March 2020.

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

MARKET CAPITALIZATION

ASMI's market capitalization at year-end 2021 was €18,879 million, based on the closing share price of €388.70 on Euronext Amsterdam on December 31, 2021, and 48.6 million total outstanding shares at year-end. The market capitalization at year-end 2020 was €8,766 million.

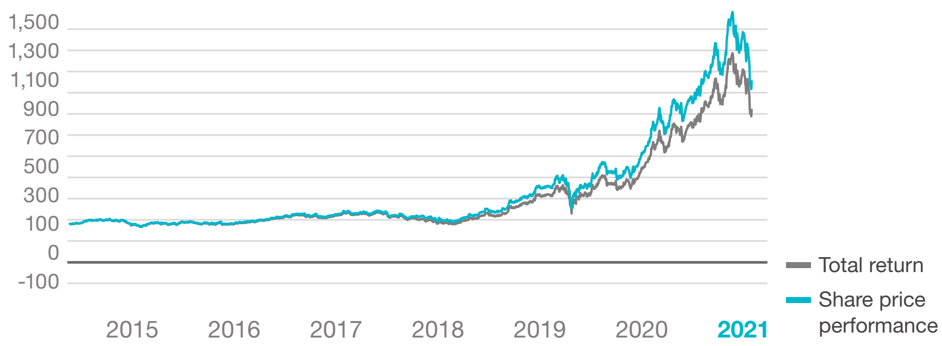
SHARE PERFORMANCE

On December 31, 2021, the closing price of ASMI's shares on Euronext Amsterdam was €388.70. At the end of 2020, the closing price was €179.95. The highest closing share price during the year was €434.60, on November 18, 2021, and the lowest was €186.40, on January 7, 2021.

The average daily trading volume of ASMI shares on Euronext Amsterdam in 2021 was 310,625. This compares to an average daily volume of 316,286 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 2021, we returned €237 million to our shareholders. This follows an amount of approximately €165 million returned to our shareholders in the form of dividends and share buybacks in 2020. Since 2018, we have returned €1.2 billion in cash to our shareholders.

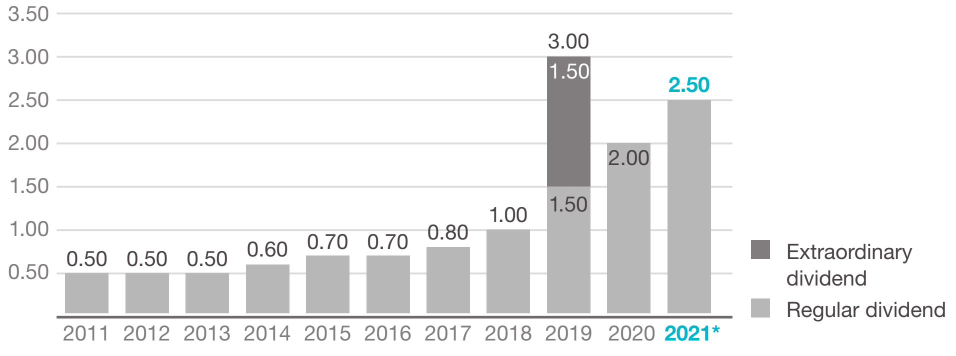
DIVIDENDS

ASMI aims to pay a sustainable annual dividend. Annually, the Supervisory Board, at the proposal of the Management Board, assesses 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.

The proposed dividend over 2021 will mark the 12th consecutive year that ASMI has paid a dividend. Our dividend has steadily increased over time. Over 2018, we paid a dividend of €1.00 per common share. Over 2019, we paid total dividends of €3.00 per common share, consisting of a regular dividend of €1.50 per share, and an extraordinary dividend of €1.50 per share. Over 2020, the dividend was €2.00 per common share.

ASMI announced on February 22, 2022, that it would propose to the upcoming AGM a regular dividend of €2.50 per common share over 2021, which is an increase of 25% compared to the dividend paid over 2020.

Dividend per share in € paid over



* Proposed

DIVIDEND TIMETABLE

- Ex-dividend date: May 18, 2022
- Record date: May 19, 2022
- Payment date: May 27, 2022

SHARE BUYBACK

In 2021, ASMI used €140.1 million in cash for share buybacks, including €37.3 million related to the 2020/2021 program that was completed on March 2, 2021. On April 20, 2021, ASMI announced the authorization of a new share buyback program of up to €100 million. This share buyback program started on July 28, 2021, and ended on December 17, 2021, with 292,116 shares repurchased at an average price of €342.33. This repurchase program is part of ASMI's commitment to use excess cash for the benefit of its shareholders.

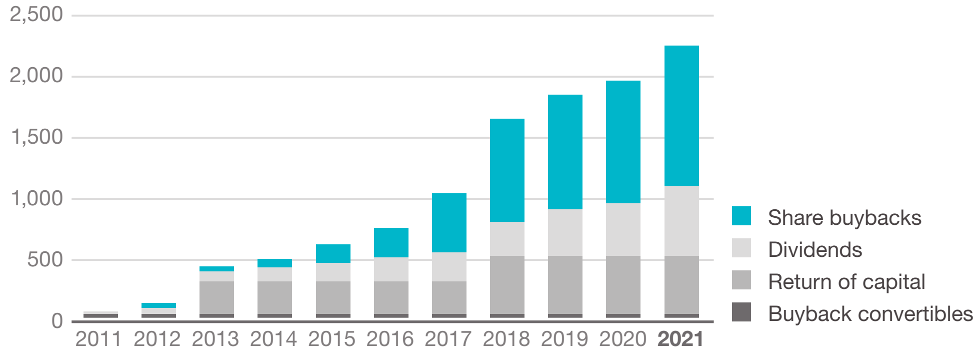
The 2021 program is our eighth consecutive share buyback program. Prior to the 2021 program, the previous three programs were:

Start date	End date	Value of the program	Number of repurchased shares	Average repurchase price [1]
June 2, 2020	March 2, 2021	€100,000,000	646,180	€154.76
November 1, 2019	February 17, 2020	€100,000,000	984,279	€101.60
June 6, 2018	October 11, 2018	€250,000,000	5,443,888	€45.92

[1] The average repurchase price for the 2018 share buyback program includes repurchase expenses.

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

Cumulative cash returned to market € million



CAPITAL REPAYMENT

In earlier years ASMI distributed cash to its shareholders through two capital repayments: in 2013, €4.25 per ordinary share, and in 2018, €4.00 per ordinary share. More information about these capital repayments is available on our website.

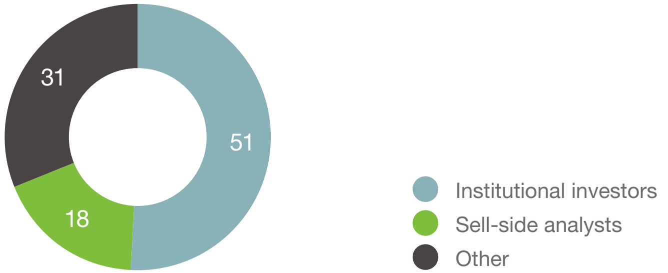
INVESTOR DAY

We are committed to maintaining a regular and open dialog with our shareholders. Our first Investor Day was a great opportunity to underline how important it is for us to actively engage with our investors, and showcase our long-term strategy for value creation.

Investor Day, on September 28, 2021, was a hybrid event of online and in-person elements. A small number of invited guests attended the live event in Amsterdam, including institutional investors and sell-side analysts. For the in-person event, we adhered to the Dutch government's COVID-related guidelines and voluntarily implemented additional health and safety measures. The meeting room was set up to allow for social distancing. In addition, a webcast of the event was live-streamed, with the possibility for investors and analysts to participate remotely in the Q&A.

Profile and geography of the participants*

Investor day attendees by profile in %



Investor day attendees by geography in %

* Including in-person and webcast participants, as well as on-demand views. Excluding employees.

During the event, ASMI CEO Benjamin Loh provided an update of our company's unique positioning, key opportunities ahead, and our growth strategy. Chief Technology Officer Ivo Raaijmakers shared an overview of our R&D strengths, and new technologies on our future roadmap. Corporate Vice President Global Marketing Han Westendorp presented an outlook of our key markets, and Executive Vice President of Global Products Hichem M'Saad deep-dived into ASMI's products and innovation. Chief Financial Officer Paul Verhagen wrapped up the event by outlining our long-term financial targets, and outlook to 2025.

KEY TARGETS ANNOUNCED IN OUR INVESTOR DAY 2021:

- Targeting revenue of €2.8-€3.4 billion by 2025 (2020-2025 CAGR of 16%-21%), gross margins of 46%-50% in 2021-2025, and operating margins of 26%-31% in 2021-2025;
- Targeting Net Zero emissions by 2035, and 100% electricity from renewable sources by 2024;
- Single-wafer ALD market expected to increase from US$1.5 billion in 2020 to US$3.1-US$3.7 billion by 2025; and
- Further capacity expansion of our new manufacturing facility to be production-ready by early 2023.

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 Netherlands 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 December 31, 2021, by each beneficial owner known to us of more than 3% of our common shares:

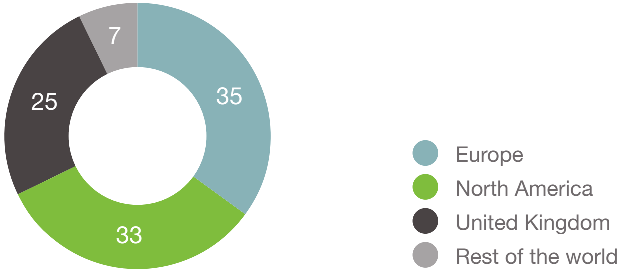
	Number of shares	Percent [1]	Number of voting rights	Percent [1]
ASM International N.V. [2]	728,717	1.5%	–	–%
Tokyo Electron Ltd. [3]	2,699,000	5.5%	2,699,000	5.5%
BlackRock, Inc [4]	2,515,551	5.1%	2,930,808	5.9%
Norges Bank [5]	2,461,124	5.0%	2,461,124	5.0%

1 Calculated on the basis of 49,297,394 issued common shares as of December 31, 2021, and without regard to options.
2 On December 31, 2021, ASMI held 728,717 ordinary shares in treasury.
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 Of BlackRock, Inc.'s capital interest 2,513,552 shares are held indirectly actual and 1,999 shares are held indirectly potential. Of the voting rights, 2,928,809 are held indirectly actual and 1,999 indirectly potential. Based on the notification filed with the AFM on August 3, 2021.
5 All of the 2,461,124 shares capital interest and voting rights of Norges Bank are held directly actual. Based on the notification filed with the AFM on November 2, 2021.

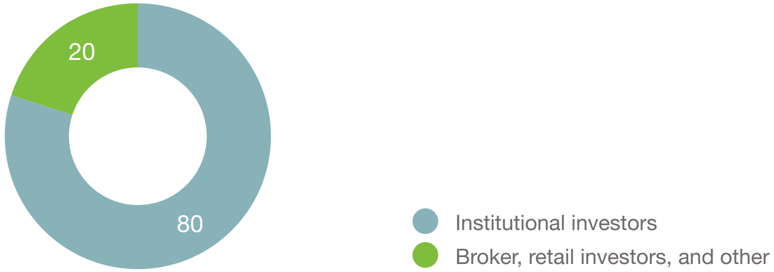
A 'beneficial owner' of a security includes any person who, directly or indirectly, through any contract, arrangement, understanding, relationship, or otherwise has or shares (i) voting power which includes the power to vote, or to direct the voting of, such security and/or (ii) investment power which 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.

Institutional investors by geography in %



Investors by profile* in %



* Excluding treasury shares

ESG RATINGS

We have built a strong foundation for our ESG strategy in recent years, and stepped up our sustainability focus. As ESG ratings are a widely used tool to assess our ESG performance and risk, we have stepped up our engagement with several rating agencies.

CDP

Companies and governments that disclose to CDP are scored between A and F, with different scores given for each focus area, including climate and water. In 2021, we received a B score for both climate and water, up from our C score in 2020. For more on our CDP disclosures, see the section 'Planet' in this report.

ISS QualityScore

The ISS Governance E&S Disclosure QualityScore provides an assessment of a company's ESG performance. A score of 1 indicates lower risk, while a score of 10 indicates governance risk versus its index or region. In 2021, we received an ISS Governance QualityScore of 1, an ISS Environment QualityScore of 4, and an ISS Social QualityScore of 5. Our 2021 scores are the same as 2020.

MSCI ESG*

MSCI ESG Research provides MSCI ESG Ratings on a scale of AAA (leader) to CCC (laggard), according to exposure to industry-specific ESG risks, and the ability to manage those risks relative to peers. In 2021, we received a rating of A in the MSCI ESG Ratings assessment. Our 2021 rating is the same as 2020.

S&P Global ESG

The S&P Global ESG Scores are a set of environmental, social and governance data that provides company-level, dimension-level, and criteria-level scores based on the S&P Global Corporate Sustainability Assessment (CSA) process, an annual evaluation of companies' sustainability practices. In 2021, we received a S&P Global ESG Score of 58 out of 100 (up from 22 in 2020).

Sustainalytics**

In October 2021, ASMI received an ESG Risk Rating of 15.3, and was assessed by Sustainalytics to be at low risk of experiencing material financial impacts from ESG factors.

* The use by ASM International N.V. of any MSCI ESG Research LLC or its affiliates ("MSCI") data, and the use of MSCI logos, trademarks, service marks or index names herein, do not constitute a sponsorship, endorsement, recommendations, or promotion of ASM International N.V. by MSCI. MSCI services and data are the property of MSCI or its information providers, and are provided 'as-is' and without warranty. MSCI names and logos are trademarks or service marks of MSCI.

** Copyright ©2022 Sustainalytics. All rights reserved. This section contains information developed by Sustainalytics (www.sustainalytics.com). Such information and data are proprietary of Sustainalytics and/or its third party suppliers (Third Party Data) and are provided for informational purposes only. They do not constitute an endorsement of any product or project, nor an investment advice and are not warranted to be complete, timely, accurate or suitable for a particular purpose. Their use is subject to conditions available at www.sustainalytics.com/legal-disclaimers.

KEY FIGURES PER SHARE

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

(EUR, except number of shares)	2019	2020	2021
Net earnings per share, diluted	6.58	5.78	**10.11**
Normalized net earnings per share, diluted	6.86	6.04	**10.36**
Dividend per share paid over	2.00	3.00	**2.00**
Shareholders' equity per share	37.22	38.07	**46.16**
Issued shares year-end (thousand)	51,297	49,797	**49,297**
Outstanding shares year-end (thousand)	48,866	48,715	**48,569**
Average outstanding shares basic (thousand)	49,418	48,907	**48,645**
Average outstanding shares diluted (thousand)	49,999	49,359	**48,909**
Closing share price Euronext Amsterdam			
Year-end	100.15	179.95	**388.70**
High	104.40	179.95	**434.60**
Low	33.96	59.18	**186.40**
Market capitalization year-end (EUR million)	4,894	8,766	**18,879**

OPEN DIALOG AND TIMELY INFORMATION

We maintain an open dialog with our shareholders and investors. We provide the financial markets with accurate and timely information through, among other things, press releases, annual reports, quarterly earnings calls and webcasts, and investor meetings. In 2021, we held more meetings focused on ESG-related topics, including investor meetings that provided us with input for our updated materiality analysis. Investors can find up-to-date and comprehensive information about the company and our shares on our website.

Victor Bareño
Almere, the Netherlands
T: +31 88 100 8500
E: investor.relations@asm.com

INTERVIEW WITH THE CFO

Paul Verhagen took over as ASMI's new Chief Financial Officer in June 2021. In the following interview Paul comments on the company's positioning and opportunities. He also reviews ASMI's financial performance in 2021 and discusses the capital allocation policy and investment priorities.

PAUL, YOU JOINED ASMI AS CFO IN JUNE LAST YEAR. WHAT IS YOUR VIEW ON THE COMPANY'S POSITIONING AND PROSPECTS?

Since joining ASMI, I have been particularly impressed by our company's innovative strengths, and the strong growth opportunities ahead of us. In 2021, the semiconductor market increased 24% to more than US$500 billion, and is expected to grow to US$1 trillion by 2030. To enable new end-market applications in, for instance, artificial intelligence and 5G smartphones, our customers are investing in next-generation semiconductor technologies. ASMI is well placed to benefit from these trends. We are the leader in ALD, and have a growing position in Epi, which are critical technologies for our customers to transition to the next nodes.

"I HAVE BEEN IMPRESSED BY ASMI'S INNOVATIVE STRENGTH AND STRONG GROWTH OPPORTUNITIES."

It is important that we prepare our company for the next growth phase. We are expanding capacity, both for manufacturing and for our R&D lab facilities. We continue to increase our investments in R&D, for product innovation, and new applications. To support this, we need to step up our efforts in hiring new talent, and retaining our people by investing in their development.

HOW DIFFICULT IS IT TO FIND THE RIGHT PEOPLE, TAKING THE GROWTH OF THE INDUSTRY INTO ACCOUNT?

It's not easy, and we have stepped up investments in our People teams to support our recruitment needs. To give an example of the strong growth we've been experiencing: at year-end 2021, around a third of our employees had been at ASMI for less than a year. The war for talent in our industry is reaching new heights, particularly for engineers. All technology companies are fishing in the same pond. We have to make sure we stay competitive. As one of the effects of this, we expect to see some above-average wage inflation in the next year.

WHAT WAS THE IMPACT OF COVID-19 ON ASMI'S BUSINESS IN 2021?

Our priority is always the health and safety of our people. In 2021, and as we entered 2022, we continue to take measures to minimize risk for our employees, customers and suppliers, and for the communities where we operate.

From a demand perspective, the pandemic continued to fuel work-from-home-related computing demands, and helped speed up digitalization trends in our economies and society. This, in turn, drove strong growth in our industry. COVID-19 continued to create challenges in our operations, particularly in our supply chain. The industry-wide spike in demand, and the impact from lockdowns and constraints, led to shortages and delays.

Supply conditions tightened further in the summer of 2021, due to COVID-related lockdown measures in Southeast Asia, where many suppliers in our industry are located. Thanks to close and proactive cooperation with our suppliers and customers, and our actions to maintain higher inventories and to qualify new suppliers, we were still able to deliver on our customer requirements, achieving record-high shipments and sales.

HOW WOULD YOU DESCRIBE ASMI'S FINANCIAL PERFORMANCE IN 2021?

ASMI delivered very strong results. Our revenue increased by 34% at constant currencies to €1.7 billion, the fifth consecutive year of double-digit growth. Demand for wafer-fab equipment increased strongly and across the board. Our growth was also supported by share of wallet gains in the advanced logic/foundry nodes, our inroads in memory, and solid expansion in the analog/power wafer markets. At constant currencies, equipment sales increased by 38% year-on-year, driven by strong growth in our ALD and Epi product lines. Our spares & service sales were 18% higher (at constant currencies) in 2021, with an increased contribution from our new outcome-based services.

The gross margin increased from 47.0% in 2020 to 47.9% in 2021. Within the year, the gross margin moderated from 48.8% in the first half, which was supported by a relatively strong application mix, to 47.1% in the second half.

Gross R&D, excluding capitalization and amortization of development expenses, and impairments, increased by 20% in 2021. Net R&D increased by 9%, as capitalization increased and impairments decreased compared to 2020. As a percentage of revenue, net R&D expenses amounted to 8.7% in 2021, down from 10.5% in the previous year. The increase in R&D spending was somewhat below our target in the first half. In the course of 2021, we took steps to grow R&D at a faster rate, resulting in a higher increase in the second half. We aim for a further acceleration in R&D spending in 2022. Our mid-term target is high single to low double-digit investments in net R&D as a percentage of sales.

Selling, general, and administrative (SG&A) expenses increased by 20% in absolute terms, and decreased as a percentage of revenue from 11.9% in 2020 to 11.0% in 2021. The increase in SG&A last year was in part due to the higher activity level, as well as increased investments in, for example, IT, and the strengthening of the Sales and Quality organization. We expect to increase these investments in 2022. Taking a mid-term view, we forecast the SG&A expenses as a percentage of sales to decline to high single-digit, as we benefit from operating leverage.

> "OPERATING RESULT INCREASED BY 50% TO A NEW RECORD LEVEL."

The operating result increased by about 50% to a new record level of €491 million, with the operating margin up from 24.6% in 2020 to 28.4%.

Income from ASMPT increased to €87 million from €45 million in 2020. This result excludes the amortization of intangible assets related to ASMPT.

In line with our earlier indications, the effective tax rate increased further to 17.2% in 2021, up from 14.6% in 2020. The increase in the tax rate is related to earlier exhaustion of net operating losses (NOLs).

Total net earnings increased by 73% to €495 million compared to last year.

