



**CONNECTING  
SOCIETY**

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# A LETTER FROM CHUCK DEL PRADO



WE CONTINUALLY PUSH OURSELVES TO IMPROVE THE WAY WE DO BUSINESS”

## CHARLES D. (CHUCK) DEL PRADO

Chairman of the Management Board,  
President and Chief Executive Officer



At ASMI, we help make connections every day. For nearly 50 years, we have been an innovation leader in the semiconductor industry. Our technologies enable transistors to connect at an atomic scale. Those connections are getting smaller every year, enabling a broader world of devices, which not only fit in your pocket, but connect the world in a way we could only imagine half a century ago. The future holds many advances yet to be made, and ASMI plans to continue innovating to connect today with tomorrow.

Our connections are not only in the technology we deliver, but to society and our stakeholders as well. We are continually pushing ourselves to improve the way we do business, including the way we report our progress. This year marks the third year that we are releasing a Corporate Responsibility (CR) report. Corporate Responsibility continues to strengthen across ASMI and our value chain, and it's recognized by our stakeholders.

### In 2016, recognition included:

- › Our Transparency Benchmark Evaluation score (per the Dutch Ministry of Economic Affairs), which measures transparency in corporate social reporting, more than doubled from the prior year;
- › The progress of our safety leadership was recognized in a prestigious customer award.

Recognition for our progress is appreciated, but it's the results and our drive to continually improve our performance that matters.

### Some of the areas of continuous improvement in 2016 include:

- › In EHS, we continue to strengthen our safety culture through Safety Leadership sessions worldwide, and in turn matched our prior year's low injury rate performance;
- › To improve the safety of our products, we added an industry expert to lead our global "product safety by design" program;
- › We continue to invest in trying to reduce our environmental footprint. Specifically our efforts in water conservation led to the planning, design and commencement of construction of a water reuse plant at our Phoenix facility. Operation of the system should begin in mid-2017, and we anticipate significant reduction of our water consumption;
- › In labor, we significantly strengthened structural management control of working hours to meet EICC requirements across our manufacturing organization.

“WE FURTHER EXPANDED OUR R&D ENGAGEMENTS WITH KEY CUSTOMERS.”

Through these and other initiatives, the progress we have made, and ultimately our commitment to being a responsible company, we continue to strengthen Corporate Responsibility at ASMI and throughout our value chain.

This report also details our commitment to **ZERO HARM!** - our philosophy to strive to

- (i) prevent all injuries to our employees and customer employees,
- (ii) reduce our environmental impact, and
- (iii) make positive contributions to society.

March 9, 2017



**Charles D. (Chuck) del Prado,**  
President & Chief Executive Officer

“WE WORK CLOSELY WITH OUR RESEARCH PARTNERS AND CUSTOMERS TO GO BEYOND WHAT WAS PREVIOUSLY THOUGHT POSSIBLE.”



# CONNECTING SOCIETY

COMMUNITIES AND SUPPORTING EDUCATION

RESEARCH AND DEVELOPMENT

TALENT AND TECHNOLOGY LEADERSHIP

STAKEHOLDERS



## OUR BUSINESS IS BUILT UPON CONNECTIONS

From connecting with our customers to jointly develop technology roadmaps, to connecting with society to enrich our environment. We realize that long-term success is only possible when we connect effectively with society.

On the following pages we provide examples of how we connect with the world around us. We highlight how our innovative products and solutions help the world connect, and explain how we connect with the next generation of talented researchers.





RESEARCH AND DEVELOPMENT

## CONNECTING RESEARCH AND DEVELOPMENT

The Internet of Things (IoT), cloud computing, and artificial intelligence continue to expand the technological boundaries within society. Smart devices embedded in wearables, home appliances, medical systems and cars all require greater computing power, delivered in smaller packages. Enabling this technology offers significant opportunities for semiconductor companies and leading semiconductor equipment manufacturers.

As a leading semiconductor technology enabler and equipment provider, we continue to strengthen our position in these market segments. We achieve this by investing in research and development (R&D), and collaborating closely with customers, universities and research institutions to advance our semiconductor technologies.

In 2016, for example, we started a new research and development project with the University of Ghent in Belgium on the joint study of atomic layer deposition (ALD) processes. We also continued our long-term partnership with the Interuniversity MicroElectronics Center (imec) in Leuven, Belgium. Such collaboration helps us optimize our products, leading to the creation of next-generation technologies, while improving equipment performance for volume manufacturing. More on our R&D efforts and partnerships for new technology and processes can be found on page 41 of this report.