DID YOU EXPERIENCE ANY UNFAVORABLE IMPACT OF THE RECENT HIKE IN INFLATION, AND INCREASE IN ENERGY AND COMMODITY PRICES?

I am pleased to say that we were able to offset the impact from increased energy and commodity prices by other savings in our cost of goods through commercial negotiations, value engineering, and increased efficiencies. It is too early to tell what the impact will be in 2022. But we stay focused on opportunities to offset further inflationary pressures, and remain committed to deliver healthy gross margins.

ANY OTHER HIGHLIGHTS IN 2021?

We made strong progress in several important areas. But if I have to choose two highlights, they'd be our increased sustainability focus and Investor Day. In 2021, we launched our new sustainability priorities 2021-2025: Innovation, People, Planet, Responsible Supply Chain, and Governance. In September, as a first significant step, we announced our ambition for net zero emissions by 2035. As part of this, we aim to achieve 100% renewable energy by 2024. We are currently preparing several new actions and targets in our other sustainability focus areas, and will report on our progress in upcoming periods.

Apart from our moral duty to do business in a responsible way and make a positive impact, I'm also convinced that companies that perform better in terms of sustainability are more likely to deliver stronger long-term financial results.

Also in September, we held our first Investor Day. An important goal of this event was to explain in more detail the technology inflections in our key markets. Also, how we expect to capture these market opportunities on the back of our Growth through Innovation strategy. We also presented 2025 financial targets. We expect our revenue to grow to €2.8-3.4 billion by 2025, an average annual growth of 16% to 21% compared to 2020. For 2021-2025, we target the gross margin to be in a range of 46%-50%, and the operating margin in a range of 26%-31%. Driven by strong revenue and solid profitability, we expect to generate a healthy free cash flow in 2021-2025.

> "BETTER PERFORMANCE IN SUSTAINABILITY IS MORE LIKELY TO DELIVER STRONGER LONG-TERM FINANCIAL RESULTS."

WHAT DO YOU THINK OF THE CASH FLOW IN 2021?

Free cash flow more than doubled from €120 million in 2020 to €266 million in 2021. A key driver was the improvement in profitability. The cash outflow for working capital amounted to €68 million, and was mainly driven by the strongly increased activity level. The underlying quality remained healthy. In relative terms, working capital dropped to 58 days, down from 63 days the previous year. On a structural basis, we target days of working capital to be in a range of 55-75 days.

CapEx additions amounted to €79 million in 2021, with a significant part spent on expanding and upgrading our R&D lab facilities. These investments will continue in 2022. CapEx ended up lower than planned for. This was due to some carry-over from 2021 into 2022 as a result of COVID-19-related delays. CapEx dropped compared to €95 million in 2020, which included the completion of our new and significantly expanded Singapore manufacturing facility that year. As part of our 2021-2025 financial targets, we expect CapEx to be in a range of €60-100 million.

Cash spent on taxes increased substantially to €152 million in 2021. This is explained by the fact that we paid cash taxes in the Netherlands in 2021 with respect to the three years 2019, 2020 and the estimated preliminary tax for 2021.

We used €237 million in cash for shareholder remuneration, up from €165 million in 2020, and consisting of €97 million for dividend and €140 million spent on share buybacks.

Our financial position remained strong. We ended 2021 with a cash position of €492 million, compared to €435 million the previous year.

DID YOU MAKE CHANGES TO ASMI'S CAPITAL ALLOCATION STRATEGY?

No, the fundamentals of our capital allocation policy remain unchanged. The key priority for ASMI is to invest in the growth of our business. That means spending on CapEx and R&D, and also scanning the market for potential M&A opportunities. Next to that, it remains key for us to maintain a strong balance sheet. We intend to gradually increase towards a cash target of €600 million. This is up from a cash target of €300 million in earlier years, as we also communicated last September, and reflects the increased size of our company.

We remain committed to pay a sustainable dividend. With the publication of our Q4 2021 results on February 22, 2022, we announced a proposed dividend of €2.50 per share to be paid over 2021. This is a 25% increase, compared to the regular dividend of €2.00 paid over 2020.

Our policy regarding excess cash is also unchanged. We plan to return excess cash to our shareholders. Last December, we completed the €100 million share buyback program that started in July 2021. With the publication of our Q4 2021 results we announced a new €100 million buyback program, to be executed in the 2022-2023 timeframe.

CORPORATE GOVERNANCE

At ASMI, good governance is a key requirement to meeting our strategic objectives. It ensures effective cooperation and management, and provides a transparent system of checks and balances between our Management Board, Supervisory Board, and shareholders.

Values and ethics, global policies, internal control monitoring, and risk management are some of the key elements of our corporate governance framework. They ensure that relevant and up-to-date information is available, enabling management and control by the Management Board, Supervisory Board, and shareholders.

Our corporate governance framework is a cycle through which we strive to continuously improve the way we operate. It starts with transparency, accountability, values and ethics feeding into our global procedures describing how we work. Our internal control and monitoring activities ensure that we meet standards and identify improvement opportunities. Our risk management approach enables us to identify the risks early that may impact us, as well as the opportunities that can enable future growth.

This section of the report addresses our corporate governance structure, and how we apply the principles and best practices of the Dutch Governance Code.

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 our organization. Our Code of Business Conduct (COBC) sets clear standards in different areas of business life. Its purpose is to provide a clear, strong, and consistent culture of ethics that applies to all 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, ESG and sustainability, 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, climate, and compliance risks to which ASMI is exposed. It also helps us develop even more effective and efficient operations. It promotes reliable financial and non-financial reporting and compliance with laws and regulations, increasing transparency and accountability.

Corporate governance-related documents are available on our website, 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 an independent Supervisory Board, composed of non-executive directors. Our Management Board has ultimate responsibility for the overall management of ASMI. The Management Board is supervised and advised by the Supervisory Board. The Management Board and the Supervisory Board are accountable to ASMI's shareholders.

We conduct our business through wholly-owned subsidiaries, the most significant being ASM Front-end Manufacturing Singapore Pte Ltd (FEMS) in Singapore; ASM Europe BV (ASM Europe) in the Netherlands; ASM America Inc (ASM America) in the United States; ASM Japan KK (ASM Japan) in Japan; and ASM Korea Ltd (ASM Korea) 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.

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 (EGM) 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 as defined in the Dutch Act on Financial Supervision ('Wet op het financieel toezicht') will only be published in English on our website (www.asm.com).

The draft minutes of the AGM are available on our website no later than three months after the meeting. Shareholders may provide their comments in the following three months, after which the minutes are adopted and published on our website.

2021 AGM OF ASMI

ASMI held its AGM on May 17, 2021. Given the ongoing COVID-19 situation around the world and the public health and safety measures introduced by the Dutch government, in part via the COVID-19 (Temporary Measures) Act, this meeting was held virtually. Shareholders were given the opportunity to vote by two means: (i) by providing – as at 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 69.57% of the total issued share capital of ASMI as at 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 our website.

2021 EXTRAORDINARY GENERAL MEETING OF ASMI

ASMI held an EGM on September 29, 2021. Given the ongoing COVID-19 situation and the public health and safety measures introduced by the Dutch government, this meeting was held virtually. The agenda for the EGM consisted of: (i) the appointment of Mrs. Pauline van der Meer Mohr to the Supervisory Board; and (ii) the appointment of Mr. Adalio Sanchez to the Supervisory Board. In line with the ASMI Boards' recommendations, the shareholders approved the resolutions proposed to the EGM. The voting results and the minutes of the EGM are published on our website.

VOTING RIGHTS

In the AGM, each ordinary share with a nominal value of €0.04 entitles the holder to cast one vote, each financing preferred share with a nominal value of €40 entitles the holder to cast 1,000 votes, and each preferred share with a nominal value of €40 entitles the holder to cast 1,000 votes. Treasury shares held by the company cannot be voted on. The company's authorized capital 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. As at December 31, 2021, there were 49,297,394 common shares issued and fully paid.

There were no preferred or financing preferred shares issued on December 31, 2021. 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 ASMI 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 agreed by the Supervisory Board and the seller within two months of the approval being 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 company's interests. 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 of Pels Rijcken & Droogleever Fortuijn;
- Rob Ruijter, former Chairman of the Supervisory Board of Delta Lloyd; and
- Rinze Veenenga Kingma, President of Archeus Consulting BV.

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

EXTERNAL RELATIONS

At ASMI we believe that an open dialog with our external stakeholders is key. We provide accurate and timely information through, among other things, press releases, our annual reports, quarterly earnings calls and webcasts, and meetings. At these meetings we discuss the company strategy, performance and ask inputs for our materiality assessment. These meetings are held with investors and NGOs. We do not use lobby groups or make donations to any political party.

RISK MANAGEMENT

We continued to strengthen our risk management approach in 2021, in support of Growth through Innovation. The main purpose of our internal risk management and control framework is to enable early identification of risks that may impact us and opportunities that could enable further growth, and the ability to initiate follow-up actions accordingly. Our methodology proactively and periodically monitors risks and key mitigating controls based on our top-down risk assessment, our bottom-up business processes, and the process controls embedded in these. In 2021, we continued to focus on ownership and the proactive management of our risks in line with our corporate values: We Care, We Innovate, We Deliver.

RISK MANAGEMENT APPROACH

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

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

We assess the risks that could impact the achievement of our strategic objectives annually at a consolidated level (top-down approach) with our Risk Committee, as well as our senior management team 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 2021, we further strengthened our focus on process improvements and ownership of key risks and process controls, both top down and in our primary processes. We did this through training and communication, but also through focused discussions on our key risks.

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

Risk management approach

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

- 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

In line with our core values (We Care, We Innovate, We Deliver), ASMI strives for a culture of openness and transparency, in which identified risks are disclosed proactively, unexpected events are reported as soon as they occur, and improvement opportunities are discussed and followed up on. The Risk Committee plays a key role in our risk culture. It is chaired by the Vice President of Strategy and, as all business units are represented, key follow-up on the monthly meetings is efficiently implemented throughout ASMI. 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 our 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. In 2021, we rolled out updated training sessions to ensure deeper understanding of the COBC, and related dilemmas. We also assessed the effectiveness of and adherence with the code by actively investigating any alleged misconduct reported through the Whistleblower program, SpeakUp! and other means, taking appropriate action, including disciplinary action, where necessary.

RISK APPETITE

Any business activity inevitably leads to taking risks. We deal with each risk in a way that aligns with 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 in this plan. Our COBC and other detailed policies and procedures also help guide our risk appetite. Our 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 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 Epi products and the spares-and-services market.

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 we meet our environmental, social, and corporate governance (ESG) commitments. ASMI has a very low risk tolerance related to people 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 the 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 has 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 12 months. As such, 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 key current and emerging risks that could impact our ability to achieve growth through innovation; they span everything from our operational processes to our business environment. Our risk management process is set up to facilitate a company-wide understanding of the nature of these risks, the impact they may have on our business, and the way these risks develop over time, enabling risk-informed decision-making. 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 2021, COVID-19 continued to impact our business processes as well as the market we operate in. Our business, processes, and people continued to show resilience and flexibility in resolving the operational challenges we faced, particularly within manufacturing, customer support, supply chain, and logistics.

Our risk universe is the basis for our annual top-down risk assessment. The following pages outline the key risks in our risk universe as well as the mitigating measures we have taken.

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 continues to impact demand from our end markets, in order to ensure successful adaptation to these changes we increased focus on the key hand off points in our R&D process improving the effectiveness and efficiency of the process.
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 continue to invest in our production facilities to enable the growing demand for our tools. In addition, we outsource generic manufacturing and continue to optimize 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.
3 **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 continue to focus on competitive compensation & benefit packages tailored to the regions we operate in. We have improved our talent acquisition process to enable growth through innovation and are focusing on successful onboarding of our new colleagues. In 2021, we took important steps in following up on the 2020 'Power of an Open Mind' program and the engagement survey, we also launched our corporate values strengthening our corporate culture.
4 **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. Geopolitical tensions continue to increase resulting in additional trade restrictions, global trade shifts and instability. 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, we monitor geo political risks on an ongoing basis as the impact on the industry and ASMI is not yet known and will change over time.
5 **Climate change and transition risks impacting ASM, our customers, and our supply, potentially causing disruptions in our value chain and markets.**	In the past years we have built a solid foundation of achievements in sustainability. In 2021, we engaged a leading third party to complete a Climate Adaptation Risk and Opportunity Assessment, inclusive of our supply chain. See the 'Sustainability' section of this report for more details.
7 **Major competitors or new entrances to the market, establishing or sustaining a competitive advantage or establishing disruptive business models.**	A process is in place to gather data through competitive analysis which helps us to outperform our competitors by collecting new product ideas, improving our business model and service to our customers. In 2021 we increased the capacity in our market intelligence department and implemented additional analysis to make sure that relevant information is available on a timely basis.

OPERATIONAL RISKS	MITIGATING MEASURES
8 **Unsuccessful or slow execution of R&D and missing key inflections or opportunities.**	Our innovative culture enables us to remain a leading supplier of semiconductor equipment and process solutions. To support this we continue to invest in R&D. In addition, we continuously improve our approach to co-create and develop technology roadmaps together with our customers. We also focus on attracting the right talent and maintain our partnerships with key knowledge leaders in our industry.
9 **Failure to deliver product or service of sufficient quality or on time resulting in financial loss, 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 centralized our quality organization to report directly to the CEO. This has increased cross-functional focus in support of the 2021 ramp in production. In 2022 we will continue to focus on refining our key quality processes deeper into the organization. We are also enhancing our software/platform and service processes to enable quality in alignment with developments in the market and the tool base that is in operation at customer sites.

OPERATIONAL RISKS	MITIGATING MEASURES
10 **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 focus on building strong and long term relationships with strategic customers, understanding the customer needs and mapping our technology roadmap to our customers technology roadmaps.
11 **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.**	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 order to assess the robustness of our IT environment a Cybersecurity and IP Protection audit has been performed. Further enhancement of the processes and controls related to Cybersecurity and IP Protection is in progress.
12 13 **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 2021 our supply chain and logistics were constrained as a result of COVID, the growing demand and material/component shortage in general. In order to mitigate the risks in relation to this we further improved primary processes related to regional supplier sourcing, demand planning, and import/export risks.
14 **Harm to our people or value chain from injury or illness, that impacts our ability to operate or impacts customer trust and relations.**	Our EHS organization and Product Safety Engineering organizations are responsible for preventive and corrective action processes and the implementation of structural controls within the processes. Proactivity is key to minimize harm, through our product designs and early reporting culture. Safety leadership collaborations have been set up with key customers to build engagement and collaboration on mitigating the risks.

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 members' 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.

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. He 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.

PAUL VERHAGEN - CFO

Mr. Verhagen was appointed as member of the Management Board with effect from June 1, 2021 by the Annual General Meeting of May 17, 2021. Following this appointment, he was appointed as CFO from June 1, 2021 by the Supervisory Board

Mr. Verhagen has a proven track record and background in Dutch listed companies and the electronics industry. He made a career within Royal Philips – starting in the early 90s and until 2013, he fulfilled numerous executive positions in the Netherlands, the US, Hong Kong, and China. His last two assignments – from 2007 until 2013 – were as executive vice president and CFO of Philips Consumer Lifestyle, and executive vice president and CFO of Philips Lighting. In 2014, he became the CFO and member of the Management Board of the Dutch stock listed company Fugro N.V.

Mr. Verhagen is a non-executive director of ASM Pacific Technologies. He is a Dutch national, holds a Master of Business Administration degree, and has a post-graduate degree as Chartered Controller. Mr. Verhagen is based in Almere, the Netherlands.

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 ESG 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 (AGM) 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 2021. 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. This 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' section. 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 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, 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
Martin C.J. van Pernis	Chairman	Dutch	1945	2010	2022
Stefanie Kahle-Galonske	Member	German and Swiss	1969	2017	2025
Didier R. Lamouche	Member	French	1959	2020	2024
Marc J.C. de Jong	Member	Dutch	1961	2018	2022
Pauline F.M. van der Meer Mohr	Member	Dutch	1960	2021	2025
Adalio T. Sanchez	Member	United States	1959	2021	2025
Monica de Virgiliis	Member	Italian and French	1967	2020	2024

MARTIN C.J. VAN PERNIS

Chairman of the Supervisory Board

Mr. van Pernis was elected as a member of the Supervisory Board in May 2010, and most recently appointed on May 17, 2021 as Chairman of the Supervisory Board until the end of his term at the 2022 AGM.

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 also a member of the Advisory Board of G4S Netherlands. Mr. Van Pernis was also Chairman of the Supervisory Board of Batenburg NV until May 2018.

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 in May 2017 and reappointed for a period of four years on May 17, 2021.

Since April 2016, Mrs. Kahle-Galonske is Group CFO of Egon Zehnder International AG in Zurich, Switzerland. From March 2013 until 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.

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

Mrs. Kahle-Galonske graduated in economics from the Ruhr-University of Bochum, Germany, and has been a Certified Public Accountant (CPA) since 2002. Mrs. Kahle-Galonske is a German and Swiss 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.

Until the end of 2018, Mr. Lamouche was the CEO of IDEMIA (formerly Oberthur Technologies), the world leader in security and identity solutions. Prior to that, he was CEO of the Euronext-listed Bull Group until 2010. Before that, Mr. Lamouche held several senior executive positions in the semiconductor industry, most recently as COO of ST Microelectronics, and CEO of ST-Ericsson until 2013.

Mr. Lamouche has held non-executive positions on the public boards of Atari, Soitec and STMicroelectronics. He is currently non-executive Chairman of the Board at Quadient, a Euronext-listed company and leader in enterprise communication systems. He is furthermore a member of the Supervisory Board of Adecco since 2011 (listed on the SIX in Zurich), and of ACI Worldwide, a leading, Nasdaq-listed software company serving the fintech industry.

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, and Chevalier of Legion of Honor.

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. Prior to that, until 2009, he was a member of the executive management team of NXP Semiconductors. After that, until 2013, he was responsible for professional lighting solutions at Philips Lighting. At the same time, he was a member of the group management committee of Philips.

Mr. de Jong is currently a member of the Supervisory Boards of Fugro N.V., a Dutch-listed company, Nissens A/S, based in Denmark, Fiberline Composites A/S, based in Denmark, Polytech A/S, based in Denmark, and Sioux B.V., based in the Netherlands, and Chairman of the Supervisory Board of BDR Thermea Group B.V.

Mr. de Jong holds a master's degree in physics and mathematics from the VU University of Amsterdam, the Netherlands, and a Master of Business Administration (MBA, executive program) from the Erasmus University Rotterdam, the Netherlands, and Rochester, in the United States. Mr. de Jong is a Dutch national.

PAULINE F.M. VAN DER MEER MOHR

Member of the Supervisory Board

Mrs. van der Meer Mohr was elected as a member to the Supervisory Board on September 29, 2021, for a period of four years.

Mrs. Van der Meer Mohr is a seasoned non-executive director, and brings more than 35 years experience in leadership positions in multinational businesses and academia. She started her career as a lawyer in private practice, prior to joining the Royal Shell group in 1989. In 2004, she joined TNT NV as group HR director. From 2006, she served as senior executive vice president and head of group HR for ABN AMRO Bank N.V. Mrs van der Meer Mohr was appointed president of the executive board of Erasmus University Rotterdam in 2010. Until her retirement from her executive career in 2016, she was also a member of the Banking Code Monitoring Commission, and has served on several advisory and supervisory boards.

Mrs. Van der Meer Mohr currently serves as non-executive director of London listed HSBC Holdings Plc and Nasdaq-listed Viatris Inc., and she chairs the Supervisory Board of EY Netherlands LLP. Since 2019, she has served as chair of the Dutch Monitoring Committee Corporate Governance. Most recently, she was a member of the Supervisory Boards of Dutch-based ASML Holding N.V. and DSM N.V.

Mrs. Van der Meer Mohr holds a master's degree in law from Erasmus University Rotterdam, as well as a master's degree in advanced dispute resolution from the University of Amsterdam. She is a Dutch national.

ADALIO T. SANCHEZ

Member of the Supervisory Board

Mr. Sanchez was elected as a member of the Supervisory Board on September 29, 2021, for a period of four years.

Mr. Sanchez has more than 35 years experience in the tech industry. He is a successful senior executive with strong operational acumen and track record in growing complex global businesses. He was with the IBM Corporation from 1982 to 2014, where he held various senior executive officer and global general management roles. Most recently, he led two IBM divisions – the x86 systems unit and retail store solutions point-of-sale systems unit. Previous roles include vice president of corporate strategy, and before that he ran IBM's microelectronics division. He was responsible for semiconductor process technology development, manufacturing, engineering, and the intellectual property portfolio. He also led IBM's UNIX systems division.

Following the divestment of the IBM x86 division to Lenovo Group Limited, Mr. Sanchez moved to Lenovo and, from 2014 to 2015, served as senior vice president of Lenovo's Enterprise Systems Group.

Mr. Sanchez currently serves as a non-executive member of the Board of Directors of the following Nasdaq-listed US-based companies: Avnet, Inc. a global semiconductor sales and distribution company; ACI Worldwide, Inc. an electronic payments software company, and Snap One Holdings Corp., a smart home technology solutions and distribution company. He is also a member of the Board of Trustees of US-based MITRE Corporation, a non-profit organization for public good, and a member of the Board of Directors of Florida International University Foundation.

Mr. Sanchez has a bachelor's degree in electrical engineering from the University of Miami, and a Master of Business Administration degree from the Florida International University. He is a US national.

MONICA DE VIRGILIIS

Member of the Supervisory Board

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

Mrs de Virgiliis has more than 25 years experience in the tech industry. She is a successful senior executive with proven transformation and growth track records. She was with STMicroelectronics from 2001 to 2015, and then with Infineon Technologies from 2015 to 2017 where she held various senior executive officer and global general management roles. From 2017 to 2019, Mrs. de Virgiliis fulfilled the role of chief strategy officer at CEA, the French Atomic & Alternative Energy Commission.

She is an experienced Non-Executive Director in the energy and technology spaces. Deeply passionate about energy transition and industry transformation in alignment with the Paris agreement, 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 currently serves as a non-executive member of the Board of Directors of the Italian energy company Saras, listed at the Milan Stock Exchange.

Mrs. de Virgiliis has a master's degree in electronic engineering summa cum laude from the University of Turin (Politecnico di Torino). Mrs. de Virgiliis is an Italian and French national.

THE IMPORTANCE OF DIVERSITY

The Supervisory Board recognizes the value of diversity among 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 will have a composition of the Supervisory Board, representing at least one third 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 ESG and sustainability-related change.

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

CONFLICTS OF INTEREST

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

APPOINTMENT

In accordance with Dutch law and the Corporate Governance Code, the Supervisory Board has drawn up a profile for its own composition. This Supervisory Board Profile is available on our website. For the selection of future members of the Supervisory Board, we will actively seek 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 seven 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 2021, and Note 25 to the consolidated financial statements.

COMMITTEES

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).

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);
- Marc de Jong;
- Adalio Sanchez; 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;

COMMITTEES STRUCTURE AND MEMBER INFORMATION

	Audit Committee	Nomination, Selection and Remuneration Committee	Supervisory Board
Martin C.J. van Pernis		M	C
Stefanie Kahle-Galonske €	C		M
Didier R. Lamouche		C	M
Marc J.C. de Jong	M		M
Pauline F.M. van der Meer Mohr		M	M
Adalio T. Sanchez	M	M	M
Monica de Virgiliis	M		M

C Chairperson M Member € Financial expert

- 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.

Mrs. Kahle-Galonske, chairwoman of the Audit Committee and member of the Supervisory Board, is the financial expert taking into consideration her 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:

- Didier Lamouche (Chairman);
- Pauline van der Meer Mohr;
- Martin van Pernis; and
- Adalio Sanchez.

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

MESSAGE OF THE CHAIRMAN

It has been a pleasure to chair the Supervisory Board of ASMI in 2021, a year of great progress for ASMI. Although COVID-19 continued to impact the company, the Management Board and all the employees demonstrated relentless commitment to deliver another strong year.

The end markets continued to develop very positively driven by a world that increasingly gets more digital and more connected each and every year, creating tremendous opportunities for companies like ASMI.

The company managed to deliver strong growth with record orders intake, revenue and profits in 2021, driven in particular by ALD and Epi.

An important milestone was the presentation of the Growth through Innovation strategy at the Investor Day on September 28, 2021. The company presented its strategy, its six strategic objectives and the mid-term targets 2020-2025 outlining continued double-digit growth with strong profitability in the mid term.

Another highlight was the increased focus and acceleration of sustainability objectives. The company announced during the Investor Day the target to achieve Net Zero by 2035 for all scopes. This includes the target to source its electricity needs as per 2024 from renewable sources leading to an estimated reduction of 90% of scope 1 and 2 GHG emissions compared to 2020.

Following the AGM on May 17, 2021, Jan Lobbezoo retired as Chairman of the Supervisory Board after three four-year terms. During these years it was a real pleasure working with Jan and I would like to thank him for all his contributions over the years. Since his retirement I have taken over as Chairman of the Supervisory Board.

We also expanded the Supervisory Board with two new members, Pauline van der Meer Mohr and Adalio Sanchez. Pauline brings a wealth of board experience as well as functional expertise in corporate governance and human resources, and Adalio brings substantial experience in the technology and semiconductor markets.

The Supervisory Board wants to thank the Management Board and all the worldwide ASMI employees for their enormous commitment and relentless efforts to deliver another very strong year despite all the difficulties imposed by the pandemic. I also want to thank my colleagues on the Supervisory Board for all their constructive conversations and contributions.

Martin van Pernis
Chairman of the Supervisory Board

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 2021 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 173 to 179. All of the members of the Supervisory Board have signed the financial statements in respect of the financial year 2021.

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.

In 2021, following the Annual General Meeting (AGM) of shareholders on May 17, Mr. Jan Lobbezoo retired as chairman of the Supervisory Board after being a member of the Supervisory Board for 12 years. Mr. Martin van Pernis succeeded him as chairman of the Supervisory Board.

During the Extraordinary General Meeting (EGM), which was held on September 29, 2021, two new Supervisory Board members were appointed: Mrs. Pauline van der Meer Mohr and Mr. Adalio Sanchez.

MEETINGS OF THE SUPERVISORY BOARD

During 2021, the Supervisory Board met on eight occasions. The attendance of the individual Supervisory Board members is outlined in the overview below. All Supervisory Board members attended all Supervisory Board meetings with the Management Board during their mandate. Mr. Jan Lobbezoo did not attend two meetings of the Supervisory Board, which were related to the succession of the chairperson position. Due to the COVID-19 pandemic, participation was partly virtual.

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

Attendance to meetings in 2021

	Supervisory Board	Audit Committee	Nomination, Selection and Remuneration Committee (NSR)
Committee			
Jan C. Lobbezoo	3/5	2/2	2/2
Martin C.J. van Pernis	8/8	n.a.	4/4
Stefanie Kahle-Galonske	8/8	4/4	n.a.
Didier R. Lamouche	8/8	n.a.	4/4
Marc J.C. de Jong	8/8	4/4	2/2
Pauline F.M. van der Meer Mohr*	2/2	1/1 (visiting)	1/1
Adalio T. Sanchez*	2/2	1/1	1/1
Monica de Virgiliis	8/8	3/4	n.a.

* Appointed during the EGM on September 29, 2021.

In these meetings, the Boards discussed the strategy and the progress of implementation thereof, the long-term value creation, operations, business risks, product and market developments, the company's organization, management and financial structure, and performance, including further profitability improvements. Geopolitical developments, sustainability, IT security, and succession planning of the Supervisory Board and senior management team were also discussed in depth. A recurring item at each of the Supervisory Board meetings in 2021 was the impact of the COVID-19 pandemic, with respect to the health and safety of ASMI employees, supply chain, and other impacts on the business. Other topics addressed by the Supervisory Board were the annual budget, the quarterly financial results review, the preparation of the quarterly earnings press releases, and ASMI's first-ever Investor Day. The Supervisory Board also approved the dividend proposal as prepared by the Management Board, and proposed (and approved) at the AGM in 2021.

As it happens every year, one of the meetings was earmarked to discuss with the Management Board the company's long-term strategy, its planned implementation, and the risks attached to realizing it. In the long-term strategy meeting, the Board discussed the semiconductor and semiconductor equipment market and outlook, the development of ASMI's market share in the different segments it serves, the development of the competitive environment, technology and market trends, including the development of the ALD and Epi markets for the coming years, the progress with ASMI's strategic priorities, and ASMI's long-term revenue and profit & loss forecasts. Also discussed were the strategic initiatives to be considered to improve the company's long-term value-creation strategy. This included discussion of ASMI's sustainability strategy and focus areas. Our new Sustainability priorities for 2021 to 2025 were reviewed and approved. In subsequent meetings in 2022, the Board will follow up on the discussions of strategic topics raised in the long-term strategy discussion.

Due to the pandemic, planned meetings at locations outside the Netherlands, also with the aim to meet local management, had to be postponed. The Supervisory Board also reviewed and discussed the functioning of the Supervisory Board, its committees, and its individual members through an internal assessment as conducted by the members of the Supervisory Board. The composition, competencies and functioning of the Supervisory Board, as also described in the Supervisory Board profile, and its committees were part of the assessment, as well as the composition of the Management Board, their performance, and the performance of its individual members, and the relationship between the Supervisory Board and the Management Board. The conclusion of the assessment was that both the Supervisory Board and the Management Board function properly and effectively.

CORPORATE GOVERNANCE

The Supervisory Board is responsible for overseeing 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 2021, there were two general meetings: the AGM held on May 17, 2021 and the EGM held on September 29, 2021. In view of the restrictions caused by the COVID-19 pandemic, these were held virtually, with shareholders participating via a webcast. For the AGM, voting was possible by proxy before the meeting, as well as during the meeting via the virtual voting application platform. Shareholders were also able to pose questions prior to and during the AGM. For the EGM, voting was possible prior to the general meeting, and the same was applicable for questions. Questions and answers were posted on the website.

During the AGM, Mr. Paul Verhagen was appointed as a new member of the Management Board, and Mrs. Stefanie Kahle-Galonske was reappointed as Supervisory Board member for a period of four years. A regular dividend of € 2.00 per share was proposed and approved. To optimize the capital structure, it was furthermore proposed and agreed to decrease the issued share capital by withdrawing 500,000 shares, which the company held in its own capital, by way of cancellation of treasury shares.

On April 20, 2021, ASMI announced the authorization of a new share buyback program of up to €100 million. The program started on July 28, 2021, and was completed on December 17, 2021.

On September 29, 2021, the EGM was held. During this meeting, the shareholders appointed Mrs. Pauline van der Meer Mohr and Mr. Adalio Sanchez as Supervisory Board members for a period of four years expiring at the AGM of 2025.

SUPERVISORY BOARD COMPOSITION

Following the EGM, the Supervisory Board is composed of seven members. All members are independent, in line with the Dutch Corporate Governance Code. Mr. Lobbezoo, after having served three four-year terms at the ASMI Board, retired as of the AGM held on May 17, 2021. Mr. van Pernis succeeded him as chairman. During the EGM held on September 29, 2021, Mrs. Pauline van der Meer Mohr and Mr. Adalio Sanchez were appointed as Supervisory Board members.

MANAGEMENT BOARD COMPOSITION

The Management Board is composed of two members. During the AGM on May 17, 2021, Mr. Peter van Bommel, Chief Financial Officer and member of the Management Board, retired from ASMI. On the same day, the AGM approved the nomination of Mr. Paul Verhagen as Chief Financial Officer and member of the Management Board of ASMI, for a four-year term, to succeed Mr. van Bommel.

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 to consist of gender, specific knowledge, work background, nationality, age, ethnic diversity, (technical) experience, and skills.

We will have a composition with at least one third of the seats on the 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. With the appointment of Mrs. Pauline van der Meer Mohr and Mr. Adalio Sanchez, during the EGM, and the retirement of Mr. Jan Lobbezoo, the composition of the Supervisory Board is currently such that both genders are represented for more than 40%.

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

EDUCATION AND TRAINING

In 2021, as is the case every year, the Management Board and Supervisory Board discussed their education and training needs. Both boards – in addition to their regular meetings – committed to a total of one day of training. The focus in 2021 was on the latest developments in ESG, the Dutch Corporate Governance Code, diversity, and insider trading. This training was given by a legal expert.

INDEPENDENCE

The Supervisory Board has determined 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. At the end of 2021, the number of members of the Audit Committee remained at four. In 2021, Mr. Jan Lobbezoo retired as chairman of the Supervisory Board and member of the Audit Committee on May 17, 2021. Mr Adalio Sanchez was appointed as member of the Audit Committee after his appointment to the Supervisory Board on September 29, 2021. 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; the effectiveness of internal controls; the internal audits performed and its findings; the Annual Report and financial statements, and the budget and quarterly progress reports prepared by the Management Board. The internal auditor participated in all four Audit Committee meetings, presenting their own actions and findings. On several occasions, the Audit Committee met with KPMG Accountants, without the members of the Management Board present, to discuss 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. 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 consisted at the start of 2021 of Messrs. van Pernis (Chairman), Lobbezoo and Lamouche.

In April 2021, Mr. Lamouche was appointed as Chairman of the NSR. At the same time Mr. De Jong was appointed as temporary member of the NSR by the Supervisory Board given the retirement of Mr. Lobbezoo. In addition, Mrs. van der Meer Moor and Mr. Sanchez have been appointed as members of the NSR Committee on December 20, 2021. In the Supervisory Board meeting of December 20, 2021, it was decided that Mr. de Jong would continue with being a member of the Audit Committee and stop his temporary appointment as member of the NSR Committee.

In 2021, the NSR Committee held four meetings and multiple conference calls. Topics discussed included the nomination and appointment of the new Chief Financial Officer and member of the Management Board, Mr. Verhagen, the succession and talent-review process outcomes for executives, the search for two open Supervisory Board positions, a proposed transition in the LTI remuneration program, the 2021 training program for the Supervisory Board, a benchmark on the Supervisory Board remuneration package, and a study on ASMI's governance structure. Topics which were also discussed included the remuneration of the individual members of the Management 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 2021 is fully in accordance with the remuneration policy.

SUPERVISORY BOARD

Martin C.J. van Pernis, Chairman
Stefanie Kahle-Galonske
Didier R. Lamouche
Marc J.C. de Jong
Pauline F.M. van der Meer Mohr
Adalio T. Sanchez
Monica de Virgiliis

Almere, the Netherlands
March 3, 2022

REMUNERATION REPORT

This 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 (AGM).

INTRODUCTION

The remuneration report complies with the best practice provisions of the Dutch Corporate Governance Code. It is aligned with the new Dutch legal requirements following the implementation of the EU Shareholders' Right Directive II. ASMI's remuneration policy 2020-2023 was adopted by the AGM on May 18, 2020. It was consistently implemented in 2020 with regard to all remuneration elements and applied throughout 2021.

The 2021 remuneration report refers to ASMI's remuneration policy, which can be found here.

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 25% on non-financial targets (of which half related to ESG in 2021). The on-target bonus percentage for the CEO is 100% of the annual base salary, with a maximum payout of 150% of the annual base salary. The on-target bonus percentage for the CFO is 75% of the annual base salary, with a maximum payout of 125% of the annual base salary.

LONG-TERM INCENTIVES (PERFORMANCE SHARES)

Members of the Management Board are eligible to receive performance shares under the ASMI N.V. 2014 long-term incentive plan for members of the Management Board and ASMI's remuneration policy to focus on the long-term interest of the company. Performance shares vest after three years, subject to meeting predetermined financial indicators and continued services. 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. Performance shares will next be granted in April 2022.

The Supervisory Board will determine the number of performance shares granted for on-target performance. When doing so, the board will consider two predetermined financial indicators (each with respectively 50% weight): 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, which is calculated as follows: target level (calculated based on annual base salary) divided by the average share price of ASMI on the Euronext Amsterdam on the award date and the following four consecutive days. The award date is immediately following the date of the announcement of the first quarter financial results in April for the year the award takes place.

The target level of the long-term incentive is set at 165% of the annual base salary for the CEO and 125% for the CFO. The maximum number of shares 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 if none of the targets are met.

To show a 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.

For 2021, the Supervisory Board awarded the following amounts:

- The previous CFO, Mr. van Bommel, decided to step down as of May 17, 2021, and therefore no value was awarded in 2021; and
- The Supervisory Board decided to award the following on-target value to Mr. Loh, CEO: €1,070,685 (4,184 shares), and Mr. Verhagen, the newly appointed CFO: €650,000 (2,159 shares), based on the 2020 remuneration policy.

Outstanding performance shares

The following table shows the outstanding performance shares granted to members of the Management Board up till and including 2021 and held by members of the Management Board as at December 31, 2021:

	Grant date	Status	Number of shares at grant date	Performance adjustment	Vested in 2021	Outstanding December 31, 2021	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
G.L. Loh [1]	April 21, 2021	Conditional	4,184	–	–	**4,184**	€245.40	April 21, 2024	April 21, 2026
P.A.H. Verhagen [2]	July 28, 2021	Conditional	2,159	–	–	**2,159**	€291.97	July 28, 2024	July 28, 2026
P.A.M. van Bommel [3]	April 20, 2018	Unconditional	9,008	4,504	(13,512)	**–**	€45.71	April 20, 2021	May 17, 2021
P.A.M. van Bommel [3]	April 25, 2019	Unconditional	7,343	–	(7,343)	**–**	€57.84	April 25, 2022	May 17, 2021
P.A.M. van Bommel [3]	April 22, 2020	Unconditional	5,559	–	(5,559)	**–**	€100.09	April 22, 2023	May 17, 2021
Total			**36,340**	**4,504**	**(26,414)**	**14,430**			

1 New CEO since May 18, 2020.
2 New CFO since June 1, 2021.
3 Former CFO till May 17, 2021. Holding obligation lapsed as of retirement.

In 2021, all outstanding conditional shares that were granted to the previous CFO in 2019, respectively 2020, vested at grant level on his retirement date (7,343 and respectively 5,559 shares).

The shares will become unconditional after three years, depending on whether predetermined targets are achieved or not. The financial targets to be achieved are measured over a three-year performance period and relate to revenue growth compared to the market and an average EBIT percentage performance measure. The members of the Management Board will hold the unconditional shares for at least two years. However, they are allowed to sell a part of the unconditional shares at the vesting date for tax purposes.

PENSION ARRANGEMENT

The members of the Management Board are given the opportunity to participate in a defined contribution plan for their salary up to €112,189. For salary above €112,189, 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 2021 remuneration elements in € thousands for both the CEO and CFO, as recognized by the company. A new CFO was announced and appointment approved by the AGM on May 17, 2021.

	1				2				3		4		5		6	
	Fixed remuneration (K€)				Variable remuneration (K€)											
NAME OF DIRECTOR, POSITION	Base salary		Fringe benefits		Short-term cash incentive (STI)		Share-based payment expenses [4]		Other [5] (K€)		Pension expense (K€)		Total remuneration (K€)		Proportion of fixed and variable remuneration	
	2020	2021	2020	2021	2020	2021	2020	2021	2020	2021	2020	2021	2020	2021	2020	2021
G.L. Loh	393	649	36	58	448	898	141	570	–	–	69	109	1,087	2,284	85%	56%
P.A.H. Verhagen [1]	–	303	–	25	–	594	–	165	–	–	–	41	–	1,128	–%	49%
C.D. del Prado [2]	267	–	28	–	293	–	1,158	–	2,400	–	52	–	4,198	–	24%	–%
P.A.M. van Bommel [3]	454	171	39	16	452	142	505	656	–	–	95	40	1,545	1,025	61%	28%
Total	**1,114**	**1,123**	**103**	**99**	**1,193**	**1,634**	**1,804**	**1,391**	**2,400**	**–**	**216**	**190**	**6,830**	**4,437**		

[1] New CFO since June 1, 2021.
[2] Former CEO till May 18, 2020.
[3] Former CFO till May 17, 2021.
[4] These amounts represent the vesting expenses related to the financial year.
[5] 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, 2021, in line with the market movement in the Netherlands.

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

2. Variable remuneration

Short-term 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 on 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 (of which half related to ESG in 2021).

For 2021, both the CEO and CFO realized overall an over-achievement on STI (mix of above target/stretch realization on company financial targets and above target realization 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 in 2020 represented an additional payroll tax to the company due to the vesting of shares granted in previous years, related to the retirement of a former member of the Management Board subject to article 32bb of the Dutch Wage Tax Act.

4. Pension

As of 2015, members of the Management Board no longer participate in the industry-wide pension fund. They have opted to participate in a defined contribution plan for their salary up to €112,189. ASMI reimburses an amount equal to the employer pension contribution for their salary above €112,189. The CEO and CFO can 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 their 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

The 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%.

MANAGEMENT SERVICE AGREEMENTS

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

- Mr. Loh started on May 18, 2020, and was appointed for a four-year term based on a management service agreement; and
- Mr. Verhagen started on June 1, 2021, and was appointed for a four-year term based on a management service agreement.

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

As mentioned in the management service agreements 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 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 2021 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. This reviewed policy was presented to and approved by the AGM on May 18, 2020, and became applicable in 2020. The Supervisory Board review included an analysis of different scenarios.