## CONNECTING STAKEHOLDERS

Our technological innovations help us create value by connecting society and trying to meet the expectations of our stakeholders. We regularly engage with our stakeholders and use their feedback to help shape our integrated CR strategy.

One example of stakeholder engagement is the mutually beneficial partnerships that we forge with key customers. Our customers become expert users of our products and their insights help us to continuously improve our technologies, resulting in greater productivity and lower operating cost per wafer, benefiting them, us and the end consumer.

Another key focus area is defect reduction. Defects can be caused by a range of different factors. Cooperation between the engineers of our customers and the equipment supplier is critical to reduce defects, resulting in a higher percentage of good chips for each wafer processed. More on how we engage with our stakeholders can be found in the Integrated CR strategy section of this report.





**TALENT AND  
TECHNOLOGY  
LEADERSHIP**

# CONNECTING TALENT AND TECHNOLOGY LEADERSHIP

Our people enable us to innovate and develop cutting-edge technological solutions. Attracting the right people, and empowering them to be productive and excel as professionals is critical if we are to continue developing the leading technologies and processes that help us and our customers succeed.

Through our New College Graduate (NCG) program, we recruit graduates from leading universities and introduce them to our advanced technologies and processes at one of our innovation centers in Helsinki, Finland or Leuven, Belgium.

After this, they have the opportunity to apply their advanced knowledge in different product areas and at other global facilities. In 2016, four NCGs completed their program in Helsinki and Leuven and transferred to global ASMI locations such as Phoenix and Tokyo to apply their acquired knowledge. More about our talent recruitment and NCG program can be found on page 37 of this report.



## COMMUNITIES AND SUPPORTING EDUCATION



# CONNECTING WITH OUR COMMUNITIES AND SUPPORTING EDUCATION

Connecting with our local communities is important to us. One example is our work in Europe. As the population ages there, a decreasing number of teenagers attend science classes and our industry could face a shortage of engineers within the next few decades. To help address this issue, the Dutch semiconductor industry has established a collaboration program between the government and high schools.

The JetNet program aims to inspire children to learn more about technology and to stimulate them to consider a technical education and career. We support JetNet, and joined the platform in 2015 by developing a relationship with Almere High School which is actively working to promote technology classes at their school. In 2016 we organized a research project and facilitated job shadowing sessions to raise student interest in technology. We also continued our lectures, on-site experiments and technical games at the school, and students were given an opportunity to visit ASMI to directly understand and respond to our technological challenges. More about our community connection activities can be found on page 42 of this report.

# ASMI AT A GLANCE

## KEY FIGURES

	2013	2014	2015	2016
NET SALES (EUR MILLION)*	452	546	670	598
OPERATING RESULT (EUR MILLION)*	45	93	111	82
INITIAL PATENTS FILINGS	61	66	85	95
DILUTED NET EARNINGS PER SHARE IN EUR**	0.71	2.49	2.93	2.66
EMPLOYEES	1,503	1,635	1,597	1,670

\* Data for wafer processing operations

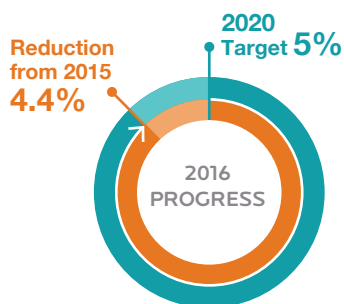
\*\* Note: excluding effects sale of share ASMPT

## SAFETY

	2013	2014	2015	2016	2016 TARGET
RECORDABLE INJURY CASE RATE	0.30	0.35	0.34	0.34	0.30
INJURY RATE	1.13	0.96	0.62	0.63	0.56

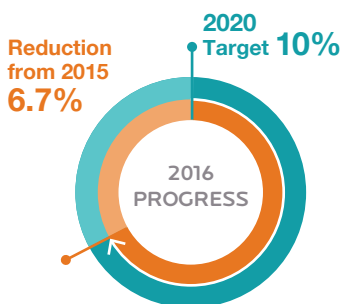
## ENVIRONMENTAL

### GREENHOUSE GAS (GHG) EMISSIONS



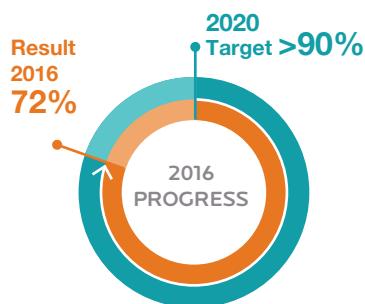
Metric tons of CO<sub>2</sub> equivalents (mtCO<sub>2</sub>e) per R&D investment (EUR)

### WATER CONSUMPTION



Cubic meters (m<sup>3</sup>) of water per R&D investment (EUR)