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 line with their role and responsibilities;
- Allows ASMI to attract, reward, and retain highly qualified executives with the required background, skills, and experience to implement ASMI's strategy 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 with the interests of ASMI, shareholders, and other stakeholders in the medium- and long-term to deliver sustainable performance in line with ASMI's strategy, purpose, and values.

COMPARATIVE INFORMATION ON THE CHANGE OF REMUNERATION AND COMPANY PERFORMANCE

The figures presented are indexed compared to the previous financial year.

Annual change	2017/2016	2018/2017	2019/2018	2020/2019	2021/2020	Information regarding 2021
Management Board remuneration						
G.L. Loh, CEO (as of May 18, 2020)	–%	–%	–%	–%	210%	
P.A.H. Verhagen, CFO (as of June 1, 2021)	–%	–%	–%	–%	–%	
P.A.M. van Bommel, CFO (until May 17, 2021)	107%	101%	123%	101%	66%	Former CFO retired May 17, 2021
C.D. del Prado, CEO (until May 18, 2020)	112%	105%	124%	64%	–%	Former CEO retired May 18, 2020
Company performance						
Revenue	123%	111%	157%	103%	130%	
EBIT	133%	119%	171%	142%	150%	
Free cash flow*	125%	80%	418%	48%	222%	
Qualitative/non-financial strategic objectives/targets	113%	103%	128%	88%	98%	
Average remuneration of employees (K€)						
	2017	**2018**	**2019**	**2020**	**2021**	
Average remuneration of employees	78	75	85	88	87	
CEO pay ratio	25	27	31	27	29	

* Comparative information is calculated based on the revised free cash flow definition as applied in the 2021 Annual Report.

The ratio of the CEO's remuneration and the average remuneration of all other employees (the pay ratio) is calculated by dividing the CEO's remuneration by the average remuneration of all employees. The CEO's remuneration is the total annualized base salary and bonus of the CEO as well as share-based payment (extrapolated to a full year LTI value based upon three consecutive yearly grants with each a 36-month vesting period). The average remuneration of all employees is calculated by dividing the total personnel costs (wages, salaries, and share-based payments), minus the CEO's remuneration, by the total number of employees (minus CEO). The pay ratio is in line with the anticipated internal development of pay levels.

The 2021 ASMI remuneration report considers the draft guidelines to specify the standardized presentation of the remuneration report as stated in 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 2021 remuneration report refers to the remuneration policy of ASMI, which can be found here.

The following table presents information on all remuneration (base compensation, no bonuses, long-term incentives 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:

	Year ended December 31,					
	Annual fee		Committee fee		Total remuneration	
	2020	2021	2020	2021	2020	2021
Supervisory Board:						
J.C. Lobbezoo [3]	70.0	**26.5**	13.5	**5.1**	83.5	**31.6**
M.C.J. van Pernis	50.0	**62.4**	8.5	**6.9**	58.5	**69.3**
U.H.R. Schumacher [1]	19.1	**–**	2.3	**–**	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	**11.2**	57.5	**61.2**
D.R. Lamouche [2]	31.0	**50.0**	3.7	**7.6**	34.7	**57.6**
M. de Virgiliis [2]	31.0	**50.0**	4.7	**7.5**	35.7	**57.5**
P.F.M. van der Meer Mohr [4]	–	**12.8**	–	**–**	–	**12.8**
A.T. Sanchez [4]	–	**12.8**	–	**–**	–	**12.8**
TOTAL	**301.1**	**314.5**	**50.2**	**48.3**	**351.3**	**362.8**

1 Period to May 18, 2020.
2 Period as of May 18, 2020.
3 Period to May 17, 2021.
4 Period as of September 29, 2021.

Annual change	2017/2016	2018/2017	2019/2018	2020/2019	2021/2020	Information regarding 2021
Supervisory Board remuneration						
H.W. Kreutzer	100%	41%	-%	-%	-%	
J.C. Lobbezoo	100%	112%	106%	100%	38%	
M.C.J. van Pernis	100%	107%	104%	100%	119%	
U.H.R. Schumacher	100%	107%	105%	38%	-%	
S. Kahle-Galonske	–%	183%	107%	100%	100%	
M.J.C. de Jong	–%	–%	169%	100%	106%	
D.R. Lamouche	–%	–%	–%	–%	166%	
M. de Virgiliis	–%	–%	–%	–%	161%	
P.F.M. van der Meer Mohr	–%	–%	–%	–%	–%	
A.T. Sanchez	–%	–%	–%	–%	–%	

Any recommended changes to the remuneration of 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 AGM. A new benchmark analysis was conducted in the fourth quarter of 2021, which will lead to a proposal to adjust the remuneration of members of the Supervisory Board, subject to approval by the AGM on May 16, 2022.

No variable compensation (bonus or performance shares) nor pension benefits have been granted to members of the Supervisory Board.

DEROGATIONS FROM REMUNERATION POLICY

The Supervisory Board has not derogated or deviated from the remuneration policy other than the sign on arrangement for the new CFO as approved by the AGM on May 17, 2021.

ASMI does not provide any loans, advanced payments, deposits, or related guarantees to the CEO, CFO, or Supervisory Board.

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 2021 AGM for the reporting year 2021.

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 2021 were preapproved by the Audit Committee.

AUDIT COMMITTEE POLICIES AND PROCEDURES

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

AUDIT SERVICES

Management submits to the Audit Committee for preapproval 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 preapprove 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 preapproved limits require specific Audit Committee approval.

TAX SERVICES

The Audit Committee may preapprove expenditures up to a specified amount per engagement and in total for identified services related to tax matters. Additional services exceeding the specified preapproved limits, or involving service types not included in the preapproved 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 preapprove expenditures up to a specified amount per engagement and in total. Additional services exceeding the specified preapproved limits, or involving service types not included in the preapproved 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.

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 2021 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 2021 provides a description of the principal risks and uncertainties that the company faces.

CORPORATE GOVERNANCE STATEMENT

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

Corporate governance-related documents are available on our website. These include, among 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 2021, revenue grew by 30% to a new record of €1.7 billion. Growth was particularly driven by our ALD sales. Operating result increased from €327.1 million to €491.5 million in 2021.

Gross profit increased from €623.6 million to €828.1 million in 2021. The financial position remained strong with a cash position of €491.5 million at the end of 2021. Cash from operations increased from €264.4 million to €380.6 million in 2021 on the back of improved profitability and a reduced outflow due to working capital.

CONSOLIDATED STATEMENT OF PROFIT OR LOSS

(EUR thousand, except per share data)	Notes	Year ended December 31, 2020	2021
Revenue	21	1,328,122	1,729,911
Cost of sales	23	(704,553)	(901,780)
Gross profit		**623,569**	**828,131**
Other income	3	—	4,071
Operating expenses:			
Selling, general and administrative	23	(157,424)	(189,547)
Research and development	23	(139,002)	(151,197)
Total operating expenses		**(296,426)**	**(340,744)**
Result from operations		**327,143**	**491,458**
Finance income	17	141	23
Finance expense	17	(2,008)	(2,012)
Foreign currency exchange gain (loss)	17	(23,157)	33,473
Net finance income (costs)		**(25,024)**	**31,484**
Share in income of investments in associates	6	31,950	74,382
Result before income taxes		**334,069**	**597,324**
Income taxes	22	(48,673)	(102,615)
Net earnings from operations, attributable to common shareholders		**285,396**	**494,709**
Per share data	24		
Basic net earnings per share (EUR):			
From operations		**5.84**	**10.17**
Diluted net earnings per share (EUR):			
From operations		**5.78**	**10.11**
Weighted average number of shares (thousand):			
Basic		48,907	48,645
Diluted		49,359	48,909

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, 2020	2021
Net earnings from operations, attributable to common shareholders		**285,396**	**494,709**
Other comprehensive income, net of income tax			
Items that will not be reclassified subsequently to profit or loss:			
Remeasurement of defined benefit obligation	13	374	181
Share in other comprehensive income (loss) of investments in associates	6	(2,296)	11,833
		(1,922)	**12,014**
Items that may be subsequently reclassified to profit or loss:			
Foreign currency translation effect		(98,833)	91,273
Other comprehensive income for the year, net of income tax		**(100,755)**	**103,287**
Total comprehensive income, attributable to common shareholders	12	**184,641**	**597,996**

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

CONSOLIDATED STATEMENT OF FINANCIAL POSITION

		December 31,	
(EUR thousand)	Notes	2020	2021
Assets			
Right-of-use assets	2	23,387	26,938
Property, plant and equipment	3	213,967	257,017
Goodwill	4	11,270	11,270
Other intangible assets	5	209,924	274,833
Investments in associates	6	742,714	848,812
Deferred tax assets	22	196	69
Other non-current assets		6,590	6,792
Evaluation tools at customers	7	69,474	63,717
Employee benefits	13	1,431	1,982
Total non-current assets		**1,278,953**	**1,491,430**
Inventories	8	162,199	211,841
Accounts receivable	9	280,061	446,724
Income taxes receivable	22	553	18,614
Other current assets	10	72,945	50,972
Cash and cash equivalents	11	435,228	491,507
Total current assets		**950,986**	**1,219,658**
Total assets		**2,229,939**	**2,711,088**
Equity and liabilities			
Equity	12	**1,854,724**	**2,241,754**
Lease liabilities		13,045	15,886
Deferred tax liabilities	22	21,892	45,748
Total non-current liabilities		**34,937**	**61,634**
Accounts payable		124,507	175,436
Provision for warranty	14	18,987	27,181
Income taxes payable	22	67,857	14,519
Accrued expenses and other payables	15	128,927	190,564
Total current liabilities		**340,278**	**407,700**
Total liabilities		**375,215**	**469,334**
Total equity and liabilities		**2,229,939**	**2,711,088**

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, 2020		**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)
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 of 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**
Net earnings		—	—	—	—	494,709	—	494,709
Other comprehensive income	12	—	—	—	—	—	103,287	103,287
Total comprehensive income		—	**—**	**—**	**—**	**494,709**	**103,287**	597,996
Dividend paid to common shareholders		—	—	—	—	(96,893)	—	(96,893)
Compensation expense share-based payments	13	—	—	17,242	—	—	—	17,242
Exercise stock options out of treasury shares	13	123,521	—	(7,344)	11,974	—	—	4,630
Vesting restricted shares out of treasury shares	13	193,462	—	(19,119)	19,119	—	—	—
Purchase of common shares	12	(462,988)	—	—	(139,150)	—	—	(139,150)
Cancellation of common shares out of treasury shares	12	—	(20)	—	57,622	(57,602)	—	—
Other movements in investments in associates:								
Dilution	6	—	—	—	—	3,205	—	3,205
Balance as of December 31, 2021		**48,568,677**	**1,972**	**25,281**	**(155,397)**	**2,240,426**	**129,472**	**2,241,754**

1 Other reserves consist of the currency translation reserve, remeasurement on net defined benefit and the reserve for proportionate share in other comprehensive income of 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	2020	2021
Cash flows from operating activities			
Net earnings from operations		285,396	494,709
Adjustments to reconcile net earnings to net cash from operating activities			
Depreciation, amortization and impairments	2,3,5,7	89,029	95,580
Net loss (gain) on sale of property, plant and equipment	3	—	(4,071)
Share-based compensation	13	12,792	17,242
Net finance (income) costs		11,975	(23,510)
Share in income of investments in associates	6	(31,950)	(74,382)
Income tax	22	48,673	102,615
Changes in evaluation tools at customers	7	(39,710)	(7,980)
Changes in employee benefits pension plans		(407)	(339)
Income tax paid		(8,055)	(151,623)
Operating cash flows before changes in working capital [1]		**367,743**	**448,241**
Decrease (increase) in working capital: [1]			
Accounts receivable		(93,000)	(154,030)
Other current assets		(2,006)	15,350
Inventories		498	(39,148)
Provision for warranty		3,814	7,140
Accounts payable, accrued expenses and other payables		(12,696)	103,087
Net cash from operating activities		**264,353**	**380,640**
Cash flows from investing activities			
Capital expenditures	3	(95,441)	(72,199)
Proceeds from sale of property, plant and equipment	3	2,348	6,159
Capitalized development expenditures	5	(64,126)	(81,973)
Purchase of intangible assets	5	(3,230)	(2,680)
Dividend received from associates	6	16,142	36,297
Net cash used in investing activities		**(144,307)**	**(114,396)**
Cash flows from operating activities after investing activities [1]		**120,046**	**266,244**
Cash flows from financing activities			
Payment of lease liabilities	2	(7,819)	(7,854)
Purchase of treasury shares	12	(66,715)	(140,142)
Proceeds from issuance of treasury shares	13	2,774	4,630
Dividends to common shareholders		(98,688)	(96,893)
Net cash used in financing activities		**(170,448)**	**(240,259)**
Foreign currency translation effect on cash and cash equivalents		**(12,244)**	**30,294**
Net increase (decrease) in cash and cash equivalents		**(62,646)**	**56,279**
Cash and cash equivalents at beginning of year	11	497,874	435,228
Cash and cash equivalents at end of year	11	**435,228**	**491,507**

1 Non-IFRS performance measure. Please see Glossary and definitions.

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 investments in associates are listed in Note 6.

BASIS FOR ACCOUNTING

The consolidated financial statements for the year ended December 31, 2021 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 3, 2022, and will be submitted for adoption to the Annual General Meeting of Shareholders (AGM) on May 16, 2022.

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 2022 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, 2021 is included in the following notes:

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

COVID-19

In 2021, we continued to experience tight supply constraints as a result of COVID-19 restrictions in certain countries where our suppliers are located. We worked collaboratively with suppliers to mitigate any adverse impact in delivery and availability. The company's performance was not materially impacted by COVID-19 and we were able to meet most of our customer demands. Revenue over 2021 increased to €1.7 billion, up 34% at constant currencies (30% as reported). We therefore do not view the COVID-19 outbreak as a triggering event for our accounting. ASMI will continue to monitor the impact of COVID-19 closely.

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

Management believes that the following accounting policies are critical:

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

CHANGES IN ACCOUNTING POLICIES

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

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

The company has initially adopted Interest Rate Benchmark Reform – Phase 2 (Amendments to IFRS 9, IAS 39, IFRS 7, IFRS 4 and IFRS 16) from January 1, 2021. 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

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). Previously, the company organized its activities in two operating segments, Front-end and Back-end.

In the second half of 2021, the company removed the Back-end segment (ASMPT) as a separate operating segment. This reflects how the CODM reviews the individual operations for the purpose of assessing performance and making resource-allocation decisions. The reflected change is driven by the change in the CODM and his assessment of the company's strategy. As a result of this assessment, the Back-end segment is assessed by the CODM as a financial asset to maintain sufficient involvement to monitor and protect the asset given its significance, rather than active for the purpose of resource allocation.

The Front-end operation (ASMI) manufactures and sells equipment used in wafer processing, encompassing the fabrication steps in which silicon wafers are layered with semiconductor devices. The operation is a product-driven organizational unit comprised of manufacturing, service, and sales operations in Asia, Europe and the United States. The performance of the individual product lines is reviewed by the CODM based on its revenues, gross margin and EBIT. The company operates under a uniform global operating strategy. The CODM alone makes operating decisions regarding strategic investments and resource allocation based on aggregated information of the overall company's operation. Therefore, the company's operation do not represent separate operating nor reportable segments.

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:

Land	Infinite
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 derecognized upon disposal or when no future economic benefits are expected to arise from the continued use of the asset. Any gain on disposal of an item of property, plant and equipment is recognized in profit or loss and included in 'other income'. Any loss is recognized as part of impairment expenses.

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 lifecycle, 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. This 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 bank deposits and investment in money market funds that invest in marketable debt obligations and securities of governments, corporates and 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.

Cash flow statement

The cash flow statement has been prepared using the indirect method. The company has made several changes within the presentation of cash flows from operating activities to align with internal management information. These changes concern updated account names, grouping of operational cash flow items and adding subtotals as the company believes that these subtotals are relevant to the understanding of the Group's financial performance. These changes are reflected in the comparative figures to improve comparability.

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 & 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.

We applied the practical expedient of IFRS 15.121 and therefore have not disclosed information on the remaining performance obligations of a contract (in aggregate) as the performance obligation is part of a contract that has an original expected duration of one year or less. Generally, the remaining performance obligations of a contract concern the installation which is recognized over time.

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 five 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, 2020	**25,049**	**2,142**	**356**	**27,547**
Additions	3,100	1,359	–	4,459
Modifications and reassessments	551	(158)	(15)	378
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**
Additions	2,060	879	323	3,262
Modifications and reassessments	6,812	(101)	619	7,330
Depreciation for the year	(6,563)	(1,210)	(416)	(8,189)
Foreign currency translation effect	1,065	53	30	1,148
Balance December 31, 2021	**24,452**	**1,769**	**717**	**26,938**

Amounts recognized in profit or loss

(EUR thousand)	2020	2021
Leases under IFRS 16		
Interest on lease liabilities	561	523
Depreciation expenses	7,611	8,189
Expenses relating to short-term leases	254	48
Expenses relating to low-value leases	16	16
Total	**8,442**	**8,776**

Amounts recognized in statement of cash flows

(EUR thousand)	2020	2021
Total cash outflow for leases	7,819	7,854

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:

	Land, buildings and leasehold improvements	Machinery and equipment	Furniture and fixtures and other equipment	Assets under construction	Total
At cost					
Balance January 1, 2020	**87,349**	**235,020**	**30,781**	**31,374**	**384,524**
Additions	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**
Additions [1]	7,129	13,381	1,287	57,525	**79,322**
Disposals	(9,230)	(6,598)	(3,612)	–	**(19,440)**
Transfer from assets under construction	669	40,444	3,994	(45,107)	**–**
Foreign currency translation effect	3,587	10,948	677	1,280	**16,492**
Balance December 31, 2021	**136,833**	**293,310**	**35,937**	**39,570**	**505,650**
Accumulated depreciation and impairment					
Balance January 1, 2020	**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**
Depreciation for the year	6,559	31,530	3,849	–	**41,938**
Impairment charges	–	–	–	–	**–**
Disposals	(7,989)	(6,070)	(3,312)	–	**(17,371)**
Foreign currency translation effect	1,167	7,339	251	–	**8,757**
Balance December 31, 2021	**35,835**	**191,048**	**21,750**	**–**	**248,633**
Carrying amounts					
December 31, 2020	**98,580**	**76,886**	**12,629**	**25,872**	**213,967**
December 31, 2021	**100,998**	**102,262**	**14,187**	**39,570**	**257,017**
Useful lives in years	1-25	2-10	2-10		

1 The €79 million additions in FY 2021 includes €7 million of prepaid capex with no cash flow impact during the year.

The company divested its property in Nagaoka, Japan in February 2021, and another property in Singapore in November 2021. The assets at costs (€9.1 million) and accumulated depreciation (€7.9 million) are disposed. Net income on disposal of these assets of €4.1 million is recognized as 'other income' in the consolidated statement of profit or loss.

NOTE 4. GOODWILL

The carrying amount of the goodwill is related to acquisitions in the following cash-generating units:

	December 31, 2020	December 31, 2021
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 the assets at risk (goodwill, other non-current assets and liabilities, capitalized development, working capital) exceeds its recoverable amount. For our 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 7.6% (2020: 9.5%) 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, 2021 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.

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, 2020	**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**
Additions	81,973	2,680	–	84,653
Disposals	–	(22)	–	(22)
Foreign currency translation effect	12,867	458	(32)	13,293
Balance December 31, 2021	**436,525**	**35,980**	**8,789**	**481,294**
Accumulated amortization and impairment losses				
Balance January 1, 2020	**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**
Amortization for the year	25,184	1,424	10	26,618
Impairments	1,967	–	–	1,967
Disposals	–	(22)	–	(22)
Foreign currency translation effect	4,332	152	(32)	4,452
Balance December 31, 2021	**168,849**	**28,833**	**8,779**	**206,461**
Carrying amounts				
December 31, 2020	**204,319**	**5,585**	**20**	**209,924**
December 31, 2021	**267,676**	**7,147**	**10**	**274,833**

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 2020 and 2021 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
2022	26,823	2,947	10	**29,780**
2023	24,517	2,426	–	**26,943**
2024	19,341	1,772	–	**21,113**
2025	11,082	2	–	**11,084**
2026	1,981	–	–	**1,981**
Years thereafter	–	–	–	**–**
Amortization estimated	**83,744**	**7,147**	**10**	**90,901**
Amortization not yet started	183,932	–	–	**183,932**
Total carrying amounts	**267,676**	**7,147**	**10**	**274,833**

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.

Name	Location	% ownership December 31, 2020	% ownership December 31, 2021
Associates			
Levitech BV	Almere, the Netherlands	26.64%	**26.64%**
ASM Pacific Technology Ltd	Kwai Chung, Hong Kong, People's Republic of China	25.07%	**24.96%**

Levitech BV is valued at nil (2020: 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, 2020	**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**
Share in net earnings of investments in associates	86,595	–	–	**86,595**
Other comprehensive income of investments in associates	11,833	–	–	**11,833**
Amortization recognized intangible assets	–	(12,213)	–	**(12,213)**
Dividends	(36,297)	–	–	**(36,297)**
Dilution ASMPT share to 24.96%	3,205	–	–	**3,205**
Foreign currency translation effect	23,034	1,766	28,175	**52,975**
Balance December 31, 2021	**435,458**	**19,569**	**393,785**	**848,812**

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, 2021, under equity accounting amounts to HK$72.79, whereas the level 1 fair value per share (being the market price of a share on the Hong Kong Stock Exchange) was HK$84.25 as per December 31, 2021. Management concluded that based on quantitative analysis no impairment of its share in ASMPT existed as per December 31, 2021.

In December 2021, 1,907,900 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 2021 have diluted ASMI's ownership in ASMPT to 24.96% as of December 31, 2021.

Per December 31, 2021, the book value of our equity method investment in ASMPT was €848.8 million. The historical cost basis of our 24.96% share of net assets on the books of ASMPT under IFRS was €435.5 million as of December 31, 2021, resulting in a basis difference of €413.4 million. €19.6 million of this basis difference has been allocated to 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 2021 was an after-tax expense of €12.2 million, representing the depreciation and amortization of the basis differences.

The market value of our 24.96% investment in ASMPT on December 31, 2021, approximates €982 million.

Summarized 100% earnings information for ASMPT equity method investment excluding basis adjustments (foreign currency exchange rate average 2021: 1 HK$: €0.10863, for December 31, 2020: 1 HK$: €0.11272).

(HK$ million)	2020	2021
Revenues	16,887	**21,948**
Income before income tax	1,857	**4,092**
Net earnings from continuing operations	1,631	**3,175**
Other comprehensive income	370	**(171)**
Total comprehensive income	**2,001**	**3,004**

Summarized 100% statement of financial position information for ASMPT equity method investment excluding basis adjustments (foreign currency exchange rate per December 31, 2021, was 1 HK$: €0.11321 for December 31, 2020: 1 HK$: €0.10511).

	December 31,	
(HK$ million)	2020	2021
Current assets	14,799	**18,251**
Non-current assets	8,365	**8,250**
Current liabilities	5,336	**6,889**
Non-current liabilities	4,634	**4,200**
Total equity	13,194	**15,412**

Shareholder's equity of ASMPT per December 31, 2021, translated into euros at a rate of 0.11321 was €1,745 million (our 24.96% share: €435 million).

The ASMPT Board is responsible for ongoing monitoring of the performance of ASMPT. The actual results of ASMPT 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 income of 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,	
	2020	2021
At cost		
Balance at beginning of year	**73,637**	**100,774**
Evaluation tools shipped	59,729	**35,409**
Evaluation tools sold and returns	(26,420)	**(41,708)**
Foreign currency translation effect	(6,172)	**3,877**
Balance at end of year	**100,774**	**98,352**
Accumulated depreciation		
Balance at beginning of year	**26,390**	**31,300**
Depreciation for the year	12,930	**16,868**
Evaluation tools sold and returns	(6,401)	**(14,279)**
Foreign currency translation effect	(1,619)	**746**
Balance at end of year	**31,300**	**34,635**
Carrying amount at beginning of year	**47,247**	**69,474**
Carrying amount at end of year	**69,474**	**63,717**

Useful lives in years:	5

Evaluation tools enable ASMI to win new business and expand ASMI's technological footprint by penetration at new customers and with new applications. The year-on-year decrease in evaluation tools shipped to customer sites is indicative of ASMI's evaluation success due to won business from 2020 evaluation tools shipped, minimizing the need for incremental evaluation shipments in 2021. The shipments of evaluation tools continue to highlight ASMI's market growth ambitions and remains 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,	
	2020	2021
Components and raw materials	118,849	175,317
Work in progress	39,925	31,631
Finished goods	17,902	18,497
Total inventories, gross	**176,676**	**225,445**
Allowance for obsolescence	(14,477)	(13,604)
Total inventories, net	**162,199**	**211,841**

The changes in the allowance for obsolescence are as follows:

	December 31,	
	2020	2021
Balance at beginning of year	**(12,527)**	**(14,477)**
Charged to cost of sales	(9,775)	(5,728)
Reversals	830	2,013
Utilization of the provision	6,200	5,383
Foreign currency translation effect	795	(795)
Balance at end of year	**(14,477)**	**(13,604)**

On December 31, 2021, our allowance for inventory obsolescence amounted to €13,604, which is 6.0% of total inventory. The major part of the allowance is related to components and raw materials.

The additions for 2020 and 2021 mainly relate to inventory items which ceased to be used due to technological developments and design changes resulting in obsolescence of certain parts.

The cost of inventories recognized as costs and included in cost of sales amounted to €727.9 million (2020: €554.8 million).

NOTE 9. ACCOUNTS RECEIVABLE

A significant percentage of our accounts receivable is derived from sales to a limited number of large multinational semiconductor device manufacturers located throughout the world. In order to monitor potential expected credit losses, we perform ongoing credit evaluations of our customers' financial condition.

The carrying amount of accounts receivable is as follows:

	December 31,	
	2020	2021
Current	249,032	418,195
Overdue <30 days	23,063	18,089
Overdue 31-60 days	4,283	2,166
Overdue 61-120 days	1,727	7,244
Overdue >120 days	1,956	1,030
Total	**280,061**	**446,724**

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,	
	2020	2021
Balance at beginning of year	**(278)**	**(361)**
Charged to selling, general and administrative expenses	(83)	**(83)**
Utilization of the provision	–	**–**
Foreign currency translation effect	–	**–**
Balance at end of year	**(361)**	**(444)**

Accounts receivable are impaired and provided for on an individual basis. As of December 31, 2021, accounts receivable of €29 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,	
	2020	2021
Prepayments	14,485	**8,449**
VAT receivable	12,818	**12,114**
Amounts to be invoiced	33,813	**21,915**
Others	11,829	**8,494**
Total	**72,945**	**50,972**

Amounts to be invoiced mainly relates to accrued revenue. For further information see Note 21 contract balances.

NOTE 11. CASH AND CASH EQUIVALENTS

Cash and cash equivalents at December 31, 2021 include bank deposits and investments in money market funds that invest in marketable debt obligations and securities of governments, corporates and financial institutions. The amount invested in deposits and money market funds at the end of 2021 was €83 million (2020: €9 million) and interest-bearing bank accounts of €409 million (2020: €426 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 €1.0 million at December 31, 2021 (€2.4 million as per December 31, 2020). These guarantees mainly relate to lease and tax payments.

Cash and cash equivalents have insignificant interest-rate risk and remaining maturities of maximum three months or can be converted into cash without no more than 30 days' notice. Except for an amount of €4.9 million (2020: €4.1 million), there are no restrictions on usage of cash and cash equivalents. The carrying amount of these financial assets approximates 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) preferred 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 17, 2021 approved the cancellation of 500,000 treasury shares and this cancellation became effective as per July 21, 2021.

As per December 31, 2021, 49,297,394 common shares with a nominal value of €0.04 each were issued and fully paid up, of which 728,717 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 48,568,677 outstanding common shares at December 31, 2021, 48,282,085 are registered with our transfer agent in the Netherlands, ABN AMRO Bank N.V., and 286,592 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, 2021, no preferred shares and no financing preferred shares are issued.

PURCHASES OF COMMON SHARES BY THE ISSUER AND AFFILIATED PURCHASERS

On May 17, 2021, 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 2019-2020 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, and was completed on March 2, 2021.

Period	Total number of shares purchased	Average price paid per share (EUR)	Cumulative number of shares purchased
Share buyback program 2020-2021:			
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
January, 2021	**78,389**	€207.04	559,197
February, 2021	**73,587**	€231.18	632,784
March, 2021	**13,396**	€223.07	646,180
Total	**646,180**	**€154.76**	

On April 20, 2021, ASMI announced a share buyback program to purchase up to an amount of €100 million of its own shares within the 2021 time frame. The 2021 program started on July 28, 2021, and was completed on December 17, 2021.

Period	Total number of shares purchased	Average price paid per share (EUR)	Cumulative number of shares purchased
Share buyback program 2021:			
July, 2021	**10,093**	€295.48	10,093
August, 2021	**74,680**	€314.22	84,773
September, 2021	**87,223**	€343.70	171,996
October, 2021	**43,292**	€318.51	215,288
November, 2021	**33,531**	€404.89	248,819
December, 2021	**43,297**	€374.34	292,116
Total	**292,116**	**€342.33**	

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	**1,082,712**	**48,714,682**
Purchase common shares	462,988	(462,988)
Exercise stock options out of treasury shares	(123,521)	123,521
Vesting restricted shares out of treasury shares	(193,462)	193,462
Cancellation treasury shares	(500,000)	–
Balance at end of year	**728,717**	**48,568,677**

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, 2021, we had 48,568,677 outstanding common shares excluding 728,717 treasury shares. This compared to 48,714,682 outstanding common shares and 1,082,712 treasury shares at year-end 2020. Besides the cancellation of 500,000 treasury shares in July 2021, the change in the number of treasury shares in 2021 was the result of 462,988 repurchased shares and 316,983 treasury shares that were used as part of share-based payments.

	2020	2021
As per January 1:		
Issued shares	51,297,394	49,797,394
Treasury shares	2,431,174	1,082,712
Outstanding shares	**48,866,220**	**48,714,682**
Changes during the year:		
Cancellation of treasury shares	1,500,000	500,000
Share buybacks	508,685	462,988
Treasury shares used for share-based performance programs	357,147	316,983
As per December 31:		
Issued shares	49,797,394	49,297,394
Treasury shares	1,082,712	728,717
Outstanding shares	**48,714,682**	**48,568,677**

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 2020, we paid in total a dividend of €2.00 per common share as regular dividend and was paid after the 2021 AGM in May 2021. We will propose to the forthcoming 2022 AGM to declare a regular dividend of €2.50 per share over 2021.

Results on dilution of investments in associates are accounted for directly in equity. For 2021 and 2020, these dilution results were €3,205 and €2,059, respectively.

OTHER RESERVES

The changes in the amounts of other reserves are as follows:

	Proportionate share in other comprehensive income of investments in associates [1]	Remeasurement on net defined benefit	Foreign currency translation reserve	Total other reserves
Balance January 1, 2020	**(10,208)**	**(113)**	**137,261**	**126,940**
Proportionate share in other comprehensive income of investments in associates	(2,296)	–	–	**(2,296)**
Remeasurement on net defined benefit	–	374	–	**374**
Foreign currency translation effect on foreign operations	–	–	(98,833)	**(98,833)**
Balance December 31, 2020	**(12,504)**	**261**	**38,428**	**26,185**
Proportionate share in other comprehensive income of investments in associates	11,833	–	–	**11,833**
Remeasurement on net defined benefit	–	181	–	**181**
Foreign currency translation effect on foreign operations	–	–	91,273	**91,273**
Balance December 31, 2021	**(671)**	**442**	**129,701**	**129,472**

[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 157 eligible employees in the Netherlands. These employees participate in a multi-employer union plan (pension fund Metalektro PME) determined in accordance with the collective bargaining agreements effective for the industry in which we operate. This multi-employer union plan, accounted for as a defined contribution plan, covers approximately 1,430 companies and approximately 165,800 contributing members. Our contribution to the multi-employer union plan was less than 5% 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, 2021, of 107.9% (December 31, 2020: 97.2%) is calculated giving consideration to the pension legislation. We have 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 2021, the contribution percentage was 27.59%. 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, 2021. 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, 2020	December 31, 2021
Defined benefit obligations	11,083	**11,925**
Fair value of plan assets	12,514	**13,907**
Net liability (asset) for defined benefit plans	**(1,431)**	**(1,982)**

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

	December 31, 2020	December 31, 2021
Defined benefit obligations		
Balance January 1	**11,446**	**11,083**
Current service cost	928	**842**
Interest on obligation	28	**53**
Remeasurement result	(437)	**463**
Benefits paid	(470)	**(181)**
Foreign currency translation effect	(412)	**(335)**
Balance December 31	**11,083**	**11,925**
Fair value of plan assets		
Balance January 1	**12,025**	**12,514**
Interest income	31	**63**
Return on plan assets	61	**720**
Company contribution	1,333	**1,170**
Benefits paid	(470)	**(181)**
Foreign currency translation effect	(466)	**(379)**
Balance December 31	**12,514**	**13,907**

The defined benefit cost consists of the following:

	December 31, 2020	December 31, 2021
Current service cost	928	**842**
Net interest cost	(3)	**(10)**
Net defined benefit cost	**925**	**832**
Remeasurement on net defined benefit for the year	(498)	**(257)**
Remeasurement on net defined benefit	**(498)**	**(257)**
Total defined benefit cost	**427**	**575**

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

	2020	2021
Discount rate for defined benefit obligations	0.50%	**0.50%**
Discount rate for defined benefit cost	0.25%	**0.50%**

Assumptions regarding life expectancy are based on mortality tables published in 2020 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 -2.5% to 2.6%.

The allocation of plan assets is as follows:

	December 31, 2020		December 31, 2021	
Cash and cash equivalent	191	2%	**265**	**2%**
Equity instruments	1,904	15%	**2,482**	**18%**
Debt instruments	1,276	10%	**1,346**	**10%**
Assets held by insurance company	9,143	73%	**9,814**	**70%**
Total	**12,514**	**100%**	**13,907**	**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 €1,170 to the defined benefit plan in 2021 (€1,333 in 2020). The company expects to pay benefits for years subsequent to December 31, 2021 as follows:

	Expected contribution defined benefit plan
2022	1,052
2023	702
2024	460
2025	209
2026	668
Aggregate for the years 2027-2031	5,411
Total	**8,502**

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. 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 17, 2021, 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 2022 AGM to allow the continued application of the long-term incentive (LTI) plans beyond November 17, 2022. The company hasn't granted new options since its last grant date per April 2017.

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.

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.

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, 2020	**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**		
Shares granted, employees	–	86,357	Unconditional	€260.77
Shares granted, Management Board	6,343	–	Conditional	€261.25
Shares granted, Management Board	4,504	–	Unconditional	€49.78
Shares vested	(26,414)	(167,048)		
Shares forfeited	–	(10,708)		
Balance December 31, 2021	**14,430**	**234,412**		

In 2021, treasury shares were sold for the vesting of 193,462 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**		
Options exercised, 2021	(123,521)	–	–
Balance December 31, 2021	**18,249**		

In 2021, no options were granted.

At December 31, 2021, the aggregate intrinsic value of all options outstanding under the 2014 long-term incentive plan is €7,093 (2020: €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 €17,242 for 2021 (2020: €12,792).

NOTE 14. PROVISION FOR WARRANTY

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

	December 31,	
	2020	2021
Balance January 1	**16,424**	**18,987**
Charged to cost of sales	18,814	**24,911**
Deductions	(14,115)	**(11,660)**
Releases of expired warranty	(884)	**(6,112)**
Foreign currency translation effect	(1,252)	**1,055**
Balance December 31	**18,987**	**27,181**

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,	
	2020	2021
Personnel-related items	50,637	**72,252**
Deferred revenue	46,999	**68,723**
Financing-related items	991	**–**
Current portion lease liabilities	6,221	**7,574**
Advanced payments from customers	4,137	**14,837**
Supplier-related items	6,010	**9,627**
Marketing-related items	1,228	**1,575**
Other	12,704	**15,976**
Total accrued expenses and other payables	**128,927**	**190,564**

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, 2021, 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, 2021. The amount outstanding as at December 31, 2021 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, 2021 required was €450 million, the consolidated tangible net worth as per that date was €1,542 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, 2021, the company has no net debt, cash and cash equivalents of €492 million, and total equity equals the amount of consolidated tangible net worth.

The company is in compliance with these financial covenants as of December 31, 2021.

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,	
	2020	2021
Financial assets:		
Cash and cash equivalents	435,228	**491,507**
Accounts receivable	280,061	**446,724**
Financial liabilities:		
Accounts payable	124,507	**175,436**

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:

	2020	2021
Interest income	141	**23**
Interest expense	(2,008)	**(2,012)**
Result from foreign currency exchange	(23,157)	**33,473**
Addition to allowance for doubtful accounts receivable	(83)	**(83)**

FINANCIAL RISK FACTORS

ASMI is exposed to a number of risk factors: market risks, 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.

Market risk

Market risk includes changes in market prices, foreign exchange rates and interest rates, which will affect the group’s income or the value of its holdings of financial instruments. The objective of market-risk management is to manage and control market risk exposures within acceptable parameters, while optimizing the return.

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, 2020 there were no forward exchange contracts outstanding. Per December 31, 2021 one FX option was outstanding with a fair value of €37 thousand.

The foreign currency exchange results in 2021 related only to translation gain of €33.5 million, compared to translation loss of €23.2 million in 2020. A substantial part of ASMI's cash position is denominated in US dollar, which is the key driver of the exchange gain in 2021.

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

	December 31,							
	2020				2021			
(thousand)	USD	JPY	KRW	SGD	USD	JPY	KRW	SGD
Accounts receivable	275,247	4,019,525	1,551,385	134	**394,915**	**6,890,314**	**9,091,916**	**395**
Cash and cash equivalents	306,855	2,142,789	35,060,828	42,710	**417,704**	**1,864,776**	**29,215,789**	**27,003**
Accounts payable	(72,087)	(3,486,230)	(16,031,125)	(28,875)	**(97,705)**	**(4,057,736)**	**(23,626,477)**	**(41,541)**
Total	**510,015**	**2,676,084**	**20,581,088**	**13,969**	**714,914**	**4,697,354**	**14,681,228**	**(14,143)**

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, 2020, and December 31, 2021. 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)	2020	2021
10% increase of US dollar versus euro	41,563	**63,121**
10% decrease of US dollar versus euro	(41,563)	**(63,121)**
10% increase of Singapore dollar versus euro	861	**(926)**
10% decrease of Singapore dollar versus euro	(861)	**926**
10% increase of Korean won versus euro	1,544	**1,086**
10% decrease of Korean won versus euro	(1,544)	**(1,086)**
10% increase of Japanese yen versus euro	2,117	**3,603**
10% decrease of Japanese yen versus euro	(2,117)	**(3,603)**

A hypothetical 10% strengthening or 10% weakening of any other currency against the euro as of December 31, 2020 and December 31, 2021 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, 2021, 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 10 largest customers accounted for approximately 78.9% of revenue in 2021 (2020: 85.1%). The three largest customers accounted for approximately 59.4% of revenue in 2021 (2020: 59.1%). In 2021, we had three customers (2020: three customers) who contributed more than 10% of total revenue. Revenue to these large customers may also 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. However, given the creditworthiness of our customers and historical experience, we have not accounted for an expected credit loss over the outstanding balances in general, for further details we refer to Note 9.

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 2022.

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, 2021.

	Total	Less than 1 year	1-5 years	More than 5 years
Accounts payable	**175,436**	175,436	–	–
Income tax payable	**14,519**	14,519	–	–
Accrued expenses and other payables	**190,564**	190,564	–	–
Non-current lease liabilities	**15,885**	–	12,524	3,361
Pension liabilities	**8,502**	1,052	2,039	5,411
Purchase obligations:				
Purchase commitments to suppliers	**658,761**	650,775	7,986	–
Capital expenditure and other commitments	**6,965**	6,965	–	–
Total contractual obligations	**1,070,632**	**1,039,311**	**22,549**	**8,772**

Total short-term lines of credit amounted to €150 million at December 31, 2021. The amount outstanding at December 31, 2021 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.

NOTE 18. COMMITMENTS AND CONTINGENCIES

Per December 31, 2021, the company entered into purchase commitments with suppliers in the amount of €650,775 (2020: €183,949) for purchases within the next 12 months and €7,986 (2020: €2,170) after 12 months. Commitments for capital expenditures and other commitments per December 31, 2021 were €6,965 (2020: €10,495) within the next 12 months and €0 (2020: €568) after 12 months. The increase in commitments to suppliers is mainly caused by an overall increase in business volume and due to issuance of purchase orders to ensure continuity of supply.

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

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). Previously, the company organized its activities in two operating segments, Front-end and Back-end.

In the second half of 2021, the company removed the Back-end segment (ASMPT) as a separate operating segment. We refer to Note 1 for further considerations on the change in operating segments.