### LANDFILL DIVERSION RATE



Percent of solid waste diverted from landfill through recycle or reuse

## KEY FIGURES



EMPLOYEES IN R&D



VOLUNTARY TURNOVER RATE



PATENTS IN FORCE AS OF DECEMBER 31, 2016



# OUR COMPANY AND VALUE CREATION MODEL

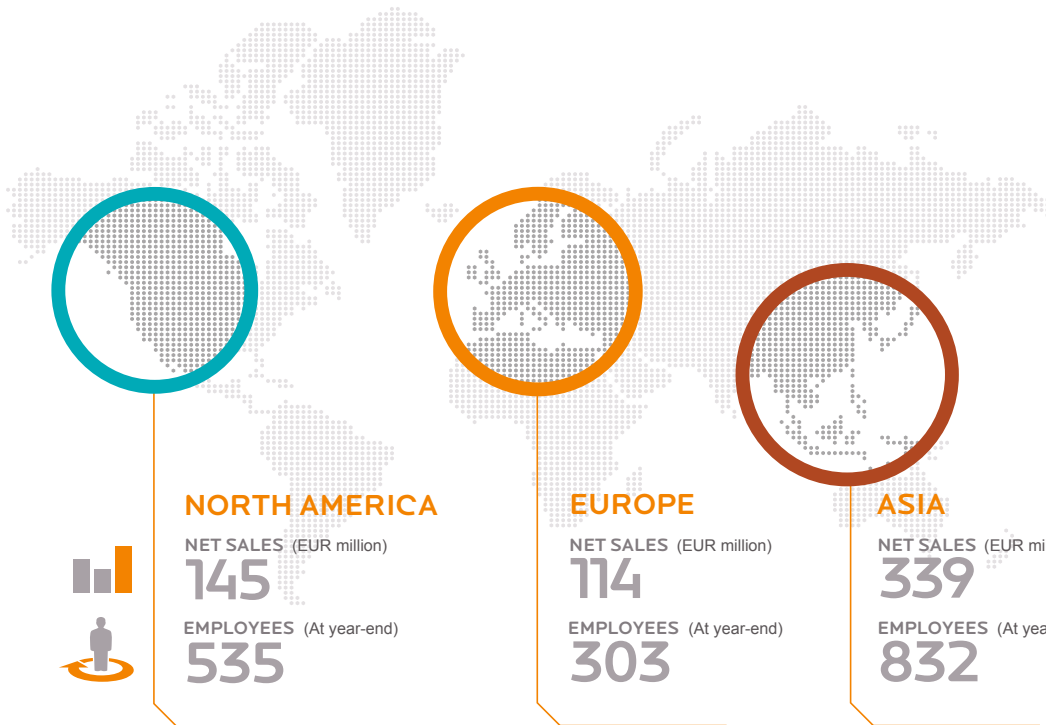
We create value through our technologies by enabling leading semiconductor and technology industry partners to deliver the world of tomorrow through our innovative processing solutions and equipment. We partner with our customers and stakeholders to develop new materials, processes, and technologies that support their technology roadmaps that shape the world of the Internet of Things, smart cars, artificial intelligence, and cloud computing.

## OUR COMPANY: ASMI WORLDWIDE

We are a global supplier of semiconductor wafer processing equipment, process solutions and services mainly for the semiconductor industry, with operations in 14 countries. Our customers include the world's top semiconductor device manufacturers. Since 1968 we have helped the industry to create smaller, cheaper and more powerful microchips. Our focus is on continuing to help our customers develop their

technology roadmap, by expanding our broad portfolio of innovative technologies and products.

Headquartered in Almere, the Netherlands, we have 1,670 employees across Europe, Asia and North America. ASMI common stock trades on the Euronext Amsterdam Stock Exchange (symbol ASM). More information can be found in the Investor section of our corporate website.



## OUR PRODUCTS, TECHNOLOGIES AND SERVICES

We provide advanced thin film deposition equipment for wafer processing. Our key technology portfolio includes processes such as atomic layer deposition (ALD), plasma enhanced ALD (PEALD), epitaxy,

plasma enhanced chemical vapor deposition (PECVD), low pressure chemical vapor deposition (LPCVD) and oxidation/diffusion. We provide customers with expert service and support through our global service organization to ensure optimum performance and efficiency.

### OUR PARTNERSHIPS WITH STAKEHOLDERS

Collaboration is key to our success. While our core technologies, products and services enable our customers to move to smaller line widths and to create more powerful transistors with new materials, our success hinges on the partnerships we cultivate with our stakeholders.