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,			
	2020		2021	
(EUR thousand)	Revenue	Non-current assets [1]	Revenue	Non-current assets [1]
United States	332,981	208,780	454,148	276,414
Europe	141,300	59,765	172,442	74,377
Asia	853,841	265,879	1,103,321	289,776
Total	**1,328,122**	**534,424**	**1,729,911**	**640,567**

[1] Other than financial instruments, deferred tax assets and post-employment benefit assets

We refer to Note 17. Financial instruments and financial risk management for information on the extent of reliance on major customers.

NOTE 21. REVENUE

Geographical information is summarized as follows:

	Year ended December 31,	
	2020	2021
(EUR thousand)	Revenue	Revenue
United States	332,981	454,148
Europe	141,300	172,442
Asia	853,841	1,103,321
Total	**1,328,122**	**1,729,911**

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 are described by nature in Note 1, and are recognized within these revenue streams as follows:

- **Equipment revenue:** This revenue stream captures the sale of equipment and installation services. Revenues from royalties and licenses are included to the extent that these licenses relate to equipment.
- **Spares & service revenue:** The revenues included under this line relate to the sale of spares and support services. Revenues from royalties and licenses are included to the extent that these licenses relate to spares.

	Year ended December 31,	
(EUR thousand)	2020	2021
Equipment revenue	1,051,463	1,408,102
Spares & services revenue	276,659	321,809
Total	**1,328,122**	**1,729,911**

Total revenue increased by 30%, driven by solid increases in our ALD business.

Contract balances

	2020	2021
Accrued revenue	33,813	21,915
Deferred revenue	46,999	68,723

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 €21 million included in the deferred revenue at December 31, 2020, has been recognized in 2021.

NOTE 22. INCOME TAXES

Amounts recognized in profit or loss

The components of the result before income taxes consist of:

	Year ended December 31, 2020	Year ended December 31, 2021
The Netherlands	212,795	358,039
Other countries	121,274	239,285
Result before income taxes	**334,069**	**597,324**

The income tax expense consists of:

	Year ended December 31, 2020	Year ended December 31, 2021
Current:		
The Netherlands	(25,462)	(72,032)
Other countries	(17,754)	(7,718)
	(43,216)	**(79,750)**
Deferred:		
The Netherlands	(3,348)	(5,948)
Other countries	(2,109)	(16,917)
Income tax expense	**(48,673)**	**(102,615)**

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, 2020		2021	
Result before income taxes from continuing operations	**334,069**	**100.0%**	**597,324**	**100.0%**
Income tax provision based on Dutch statutory income tax rate	(83,517)	25.0%	(149,331)	25.0%
Non-deductible expenses	(1,892)	0.6%	(2,098)	0.4%
Foreign taxes at a rate other than the Dutch statutory rate	5,575	(1.7)%	8,484	(1.4)%
Tax incentives and non-taxable income [1]	24,961	(7.5)%	37,708	(6.3)%
Adjustments in respect of prior years' current taxes	4,525	(1.4)%	3,818	(0.6)%
Other [2]	1,675	(0.5)%	(1,196)	0.2%
Tax income (expense)	**(48,673)**	**14.6%**	**(102,615)**	**17.2%**

1 Non-taxable income consists of revenues deriving from the share in income of investments in 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 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 2021, 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 including the increased Dutch statutory rate of 25.8% per 2022.

Movement in deferred tax balances

	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)**

	Net balance at January 1, 2021	Consolidated statement of profit and loss	Equity	Exchange differences	Net balance at December 31, 2021	Deferred tax assets at December 31, 2021	Deferred tax liabilities at December 31, 2021
Right-of-use assets & lease liabilities	91	109	–	12	212	–	212
Property plant and equipment	553	(3,370)	–	(11)	(2,828)	–	(2,828)
Other intangible assets	(42,627)	(16,471)	–	(1,687)	(60,785)	–	(60,785)
Evaluation tools	5,200	(1,097)	–	(154)	3,949	–	3,949
Employee benefits	(549)	(69)	(79)	17	(680)	–	(680)
Inventories	1,001	203	–	74	1,278	–	1,278
Provision for warranty	3,834	1,593	–	224	5,651	–	5,651
Accrued expenses	3,248	2,845	–	203	6,296	69	6,227
Tax losses carried forward	–	–	–	–	–	–	–
R&D tax credits	7,553	(6,608)	–	283	1,228	–	1,228
Total deferred tax	**(21,696)**	**(22,865)**	**(79)**	**(1,039)**	**(45,679)**	**69**	**(45,748)**

Deferred tax assets and/or liabilities for temporary differences are mainly recognized in the Netherlands, United States, Japan, South Korea and Singapore.

Income tax receivable and income tax payable

During 2021, the company paid income taxes of €151.6 million (2020: €8.1 million) for tax assessments relating to the years 2019, 2020 and 2021.

Income taxes paid in 2021, turned out being overpaid by €18.1 million, therefore resulting in an income tax receivable ultimo 2021. The tax payable decreased to €14.5 million (2020: €67.9 million) as a result of income tax paid in 2021.

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.

	2021	
	Gross amount	**Tax effect**
Credits	18,442	18,442
Unrecognized deferred tax assets	**18,442**	**18,442**

Summary of open tax years

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

Jurisdiction	
Japan	2016 - 2021
The Netherlands	2020 - 2021
Singapore	2016 - 2021
United States of America	2001 - 2021
South Korea	2016 - 2021

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, 2021, the undistributed earnings of subsidiaries, subject to withholding taxes, were approximately €117,101. 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,	
	2020	**2021**
Materials and supplies	554,829	**727,910**
Personnel expenses	255,814	**322,226**
Depreciation and amortization	78,903	**93,614**
Impairments	10,126	**1,967**
Other personnel-related expenses	51,661	**63,938**
Professional fees	24,397	**27,520**
Other [1]	25,249	**5,349**
Total cost of sales, selling, general and administrative and research and development expenses	**1,000,979**	**1,242,524**

1 Other relates to facility expenses, IT expenses and other expenses minus capitalized expenses.

Research and development consists of the following:

	Year ended December 31,	
	2020	**2021**
Gross research and development expenses	171,842	**206,019**
Capitalization of development expenses	(64,126)	**(81,973)**
Amortization of capitalized development expenses	21,187	**25,184**
Research and development grants and credits	(27)	**–**
Total research and development expenses	**128,876**	**149,230**
Impairment of capitalized development expenses	10,126	**1,967**
Net research and development expenses	**139,002**	**151,197**

The impairment expenses in 2020 and 2021 are related to customer-specific projects.

Personnel expenses for employees were as follows:

	December 31, 2020	December 31, 2021
Wages and salaries	216,832	**273,394**
Social security	17,200	**20,333**
Pension expenses	8,948	**11,257**
Share-based payment expenses	12,792	**17,242**
Restructuring expenses	42	**–**
Total	**255,814**	**322,226**

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, 2020	December 31, 2021
Europe:		
- the Netherlands	146	**161**
- EMEA	221	**240**
United States	714	**814**
Japan	283	**295**
South Korea	302	**392**
Singapore	524	**854**
Asia, other	393	**556**
Total	**2,583**	**3,312**

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

Per function	December 31, 2020	December 31, 2021
Research and development	613	**649**
Manufacturing	531	**879**
Marketing and sales	341	**396**
Customer service	884	**1,090**
Corporate and support functions	214	**298**
Total	**2,583**	**3,312**

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, 2020	December 31, 2021
Net earnings used for purposes of calculating net income per common share		
Net earnings from operations	**285,396**	**494,709**
Basic weighted average number of shares outstanding during the year	48,907	**48,645**
Effect of dilutive potential common shares from stock options and restricted shares	452	**264**
Dilutive weighted average number of shares outstanding	**49,359**	**48,909**
Basic net earnings per share:		
from operations	5.84	**10.17**
Diluted net earnings per share:		
from operations	5.78	**10.11**

NOTE 25. BOARD REMUNERATION

During 2021, 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 2021 amounts to €4,800 (2020: €7,181). 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,	
	2020	2021
Short-term employee benefits	2,410	**2,856**
Post-employment benefits	216	**190**
Other long-term benefits	–	**–**
Termination benefits	–	**–**
Share-based payment [1]	1,804	**1,391**
Total Management Board remuneration before additional payroll tax	**4,430**	**4,437**
Other [2]	2,400	**–**
Total Management Board remuneration	**6,830**	**4,437**

[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 2021 amounts to €363 (2020: €351). 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, 2020		December 31, 2021	
	Shares owned	Percentage of common shares outstanding	Shares owned	Percentage of common shares outstanding
P.A.M. van Bommel (former member of the Management Board) [1]	26,177	0.05%	**n.a.**	**n.a.**
P.F.M. van der Meer Mohr (member of the Supervisory Board)	n.a.	n.a.	**200**	**0.00%**
D. Lamouche (member of the Supervisory Board)	n.a.	n.a.	**390**	**0.00%**
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 2021 as Mr. P.A.M. van Bommel had stepped down from the ASMI Board on May 17, 2021.

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 2021 and 2020. 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 2021 and 2020. The fees mentioned in the table for the audit of the financial statements 2021 (2020) relate to the total fees for the audit of the financial statements 2021 (2020), irrespective of whether the activities were performed during the financial year 2021 (2020). Other audit-related fees are related to assurance services on non-financial information. 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.

	2020			2021		
	KPMG Accountants NV	KPMG network	KPMG total	KPMG Accountants NV	KPMG network	KPMG total
Audit fees	623	245	868	676	264	940
Audit-related fees	–	–	–	50	–	50
Tax fees	–	–	–	–	–	–
Other fees	–	–	–	–	–	–
Total	**623**	**245**	**868**	**726**	**264**	**990**

AUDIT COMMITTEE PREAPPROVAL 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 2021 were preapproved by the Audit Committee.

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

Audit services

Management submits to the Audit Committee for preapproval 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 preapprove 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 preapproved limits require specific Audit Committee approval.

Tax services

The Audit Committee may preapprove expenditures up to a specified amount per engagement and in total for identified services related to tax matters. Additional services exceeding the specified preapproved limits, or involving service types not included in the preapproved 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 preapprove expenditures up to a specified amount per engagement and in total. Additional services exceeding the specified preapproved limits, or involving service types not included in the preapproved 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**	**2020**	**2021**
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%**

[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 24.96% of the shares in ASM Pacific Technology Ltd.

NOTE 29. SUBSEQUENT EVENTS

Subsequent events were evaluated up to March 3, 2022, which is the issuance date of this Annual Report 2021. There are no subsequent events to report.

SIGNING

Almere, the Netherlands
March 3, 2022

SUPERVISORY BOARD

M.C.J. van Pernis
S. Kahle-Galonske
D.R. Lamouche
M.J.C. de Jong
P.F.M. van der Meer Mohr
A.T. Sanchez
M. de Virgiliis

MANAGEMENT BOARD

G.L. Loh
P.A.H. Verhagen

COMPANY BALANCE SHEET

(before proposed appropriation of net earnings for the year)

(EUR thousand)	Notes	December 31, 2020	December 31, 2021
Non-current assets			
Right-of-use assets		172	402
Property, plant and equipment		148	70
Goodwill	2	11,270	11,270
Other intangible assets		197	29
Investments in subsidiaries and associates	3	1,831,446	2,433,956
Loans to subsidiaries	3	39,689	40,518
Other non-current assets		6,166	5,977
Total non-current assets		**1,889,088**	**2,492,222**
Current assets			
Loans to subsidiaries	3	2,071	2,180
Amounts due from subsidiaries	6	71,562	104,032
Income tax receivable	7	–	18,098
Other current assets		685	929
Cash and cash equivalents	4	–	89,527
Total current assets		**74,318**	**214,766**
Total assets		**1,963,406**	**2,706,988**
Equity			
Common shares		1,992	1,972
Capital in excess of par value		34,502	25,281
Treasury shares		(104,962)	(155,397)
Legal reserves			
Translation reserve		26,185	129,472
Other legal reserves		908,910	1,051,972
Accumulated net earnings		702,701	693,745
Net earnings current year		285,396	494,709
Total equity	5	**1,854,724**	**2,241,754**
Non-current liabilities			
Lease liabilities		69	261
Total non-current liabilities		**69**	**261**
Current liabilities			
Accounts payable		295	1,503
Amounts due to subsidiaries	6	49,950	458,756
Income tax payable	7	52,714	–
Accrued expenses and other payables		5,654	4,714
Total current liabilities		**108,613**	**464,973**
Total liabilities		**108,682**	**465,234**
Total equity and liabilities		**1,963,406**	**2,706,988**

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

COMPANY STATEMENT OF PROFIT OR LOSS

(EUR thousand)	Notes	Year ended December 31, 2020	2021
Operating expenses:			
Selling, general and administrative		(26,408)	(29,987)
Research and development		(4,074)	(672)
Total operating expenses	8	**(30,482)**	**(30,659)**
Result from operations		**(30,482)**	**(30,659)**
Finance income		2,576	2,124
Finance expense		(1,211)	(1,483)
Foreign currency exchange gain (loss)		34,975	(28,493)
Result before income taxes		**5,858**	**(58,511)**
Income taxes		(2,325)	16,727
Net earnings from holding activities		**3,533**	**(41,784)**
Net earnings from subsidiaries and associates		281,863	536,493
Total net earnings		**285,396**	**494,709**

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. For setting the principles for the recognition and measurement of assets and liabilities and determination of results for the company financial statements, the company makes use of the option provided in section 2:362(8) of the Dutch Civil Code. This means that the principles for the recognition and measurement of assets and liabilities and determination of the result (hereinafter referred to as principles for recognition and measurement) of the company financial statements of the company are the same as those applied for the consolidated EU-IFRS financial statements. These principles also include the classification and presentation of financial instruments, being equity instruments or financial liabilities. In case no other principles are mentioned, refer to the accounting principles as described in the consolidated financial statements. For an appropriate interpretation of these statutory financial statements, the company financial statements should be read in conjunction with the consolidated financial statements.

Information on the use of financial instruments and on related risks for the group is provided in the notes to the consolidated financial statements of the group.

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

Group companies are all entities in which the company has directly or indirectly control. The company controls an entity when it is exposed, or has rights, to variable returns from its involvement with the group company and has the ability to affect those returns through its power over the group company. Group companies are recognized from the date on which control is obtained by the company and derecognized from the date that control by the company over the group company ceases. Participating interests in group companies are accounted for in the company financial statements according to the equity method, with the principles for the recognition and measurement of assets and liabilities and determination of results as set out in the notes to the consolidated financial statements.

Participating interests with a negative net asset value are valued at nil. This measurement also covers any receivables provided to the participating interests that are, in substance, an extension of the net investment. In particular, this relates to loans for which settlement is neither planned nor likely to occur in the foreseeable future. A share in the profits of the participating interest in subsequent years will only be recognized if and to the extent that the cumulative unrecognized share of loss has been absorbed. If the company fully or partially guarantees the debts of the relevant participating interest, or if has the constructive obligation to enable the participating interest to pay its debts (for its share therein), then a provision is recognized accordingly to the amount of the estimated payments by the company on behalf of the participating interest.

Share of result of participating interests

The share in the result of participating interests consists of the share of the company in the result of these participating interests. Results on transactions involving the transfer of assets and liabilities between the company and its participating interests and mutually between participating interests themselves, are eliminated to the extent that they can be considered as not realized.

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, 2020	**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**
Net result of subsidiaries and associates	536,493	–	536,493
Other comprehensive income investments	12,015	–	12,015
Dividend received	(38,140)	–	(38,140)
Repayment of loans	–	(2,272)	(2,272)
Dilution	3,205	–	3,205
Foreign currency translation effect	88,937	3,210	92,147
Balance December 31, 2021	**2,433,956**	**42,698**	**2,476,654**

	December 31,	
	2020	2021
Loans due from subsidiaries – non-current portion	39,689	40,518
Loans due from subsidiaries – current portion	2,071	2,180
Total	**41,760**	**42,698**

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 December 31, 2021, the cash pool and in-house bank arrangement resulted in a liability which is recorded in amounts due to subsidiaries.

The amount presented as cash and cash equivalents at December 31, 2021 include bank deposits and investments in money market funds that invest in marketable debt obligations and securities of governments, corporates and financial institutions. The amount invested in deposits and money market funds at the end of 2021 was €83 million and interest-bearing bank accounts of €7 million. Our cash and cash equivalents are predominantly denominated in US dollars and partly in euros.

Bank guarantees exist for an amount of €1.0 million at December 31, 2021. These guarantees mainly relate to lease and tax payments.

Cash and cash equivalents have insignificant interest-rate risk and remaining maturities of maximum three months or can be converted into cash without no more than 30 days' notice. Except for an amount of €4.4 million, there are no restrictions on usage of cash and cash equivalents. The carrying amount of these financial assets approximates 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 5. EQUITY

The changes in equity are as follows:

						Legal reserves		
(EUR thousand)	Common shares	Capital in excess of par value	Treasury shares	Accumulated net earnings	Net earnings current year	Translation reserve	Other legal reserves	Total equity
Balance as of January 1, 2020	**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)
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**
Appropriation of net earnings	–	–	–	285,396	(285,396)	–	–	–
Components of comprehensive income:								
Net earnings	–	–	–	–	494,709	–	–	494,709
Other comprehensive income	–	–	–	–	–	103,287	–	103,287
Total comprehensive income (loss)	**–**	**–**	**–**	**–**	**494,709**	**103,287**	**–**	**597,996**
Dividend paid to common shareholders	–	–	–	(96,893)	–	–	–	(96,893)
Compensation expense share-based payments	–	17,242	–	–	–	–	–	17,242
Exercise stock options out of treasury shares	–	(7,344)	11,974	–	–	–	–	4,630
Vesting restricted shares out of treasury shares	–	(19,119)	19,119	–	–	–	–	–
Purchase of common shares	–	–	(139,150)	–	–	–	–	(139,150)
Cancellation of common shares out of treasury shares	(20)	–	57,622	(57,602)	–	–	–	–
Change in retained earnings subsidiaries	–	–	–	(61,998)	–	–	61,998	–
Fair value accounting investments	–	–	–	(17,728)	–	–	17,728	–
Capitalized development expenses subsidiaries	–	–	–	(63,336)	–	–	63,336	–
Other movements in investments in associates:								
Dilution	–	–	–	3,205	–	–	–	3,205
Balance as of December 31, 2021	**1,972**	**25,281**	**(155,397)**	**693,745**	**494,709**	**129,472**	**1,051,972**	**2,241,754**

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 17, 2021, approved the cancellation of 500,000 treasury shares. This became effective as per July 21, 2021.

As per December 31, 2021, 49,297,394 common shares with a nominal value of €0.04 each were issued and fully paid up, of which 728,717 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 48,568,677 outstanding common shares at December 31, 2021, 48,282,085 are registered with our transfer agent in the Netherlands, ABN AMRO Bank N.V., and 286,592 are registered with our transfer agent in the United States, Citibank, NA, New York.

As at December 31, 2021, 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 €784,296 (2020: €704,570), 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 €267,676 (2020: €204,340) has been recognized for capitalized development costs.

Changes in other legal reserves in 2020 and 2021 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, 2020	**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**
Retained earnings subsidiaries and investments	61,998	–	**61,998**
Fair value accounting investments	17,728	–	**17,728**
Development expenditures	–	63,336	**63,336**
Balance as of December 31, 2021	**784,296**	**267,676**	**1,051,972**

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 2021 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. The amounts due to subsidiaries increased as a result of cash generated by higher activities.

NOTE 7. INCOME TAX RECEIVABLE / PAYABLE

The income tax payable or receivable reflects the amount due or owed by the Dutch fiscal unity regarding the preliminary tax assessments and payments for the years 2020 and 2021. The company is severally liable for the tax payables of the Dutch fiscal unity. The income tax liability ultimo 2020 changed to an income tax receivable ultimo 2021 as a result of an overpayment of estimated preliminary income tax.

NOTE 8. EXPENSES BY NATURE

Expenses by nature were as follows:

	Year ended December 31,	
	2020	2021
Personnel expenses	11,263	12,588
Depreciation and amortization	3,736	413
Other personnel-related expenses	3,651	2,994
Professional fees	8,247	10,039
Other	3,585	4,625
Total operating expenses	**30,482**	**30,659**

NOTE 9. PERSONNEL EXPENSES

The average number of employees of ASMI during 2021 was 29 (2020: 24). All employees have corporate and support functions and were based in the Netherlands.

	Year ended December 31,	
	2020	2021
Salaries	7,943	9,097
Social security charges	294	346
Pension expenses	666	786
Share-based payment expenses	2,360	2,359
Total	**11,263**	**12,588**

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;
- ASM IP Holding BV;
- ASM Pacific Holding BV;
- ASM Netherlands Holding BV;
- ASM United Kingdom Sales BV; and
- ASM Germany Sales BV.

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 3, 2022, which is the issuance date of this Annual Report 2021. There are no subsequent events to report.

SIGNING

Almere, the Netherlands

March 3, 2022

SUPERVISORY BOARD

M.C.J. van Pernis

S. Kahle-Galonske

D.R. Lamouche

M.J.C. de Jong

P.F.M. van der Meer Mohr

A.T. Sanchez

M. de Virgiliis

MANAGEMENT BOARD

G.L. Loh

P.A.H. Verhagen

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 2021 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, 2021 and of its result and its cash flows for the year then ended, in accordance with International Financial Reporting Standards as adopted by the European Union (EU-IFRS) and with Part 9 of Book 2 of the Dutch Civil Code.
- the accompanying company financial statements give a true and fair view of the financial position of ASM International N.V. as at December 31, 2021 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 2021 of ASM International N.V. (the Company) based in Almere. 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, 2021;
2. the following consolidated statements for 2021: 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 December 31, 2021;
2. the company statement of profit or loss for 2021; 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).

Our audit procedures were determined in the context of our audit of the financial statements as a whole. Our observations in respect of going concern, fraud and non-compliance with laws and regulations, climate and the key audit matters should be viewed in that context and not as separate opinions or conclusions.

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 25 million

4.2% of result before income taxes

Group audit

Audit coverage of 95% of total assets

Audit coverage of 94% of revenue

Going concern, Fraud/Noclar and Climate

- Going concern: no significant going concern risks identified
- Fraud & Non-compliance with laws and regulations (Noclar): management override of controls, revenue recognition and risk of non-compliance with laws and regulations with an indirect effect on the financial statements. Our audit procedures did not reveal indications and/or reasonable suspicion of fraud and non-compliance that are considered material for our audit.
- Climate: management's response to possible future effects of climate change and their anticipated outcomes have been disclosed. We have considered the impact of climate-related risks on our identification and assessment of risks of material misstatement in the financial statements and have not identified a risk of material misstatement.

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 25 million (2020: EUR 15 million). The materiality is determined with reference to result before income taxes (4.2%). 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 result before income taxes. We have also taken into account misstatements and/or possible misstatements that in our opinion are material for the users of the financial statements for qualitative reasons.

We agreed with the Supervisory Board that misstatements identified during our audit in excess of EUR 1.25 million 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 Singapore, the United States of America, Japan, Korea and the Netherlands, 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;
- 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 Japan KK 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. We have requested 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.

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

By performing the procedures mentioned above at group components, together with additional procedures at group level, we have been able to obtain sufficient and appropriate audit evidence about the group's financial information to provide an opinion about the financial statements.

The audit coverage as stated in the section 'Summary' can be further specified as follows:

Total assets

83%	12%	5%
Audit of the complete reporting package	Audit of specific items	Covered by additional procedures at group level

Revenue

87%	7%	6%
Audit of the complete reporting package	Audit of specific items	Covered by additional procedures at group level

Audit response to going concern – no significant going concern risks identified

The Management Board has performed its going concern assessment and has not identified any significant going concern risks. To evaluate the Management Board's assessment, we have performed, inter alia, the following procedures:

- we considered whether the Management Board's assessment of the going concern risks includes all relevant information of which we are aware as a result of our audit;
- we evaluated whether the Management Board's assessment of going concern is adequately disclosed in the financial statements;
- we analyzed the company's financial position as at year-end and compared it to the previous financial year in terms of indicators that could identify significant going concern risks, taking into account developments in the business sector and any information of which we are aware as a result of our audit.

The outcome of our risk assessment procedures did not give reason to perform additional audit procedures on management's going concern assessment.

Audit response to the risk of fraud and non-compliance with laws and regulations

In the 'Risk management' section of the annual report, the Management Board describes its procedures in respect of the risk of fraud and non-compliance with laws and regulations.

As part of our audit, we have gained insights into the Company and its business environment, and assessed the design and implementation of the Company's risk management in relation to fraud and non-compliance with laws and regulations. Our procedures included, among other things, assessing the Company's code of conduct, whistleblowing procedures, incidents register and its procedures to investigate indications of possible fraud and non-compliance. Furthermore, we performed relevant inquiries with management, those charged with governance and other relevant functions, such as Internal Audit and Legal Counsel. As part of our audit procedures, we furthermore:

- evaluated the Ethics committee reports on indications of possible fraud and non-compliance;
- evaluated correspondence with supervisory authorities and regulators as well as legal confirmation letters.

In addition, we performed procedures to obtain an understanding of the legal and regulatory frameworks that are applicable to the Company and identified the following areas as those could have a material effect on the financial statements:

- 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).

We, together with our forensics specialists, evaluated the fraud and non-compliance risk factors to consider whether those factors indicate a risk of material misstatement in the financial statements.

Based on the above and on the auditing standards, we identified the following fraud risks that are relevant to our audit, including the relevant presumed risks laid down in the auditing standards, and responded as follows:

- ***Management override of controls (a presumed risk)***

  Risk:

  - Management is in a unique position to manipulate accounting records and prepare fraudulent financial statements by overriding controls that otherwise appear to be operating effectively.

  Responses:

  - We evaluated the design and the implementation of internal controls that mitigate fraud risks, such as processes related to journal entries.
  - We performed a data analysis of high-risk journal entries and investigated journal entries debiting revenue with an unexpected associated credit, and evaluated key estimates and judgments for bias by the Company's management. 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, including testing of transactions back to source information.
  - We incorporated elements of unpredictability in our audit by among others, 1) implementing a data analytics approach to test cost of goods sold focusing on outliers and non-routine transactions 2) modifying the timing and extent of audit procedures on sales cut-off 3) modifying the extent of fraud inquiries with individuals involved in the financial reporting process about inappropriate or unusual activity relating to journal entries and other adjustments.

- ***Revenue recognition (a presumed risk)***

  Risk:

  - We identified a cut-off risk in relation to completeness of equipment sales 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).

  Responses:

  - We refer to key audit matter 'Revenue recognition'.

We communicated our risk assessment, audit responses and results to management and the Audit Committee of the Supervisory Board. Our audit procedures did not reveal indications and/or reasonable suspicion of fraud and non-compliance that are considered material for our audit.

Audit response to climate-related risks

The Management Board is responsible for preparing the financial statements in accordance with the applicable financial reporting framework, including considering whether the implications from climate-related risks and commitments have been appropriately accounted for and disclosed.

The Management Board has performed its analysis of the impact of climate-related risks on the company's business and operations going forward and on its accounting in the current financial statements. In the climate adaptation chapter of the annual report, the company concluded that the effect of climate-related risks do not have a material impact on accounts and disclosures, including judgements and estimates in the financial statements.

The evaluation of the effectiveness of management's strategy against internal or external goals set is not in scope of our audit of the financial statements. As part of our audit we consider potential effects of climate-related risks on the accounts and disclosures, including estimates and judgements in the current year's financial statements to determine whether the financial statements are free from material misstatements. This includes discussion of the company's strategy in relation to climate change with management and those charged with governance and inspecting minutes and external communications for significant climate related commitments, strategies and plans made by the management board.

Our risk assessment procedures did not identify risks of material misstatement in accounts and disclosures especially with respect to critical judgements and estimates, in the financial statements.

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.

Revenue recognition

Description

As disclosed in note 1 to the consolidated financial statements, equipment sales are measured taking into account multiple element arrangements as contracts with customers typically include separately identifiable performance obligations that are recognized based on their relative selling price. Typically, this includes a single sales transaction that combines the delivery of goods and rendering of (installation) services. Furthermore, equipment sales is recognized when the customer obtains control of the products and services, often coinciding with shipment or delivery of goods.

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 equipment sales recorded from January 1, 2022 through February 7, 2022, 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 268 million including additions of EUR 82 million in 2021, as well as the specific criteria that have to be met for capitalization. This involves management judgment 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 for the management report and other information.

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.

The Management Board 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;
- 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. In that respect the Management Board, under supervision of the Supervisory Board of the company, is responsible for the prevention and detection of fraud and non-compliance with laws and regulations, including determining measures to resolve the consequences of it and to prevent recurrence.

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 of the company 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.

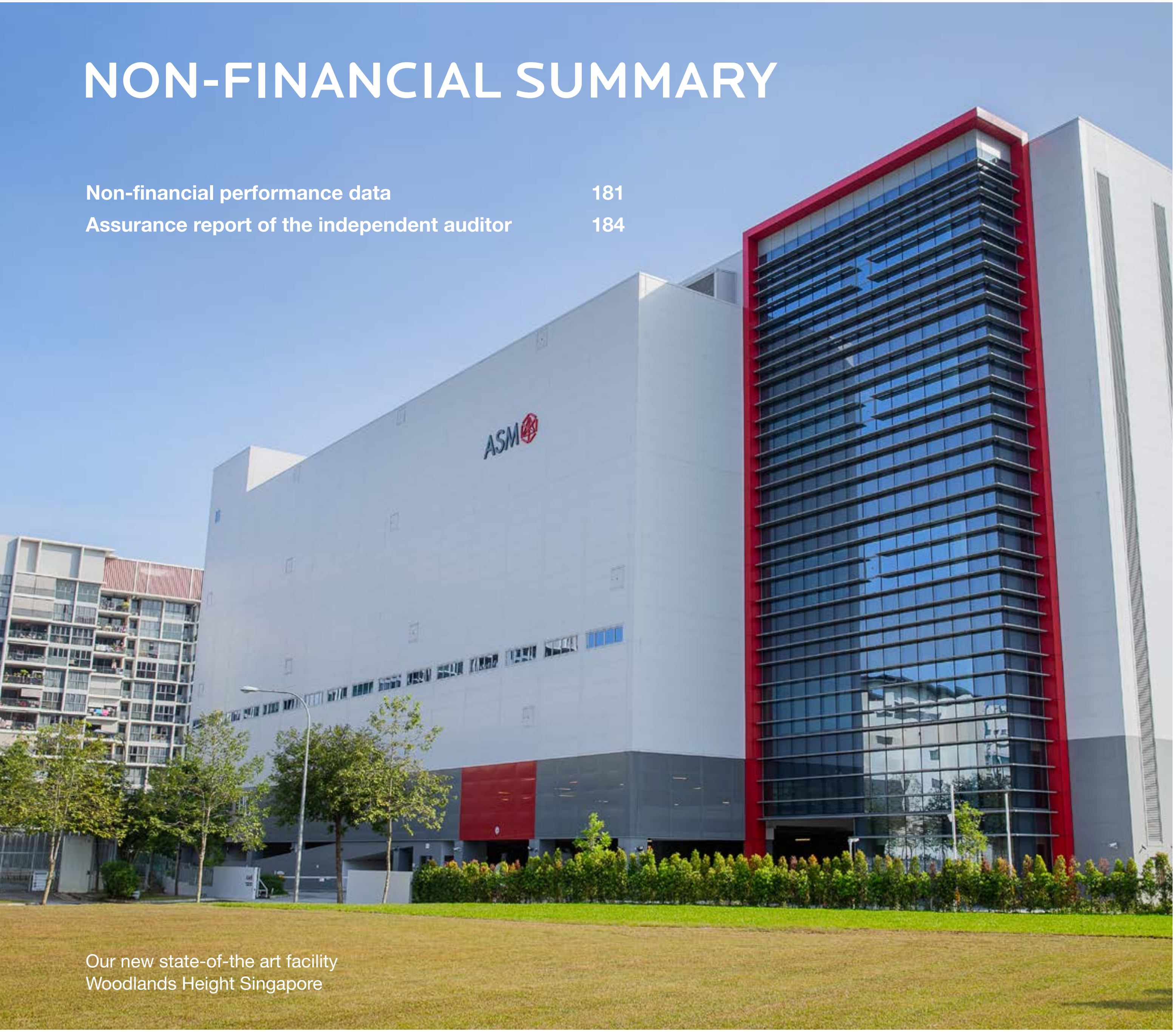
Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements. The materiality affects the nature, timing and extent of our audit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

Amstelveen, March 3, 2022
KPMG Accountants N.V.

F.A.M. Croiset van Uchelen RA
Partner

NON-FINANCIAL SUMMARY



Our new state-of-the art facility
Woodlands Height Singapore

At ASMI, sustainability is about understanding our impact and increasing our value as an integral part of our business strategy. We engage with stakeholders to assess and understand our impact on society. Aligning our strategy and sustainability focus with their priorities, we strive to maximize long-term value creation.

In 2021, we accelerated our focus on sustainability and defined the following focus areas: innovation; people; planet; responsible supply chain, and governance.

Our commitment to help fight climate change and care for our planet means we take steps to reduce greenhouse gas emissions, use water and other resources responsibly, and limit waste production. Reducing our environmental footprint goes hand in hand with steps towards a circular business model.

NON-FINANCIAL PERFORMANCE DATA

CATEGORIES	INDICATORS	Units or definition	2017	2018	2019	2020	2021	Reference
EMPLOYEES	Employees	Number	1,900	2,181	2,337	2,583	**3,312**	People
	Employees including temp	Number	2,043	2,327	2,444	2,689	**3,462**	
	New hires	Number	487	659	407	515	**1,146**	
DIVERSITY & INCLUSION	Employees	Male (% globally)	85%	85%	85%	85%	**85%**	People
		Female (% globally)	15%	15%	15%	15%	**15%**	People
	Supervisory Board	% Female / % Male	20 / 80%	20 / 80%	20 / 80%	33 / 67%	**43 / 57%**	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.	101%	100%	99%	**95%**	
	CEO pay ratio		25	27	31	27	**29**	Remuneration report
	Nationalities	Number	29	29	29	40	**47**	People
	Workforce split	Asia	54%	58%	58%	58%	**63%**	
		US	29%	26%	27%	28%	**25%**	
		Europe	17%	16%	15%	14%	**12%**	
	Foreign nationals workforce split	Asia	65%	65%	60%	59%	**66%**	(SASB)
		US	24%	25%	30%	29%	**23%**	(SASB)
		Europe	11%	10%	10%	12%	**11%**	(SASB)
OTHER SEGMENTATION	Employees in R&D	Percent	26%	25%	26%	24%	**20%**	
	Employees covered by collective bargaining (only NL)	Number	141	149	143	142	**157**	Note 13 of consolidated statements
	Percent of worker under collective bargaining	Percent	11.8%	9.1%	10.8%	11.7%	**7.7%**	
	Voluntary attrition rate	Percent	10.4%	9.9%	8.7%	8.3%	**11.1%**	People
	Total attrition rate	Percent	13.9%	13.9%	10.7%	10.8%	**12.5%**	
	% performance management completion	Percent	87.1%	92.6%	98.0%	98.8%	**99.7%**	

CATEGORIES	INDICATORS	Units or definition	2017	2018	2019	2020	2021	Reference
HEALTH AND SAFETY	Injury rate	per 100 employees	0.62	0.55	0.42	0.58	**0.50**	People
	Recordable injury rate	per 100 employees	0.26	0.18	0.17	0.23	**0.26**	People
	Number of recordable injuries	Number	5	4	4	6	**8**	
		Asia	1	1	2	3	**2**	
		Europe	2	1	1	0	**2**	
		US	2	2	1	3	**4**	
	Lost time injury rate (LTIR)	per 100 employees	0.21	0.05	0.13	0.16	**0.17**	
	Fatality rate	per 100 employees	0	0	0	0	**0**	
	Efforts to assess, monitor, reduce exposures	Qualitative	*See 'Health & safety', 'People' section					(SASB)
TRAINING	Ethics training (bi-annual)	All employees	99.8%	99.9%	100.0%	100.0%	**97.2%**	
	Ethics training	New hire employees	99.7%	100.0%	100.0%	99.2%	**97.6%**	
	Technical training hours of ASMI employees	Hours annually	17,784	37,836	48,075	28,624	**46,727**	
ENVIRONMENTAL	Electrical consumption	kWh	33,088,557	35,878,759	43,401,473	44,915,401	**54,998,421**	(SASB)
	Grid electricity	Percent from grid	100%	100%	100%	100%	**100%**	(SASB)
	Renewable EACs purchased	MWh (or EAC units)	n.a.	n.a.	n.a.	366	**41,563**	
	Renewable electricity	Percent from renewable sources	10.8%	10.7%	9.2%	9.9%	**75.6%**	(SASB)
	Scope 1 and 2 (market-based) GHG emissions [1]	$mtCO_2e$	18,083.2	19,562.0	24,031.9	24,976.9	**8,347.0**	
	Gross global Scope 1 GHG emissions	$mtCO_2e$	419.2	508.4	920.8	987.0	**941.8**	(SASB)
	Gross global Scope 2 (location-based) GHG emissions	$mtCO_2e$	17,664.0	19,053.6	23,111.1	23,989.9	**24,666.5**	
	Gross global Scope 2 (market-based) GHG emissions [1]	$mtCO_2e$	17,664.0	19,053.6	23,111.1	23,989.9	**7,405.2**	
	Scope 1 and 2 (market-based) GHG per revenue (emission intensity) [1]	$mtCO_2e$/million EUR	25.0	23.9	18.7	18.8	**4.8**	Planet
	Scope 1 and 2 (market-based) GHG per R&D spend (emission intensity) [1]	$mtCO_2e$/million EUR	158.5	156.1	159.5	145.4	**40.5**	Planet
	Water withdrawn absolute	m^3	177,913	129,243	122,505	121,434	**156,123**	Planet (SASB)
	Water withdrawn from water-stressed regions	Percent from high or extremely high water-stressed regions	81.4%	72.8%	52.8%	50.4%	**47.6%**	(SASB)
	Water intake per revenue (water intensity)	m^3/million EUR	241	158	95	91	**90**	
	Water intake per R&D spend (water intensity)	m^3/million EUR	1,559	1,031	813	707	**758**	Planet

CATEGORIES	INDICATORS	Units or definition	2017	2018	2019	2020	2021	Reference
ENVIRONMENTAL (CONTINUED)	Significant chemicals spills or releases to the environment	Number	0	0	0	0	**0**	Planet
	Non-hazardous solid waste recycle	metric tons	668	789	664	714	**1,403**	Planet
	Non-hazardous solid waste landfill	metric tons	198	255	166	156	**335**	Planet
	Non-hazardous reuse - ASMI diversion	metric tons	92	95	114	122	**158**	Planet
	Landfill diversion rate (ASMI operations) [2]	% solid waste recycle or reuse	79%	78%	82%	84%	**82%**	Planet (SASB)
	Landfill diversion (all product packaging reuse) [3]	metric tons (through all reuse sectors)	92	95	139	163	**259**	Planet
ETHICS COMPLIANCE	Reported confidential concerns via SpeakUp!	Number	1	1	5	5	**4**	Business ethics
	Reported concerns from other channels	Number	5	4	2	4	**4**	Business ethics
	Confirmed cases of non-conformity to our Code of Business Conduct	Number	3	2	3	2	**1**	Business ethics
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	74%	71%	75%	75%	**77%**	Global operations
		North America percent	20%	22%	20%	21%	**18%**	
		Europe percent	6%	7%	5%	4%	**5%**	
SUPPLY CHAIN (CRITICAL, STRATEGIC SUPPLIERS)	RBA Code of Conduct acknowledgement	Percentage	85%	100%	100%	100%	**99%**	Global operations
	RBA self-assessment questionnaire (SAQ) with low/medium risk	Percentage	78%	100%	40%	77%	**84%**	Global operations
MATERIAL SOURCING	Description of the management of risks associated with the use of critical materials	Qualitative	See Conflict minerals discussion in the 'Supply chain' section					(SASB)
	Critical/strategic suppliers conflict minerals CMRT received	Percentage	90%	81%	100%	100%	**100%**	
INTELLECTUAL PROPERTY	Patents in force	Number	1,604	1,692	1,959	2,094	**2,250**	Innovation 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] For 2017-2020, ASMI did not procure market-based renewable electricity. For those years the data included in the table represent location-based sourcing.
[2] ASMI manufacturing generates 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.
[3] For 2020, we reported 41 metric tons of combined packaging waste. This only represented the customer shipping-container reuse, which is just one of the sectors where we reuse packaging. This year, we are reporting all the sectors where packaging is reused.

ASSURANCE REPORT OF THE INDEPENDENT AUDITOR

To: General Meeting of Shareholders and the Supervisory Board of ASM International N.V.

Our conclusion

We have reviewed the non-financial indicators in the Annual Report 2021 (hereafter: the Annual Report) for the year 2021 of ASM International N.V. (hereafter: the Company). A review is aimed at obtaining a limited level of assurance.

Based on the procedures performed nothing has come to our attention that causes us to believe that the non-financial indicators are not prepared, in all material respects, in accordance with the reporting criteria as described in the 'Reporting criteria' section of our report.

The non-financial indicators in scope consist of the following:

- Diversity & Inclusion: Gender pay ratio, CEO pay ratio, Voluntary attrition rate and Involuntary attrition rate;
- Health & Safety: Injury rate, Recordable injury rate, Number of recordable injuries, Lost time injury rate (LTIR) and Fatality rate;
- Ethics compliance: Reported Confidential Concerns via SpeakUp! and Reported Concerns from other channels;
- Training: Ethics training;
- Environmental: Renewable EACs purchased, Scope 1 and 2 (market-based) GHG emissions, Gross global Scope 2 (location based) GHG emissions, Gross global Scope 2 (market-based) GHG emissions, Water Withdrawn Absolute, Non-Hazardous solid waste recycle, Non-Hazardous solid waste landfill, Non-Hazardous reuse ASM Diversion, and Landfill Diversion Rate;
- Supply Chain: RBA Self-Assessment (SAQ) with Low/Medium Risk;
- Material Sourcing: Critical/Strategic Suppliers Conflict Minerals CMRT received.

The non-financial indicators are disclosed in the 'Non-financial performance data' section of the Annual Report (pages 181-183).

Basis for our conclusion

We performed our review in accordance with Dutch law, including Dutch Standard 3000A 'Assurance-opdrachten anders dan opdrachten tot controle of beoordeling van historische financiële informatie (attest-opdrachten)' (assurance engagements other than audits or reviews of historical financial information (attestation engagements)). This engagement is aimed to obtain limited assurance.

Our responsibilities in this regard are further described in the 'Auditor's responsibilities' section of our report.

We are independent of 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). Furthermore, we have complied with the 'Verordening gedrags- en beroepsregels accountants' (VGBA, Dutch Code of Ethics).

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

Reporting Criteria

The non-financial indicators need to be read and understood together with the reporting criteria. The Company is solely responsible for selecting and applying these reporting criteria, taking into account applicable law and regulations related to reporting.

The reporting criteria used for the preparation of the non-financial indicators are the internal reporting criteria of the Company as disclosed in the section 'Value creation' of the Annual Report.

Materiality

Based on our professional judgement we determined materiality levels for each non-financial indicator. When evaluating our materiality levels, we have taken into account quantitative and qualitative considerations as well as the relevance of information for both stakeholders and the Company.

We agreed with the supervisory board that misstatements which are identified during the review and which in our view must be reported on quantitative or qualitative grounds, would be reported to them.

Scope of the group review

ASM International N.V. is the parent company of a group of entities. The non-financial indicators incorporate the consolidated information of the full group.

Our group review procedures consisted of both review procedures at corporate (consolidated) level and at site level. Our selection of sites in scope of our review procedures is primarily based on the site's individual contribution to the consolidated information.

By performing our review procedures at site level, together with additional review procedures at corporate level, we have been able to obtain sufficient and appropriate assurance evidence about the group's Non-financial indicators to provide a conclusion about the non-financial indicators.

Limitations to the scope of our review

The Non-financial information includes prospective information such as ambitions, strategy, plans, expectations and estimates. Inherently the actual future results are uncertain. We do not provide any assurance on the assumptions and achievability of prospective information in the non-financial information. References to external sources or websites in the non-financial information are not part of the non-financial information itself as reviewed by us. Therefore, we do not provide assurance on this information.

Responsibilities of the Management Board and Supervisory Board for the non-financial indicators

The Management Board is responsible for the preparation of the non-financial indicators in accordance with the applicable criteria as described in the 'Reporting criteria' section of our report.

Furthermore, the Management Board are responsible for such internal control as it determines is necessary to enable the preparation of the non-financial indicators that is free from material misstatement, whether due to fraud or error.

The Supervisory Board is, amongst other things, responsible for overseeing the Company's reporting process.

Auditor's responsibilities

Our responsibility is to plan and perform our review in a manner that allows us to obtain sufficient and appropriate assurance evidence for our conclusion.

Procedures performed in this context consist primarily of making inquiries with employees of the entity and determine the plausibility of the information included on the non-financial indicators. Therefore, these procedures differ in nature and timing, and extent, compared to a reasonable assurance engagement.

The level of assurance obtained in a limited assurance engagement is substantially lower than the assurance that would have been obtained had a reasonable assurance engagement been performed.

We apply the 'Nadere Voorschriften Kwaliteitssystemen' (NVKS, Regulations for Quality management systems) and accordingly maintain a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

We have exercised professional judgement and have maintained professional scepticism throughout the review, in accordance with the Dutch Standard 3000A, ethical requirements and independence requirements.

Our review included among others:

- Performing an analysis of the external environment and obtaining an understanding of relevant societal themes and issues, and the characteristics of the Company;
- Evaluating the appropriateness of the reporting criteria used, their consistent application and related disclosures on the non-financial indicators. This includes the evaluation of the results of stakeholder dialogue and the reasonableness of estimates made by the Management Board;
- Obtaining an understanding of the reporting processes for the non-financial indicators, including obtaining a general understanding of internal control relevant to our review;
- Identifying areas of the non-financial indicators with a higher risk of misleading or unbalanced information or material misstatements, whether due to fraud or error. Designing and performing assurance procedures aimed at determining the plausibility of the non-financial indicators responsive to this risk analysis. These procedures included, among others:
  - Interviewing management and relevant staff at corporate level responsible for the strategy, policy and results;
  - Interviewing relevant staff responsible for providing the information for, carrying out internal control procedures over and consolidating the data on the non-financial indicators;
  - Reviewing, on a limited test basis, relevant internal and external documentation;
  - Performing an analytical review of the data and trends.
- Evaluating the consistency of the non-financial indicators with the information in the Annual Report which is not included in the scope of our review;
- Evaluating the presentation, structure and content of the non-financial indicators.

We have communicated with the Management Board and the Supervisory Board regarding, among other matters, the planned scope and timing of the review and significant findings that we identify during our review.

Amstelveen, March 3, 2022
KPMG Accountants N.V.

F.A.M. Croiset van Uchelen RA

GENERAL INFORMATION

Our products include wafer-processing deposition systems for ALD, CVD, epitaxy, and batch diffusion/oxidation systems, and services and spare parts for these systems.

This section also included information about locations and a glossary and definitions.

PRODUCT DESCRIPTION

Our products include wafer-processing deposition systems for ALD, epitaxy, PECVD, and vertical furnace 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 layers
	XP8 [1]	Synergis ALD system	Metal oxides Metal nitrides Metals
PEALD	XP8 [1]	Eagle XP8 PEALD system XP8 QCM PEALD system	Patterning layers Gate spacers and liners Gap-fill
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 Intrepid ESA epitaxy	Silicon channel Source/drain layers CMOS wafers Analog/power
	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 gap-fill.

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 source/drain 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.

Intrepid ESA for 300mm is based on the Intrepid ES system, operating in atmospheric mode for analog and power applications, as well as silicon epitaxy for wafer manufacturing.

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.

PLASMA ENHANCED CHEMICAL VAPOR DEPOSITION (PECVD)

We offer single-wafer plasma enhanced CVD (PECVD) systems for various low-temperature deposition applications.

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.

VERTICAL FURNACES

ASMI offers vertical furnaces in a batch configuration where a large number of wafers are processed at the same time for productivity and cost savings. Our furnace tools are designed with dual-batch reactors for even more productivity. Our furnace tools are capable of running low pressure CVD (LPCVD), as well as diffusion and oxidation applications. Various thermal ALD films can be deposited using batch furnaces for high productivity.

A412 Vertical Furnace system

The A412 is a 300mm batch vertical furnace capable of both atmospheric and low pressure thermal wafer processing. Atmospheric thermal applications include diffusion and activation of dopants, annealing to affect material properties by heating to a specific temperature, and oxidation to form silicon oxide. LPCVD applications include polysilicon, silicon nitride, and silicon oxide.

A400 DUO Vertical Furnace system

A400 DUO is a batch vertical furnace 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 include diffusion and activation of dopants, annealing to affect material properties by heating to a specific temperature, and oxidation to form silicon oxide. LPCVD applications include polysilicon, silicon nitride, and 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 are 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 10 years, if necessary increased or decreased by no more than 3%, 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.

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 1,000 votes, and each preferred share to cast 1,000 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:

- any amendment to the Articles of the company; and
- the dissolution of the company.

For the complete text, please see our website.

STICHTING CONTINUÏTEIT ASM INTERNATIONAL

The objective of Stichting Continuïteit ASM International (Stichting) is to serve the interests of the company. To that objective, Stichting may, amongst others, acquire, own and vote on our preferred shares in order to maintain our independence and/or continuity and/or identity.

The members of the board of Stichting are:

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

NON-IFRS PERFORMANCE MEASURES

Certain parts of this Annual Report contain non-IFRS financial measures, which are not recognized measures of financial performance or liquidity under IFRS. These are commonly referred to as non-IFRS financial measures.

ASMI uses items such as working capital and free cash flow as internal measures of performance. ASMI's definition of these measures may not be comparable with similarly titled performance measures and disclosures by other entities.

These measures may not be indicative of the company's historical operating results nor are such measures meant to be predictive of the company's future results.

The presentation of the non-IFRS measures and non-financial operating data in this report should not be construed as an implication that ASMI's future results will be unaffected by exceptional or non-recurring items.

ASMI presents non-IFRS financial measures in this Annual Report because it monitors these performance measures at a consolidated level and it believes that these measures are relevant to an understanding of the group's financial performance. Please see Glossary and definitions for clarification on how these measures calculated.

GLOSSARY AND DEFINITIONS

ESG/SUSTAINABILITY DEFINITIONS

Indicators	Definitions	Covered in
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.	Sustainability/Planet
CLIMATE ADAPTATION	Changes in company processes, practices, and structures to mitigate priority risks moderate potential damages or to benefit from opportunities associated with climate change.	Sustainability/Planet
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.	Sustainability/Planet
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.	Global operations
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.	Global operations
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.	Global operations
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.	Sustainability
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.	Sustainability/Planet
DRC	The Democratic Republic of Congo.	Global operations
EHS	Environmental, health, and safety (EHS) 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.	Sustainability
EKOENERGY	A global, nonprofit ecolabel for renewable energy, gas, and heat which certifies renewable energy projects to their sustainability criteria.	Sustainability/Planet
EMPLOYEES BASED ON NATIONALITIES	The number of nationalities of employees on the last reporting day of the period.	People
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.	People
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 a reporting year.	People
ENVIRONMENTAL, SOCIAL AND GOVERNANCE (ESG)	The three primary factors for measuring the sustainability and societal impact of a company and/or business.	Sustainability
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 (COBC) and Business Principles or Policies in the reporting year.	People

Indicators	Definitions	Covered in
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.	People
EU GOOS	An energy certificate defined in article 15 of the European Directive 2009/28/EU that evidences the origin of electricity from renewable sources.	Sustainability/Planet
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.	Global operations
FOREIGN NATIONAL	A foreign national is any person who is not a national of a specific country.	People
GREENHOUSE GAS (GHG) EMISSIONS	Greenhouse gas emissions from human activity, which strengthens the greenhouse effect causing climate change. See Scope 1, Scope 2, Scope 3 emissions below for more information.	Sustainability/Planet
GRI	The Global Reporting Initiative (GRI) 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). The GRI standard was used to guide our materiality assessment and non-financial data summary.	Sustainability
INFORMATION RIGHTS MANAGEMENT (IRM)	A subset of digital rights management (DRM) which includes processes and technologies that protect sensitive information from unauthorized access.	Innovation and products
INJURY RATE	The injury rate is a measure of all first aid or greater (more serious) injuries per every 100 employees in the reporting period.	People
ISO 14001	The ISO 14001 environmental management system (EMS) standard is an internationally recognized environmental management standard.	Sustainability
J-CREDITS	A Japanese government program that certifies the amount of greenhouse gas emissions (such as CO2) reduced or removed through implementation of energy-saving devices or sustainable forestry.	Sustainability/Planet
LANDFILL DIVERSION RATE	The percentage of solid waste diverted from landfill via recycling and reuse efforts in the reporting period as generated at ASMI key manufacturing, engineering, and R&D sites.	Sustainability/Planet
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.	People
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.	People
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.	Global operations
PFAS	A broad family of per and polyfluoroalkyl substances such as Teflon used in engineering applications requiring high thermal stability and non-stick properties.	Innovation and products
PRODUCT LIFE CYCLE (PLC)	The entire lifecycle of a product from its initial introduction to eventual withdrawal from the market.	Innovation and products

Indicators	Definitions	Covered in
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.	Innovation and products
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)	Global operations
RBA SAQ SUPPLIER RISK RANKING	The percent of critical/strategic RBA scorecard suppliers who completed the required supplier RBA self-assessment questionnaire (SAQ) and resulted with low or medium risks.	Global operations
RBA SELF-ASSESSMENT QUESTIONNAIRE (RBA SAQ)	The 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.	Global operations
RBA 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.	Global operations
REACH	An EU Regulation of chemical substances intended to protect human health, improve the environment and reduce chemical-related risks.	Innovation and products
RECORDABLE INJURY RATE	The recordable injury rate measures the number of cases that require a response greater than first aid (or serious injuries) per 100 employees in the reporting period.	People
RENEWABLE ELECTRICITY	Electricity derived from sources that are not depleted upon use, such as wind or solar power.	Sustainability/Planet
RESPONSIBLE BUSINESS ALLIANCE (RBA)	World's largest 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. ASMI is a member of the RBA. (responsiblebusiness.org)	Global operations
RMI: RESPONSIBLE MINERALS INITIATIVE	The 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.	Global operations
ROHS	A regulation that originated in the European Union which restricts the use of hazardous materials found in electrical and electronic products.	Innovation and products
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/)	Non-financial summary
SCOPE 1, SCOPE 2, SCOPE 3 EMISSIONS	Terms used to define the source of greenhouse gas (GHG) emissions of a corporation. Scope 1 are emissions that the company produces from its operations through use of chemicals, boilers and vehicles. Scope 2 are GHG emissions associated the purchase of electricity or energy. Scope 3 emissions are all other GHG emissions associated with the company's value chain and use of its products that occur outside the scope 1 and 2 boundary.	Sustainability/Planet
SEMI	Global industry association representing the semiconductor manufacturing and design supply chain connecting over 2,400 member companies and 1.3 million professionals worldwide.	Innovation and products
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.	Global operations
SPEAK UP!	Globally available anonymous reporting channel to report ethics concerns or whistleblower concerns.	People
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.	People

Indicators	Definitions	Covered in
SUPPLIER CODE OF CONDUCT 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.	Global operations
SUPPLY CHAIN SPEND BY REGION	Total amount of euros 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.	Global operations
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.	Global operations
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. (www.fsb-tcfd.org)	Sustainability/Planet
TIGR'S	Tradeable Instrument for Global Renewables (TIGR) is a global standard for the documenting and tracking renewable energy certificates (RECS) as tradable instruments/assets.	Sustainability/Planet
TOTAL ATTRITION RATE	The percentage of employees in a workforce that leave voluntarily or involuntarily during a reporting period.	Non-financial summary
UN SDG	United Nations Sustainable Development Goals provides an global agenda and plan of action for people, planet and prosperity. It also seeks to strengthen universal peace and freedom. (https://sdgs.un.org/goals)	Sustainability
VOLUNTARY ATTRITION RATE	The percentage of employees in a workforce that leave voluntarily during a reporting period.	People
WATER CONSUMPTION	The total amount of water consumption in cubic meters for a reporting period.	Sustainability
ZERO HARM!	Refers to ASMI striving to prevent harm to people, reduce our impact on the environment, and make positive contributions to society.	Sustainability/Planet

NON IFRS FINANCIAL MEASURES

Financial measures	Definitions
CASH FLOWS FROM OPERATING ACTIVITIES AFTER INVESTING ACTIVITIES	Cash flows from operating activities after investing is also referred to as free cash flow.
OPERATING CASH FLOWS BEFORE CHANGES IN WORKING CAPITAL	Cash flows from operating activities excluding the impact of movements in working capital during the period.
WORKING CAPITAL	The sum of accounts receivable, other current assets, inventories, provision for warranty, accounts payable, accrued expenses and other payables.

LOCATIONS WORLDWIDE

EUROPE

THE NETHERLANDS

ASM International NV (HEADQUARTERS)
Versterkerstraat 8
1322 AP Almere
T: +31 88 100 8810
F: +31 88 100 8820

ASM Europe BV
Versterkerstraat 8
1322 AP Almere
T: +31 88 100 8711
F: +31 88 100 8710

ASM IP Holding BV
Versterkerstraat 8
1322 AP Almere
T: +31 88 100 8810
F: +31 88 100 8820

BELGIUM

ASM Belgium NV
Kapeldreef 75
3001 Leuven
T: +32 472 570 961

FINLAND

ASM Microchemistry Oy
Pietari Kalmin katu 3 F 2
00560 Helsinki
T: +358 9 525 540

FRANCE

ASM France SARL
223 Rue des Bécasses
38920 Crolles
T: +33 4 7692 2824
F: +33 4 3892 0472

GERMANY

ASM Germany Sales BV
Bretonischer Ring 16
85630 Grasbrunn
T: +49 89 462 3650
F: +49 89 462 36566

ASM Germany Sales BV
Hohenbusch Markt 1
01108 Dresden
T: +49 351 3238330
F: +49 351 3238332

IRELAND

ASM Services & Support Ireland Ltd
Unit 23, Hills Industrial Estate
Lucan, K78 P661
Co. Dublin
T: +353 1 621 9100
F: +353 1 628 0206

ISRAEL

ASM Service & Support Israel Ltd
2 Hazaron St
Kiryat-Gat 82109
T: +972 8 612 3077

NORTH AMERICA

UNITED STATES

ASM America, Inc
3440 East University Drive
Phoenix, AZ 85034
T: +1 602 470 5700

Regional Sales/Service Office
2083 East Hospitality Lane
Suite 200
Boise, ID 83716
T: +1 208 424-9534

Regional Service Office
7235 NE Evergreen Parkway
Suite 200
Hillsboro, OR 97124
T: +1 503 629 1360

ASIA

CHINA

ASM China Ltd
Room 201A, Building D
Changtai Plaza 2889 Alley
Jinke Road, Pudong
Shanghai, China, 201203
T: +86 21 50 368 588
F: +86 21 50 368 878

JAPAN

ASM Japan KK
23-1, 6-chome Nagayama
Tama-shi
Tokyo 206-0025
T: +81 42 337 6311
F: +81 42 389 7555

Daini Technology Center
7-2, 2-chome, Kurigi
Asao-ku, Kawasaki-shi
Kanagawa 215-0033
T: +81 44 712 3681
F: +81 44 712 3682

Kumamoto Service Center
3F, Mayfair-Suizenji
21-30, 1-chome, Suizenji
Chuo-ku, Kumamoto-shi
Kumamoto, 862-0950
T: +81 96 387 7300

Yokkaichi Service Center
3F, Kosco-Yokkaichi-Nishiura Building
5-10, 1-chome, Yasujima, Yokkaichi-shi
Mie 510-0075
T: +81 59 340 6100
F: +81 59 340 6099

Hiroshima Service Center
402, Higashi-Hiroshima Sea Place
10-30, Saijosakae-machi
Higash-Hiroshima-shi
Hiroshima 739-0015
T: +81 42 315 0195

Kitakami Service Center
2F B-C, Iriyama kita Build
3-27, 1-chome Odori,
Kitakami-shi, Iwate-ken 024-0061
T: +81 42 337 6326

MALAYSIA

ASM Services & Support Malaysia Sdn Bhd
Suite 17 and 18, First Floor
Incubator Block, Kulim Techno Centre
Kulim Hi-Tech Park
09000, Kulim
Kedah Darul Aman
T: +604 408 0140

SINGAPORE

ASM Front-End Manufacturing Singapore Pte Ltd
4 Woodlands Height
Singapore 737860
T: +65 6512 2922
F: +65 6512 2966

SOUTH KOREA

ASM Korea Ltd
Head Office
63-11, Dongtan Cheomdan Saneop 1-Ro
Hwaseong-Si
Gyeonggi-Do, 18469
T: +82 31-5176-0000

TAIWAN

ASM Front-End Sales & Services Taiwan Co, Ltd
Hsin-Chu Office
2F-5, No 1, Jinshan 8th St
East Dist, Hsinchu City 300
T: +886 3 666 7722
F: +886 3 564 8899

ASM Front-End Sales & Services Taiwan Co, Ltd
Lin-Kuo Office
2F, No 50, Fuxing 3rd Rd
Guishan Dist, Taoyuan City 333
T: +886 3 211 5279
F: +886 3 328 5358

ASM Front-End Sales & Services Taiwan Co, Ltd
Tai-Nan Office
3F., No. 3, Nanke 3rd Rd.,
Xinshi Dist., Tainan City 744, Taiwan
T: +886 3 666 7722
F: +886 6 589 2710

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.

ASM International N.V.
Versterkerstraat 8
1322 AP Almere
The Netherlands

Published on March 3, 2022

ASM.COM