We are positioned early within our value chain. Our equipment deposits materials onto wafers, creating circuits that shape the technology around us. To be a successful wafer processing technology leader, we maintain close partnerships with technical institutions and universities to carry out leading-edge research and development.

We partner within the industry on technology roadmaps, and through joint development projects with our customers for shared success. Our success would not be possible without our employees and the support of the communities we operate in. And a global supply chain helps us manufacture, service and sustain our products efficiently. Throughout our value chain, we foster a commitment to, and progress in, corporate responsibility. Our partnership and engagement with our stakeholders enables us to deliver innovative products, solutions and services supporting our customers to make the products that connect the world.

### TAX PRINCIPLE

Paying tax is one of our contributions to society and a part of our value creation business model. Our income is reported in the countries where value is created. We do not use artificial tax structures solely aimed at tax avoidance. Taxes are determined and paid in accordance with all relevant rules and regulations in the countries in which we operate. We aim to follow both the letter as well as the spirit of the law.

We apply the arm's length principle to determine transfer prices in accordance with domestic and international rules and standards, such as the OECD (Organization for Economic Cooperation and Development) Guidelines for Multinational Enterprises. Our disclosures are made in accordance with the relevant local and/or international regulations.






Our goal is to seek an open and constructive dialog with the tax authorities in the countries where we operate, and we aim to disclose all relevant facts and circumstances. We believe that this will enhance certainty on our respective tax position in view of the applicable tax rules and regulations.

“WITH OUR CUSTOMERS, WE HAVE SUPPORTED TECHNOLOGY ROADMAPS THAT HAVE LED TO A RANGE OF BREAKTHROUGH TECHNOLOGIES.”



ASMI BUSINESS MODEL

### INPUT

 <b>HUMAN</b> Employees <b>1,670</b>	 <b>INTELLECTUAL</b> R&D investment (EUR million) <b>102</b>	 <b>FINANCIAL</b> Market capital (EUR billion) <b>2.551</b> as of December 31, 2016	 <b>MANUFACTURING &amp; SUPPLIERS</b> Manufacturing supply chain spending (EUR million) <b>&gt;250</b>	 <b>NATURAL</b> Electric usage (KwH) <b>31,814,761</b>
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**OUR BUSINESS**

ASMI designs, manufactures, sells and services complex wafer processing equipment used in various steps in the fabrication of semiconductor integrated circuit chips.

### OUTPUT

<b>HUMAN</b> Revenue per employee (EUR thousand) <b>358</b>	<b>INTELLECTUAL</b> Patents filed <b>95</b>	<b>FINANCIAL</b> Net sales (EUR million) <b>598</b>	<b>MANUFACTURING &amp; SUPPLIERS</b> Bookings (EUR million) <b>622</b>	<b>NATURAL</b> GHG emission scope 1&2 (mtCO <sub>2</sub> e) <b>17,181</b>
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### VALUE ADDED

ASMI's technology enables precision deposition of nanoscale thin films that help our customers build the most advanced semiconductor chips used to create the electronic systems throughout society.

### VALUE SHARED

Cash distribution to shareholders / Taxes and fees / Direct and indirect employment  
 Knowledge and skills transfer / Community involvement

All figures related to 2016 unless otherwise noted.

# ABOUT THIS REPORT

## GLOBAL REPORTING INITIATIVE

We believe that providing clear information that is simple to compare and meets global reporting norms increases everyone's understanding of how we create value for our shareholders and society. This corporate responsibility report was prepared with reference to the Global Reporting Initiative's (GRI) G4 Sustainability Reporting Guidelines.

## THE SCOPE OF THIS REPORT

As part of our ongoing dialogue with stakeholders, this report covers many aspects of our efforts to manage our business responsibly, and the non-financial dimensions of our performance not covered in our Statutory annual report and on our website.

We have identified material aspects that we believe have significant economic, environmental and social impacts. This has enabled us to determine their relative business impact in the value chain, as well as their impact on our own operations, supply chain, customers of our products and the communities in which we operate.

## THE DATA IN THIS REPORT

Except where otherwise indicated, the data provided in this report focuses solely on our Front-end wafer processing operations for the fiscal year ending on December 31, 2016.

## TOWARDS INTEGRATED REPORTING

We continue to integrate sustainability information into our Statutory annual report and other investor communications. Additional information about our operations and financial statements is available in our Statutory annual report.

## PLEASE GET IN TOUCH

We appreciate your feedback. If you have any questions, want to comment on anything in this report, or give us your ideas about our reporting in general, please contact us.

## SAFE HARBOR STATEMENT

In addition to historical information, some of the information posted or referenced in this report contains statements relating to our future business and/or results, including, among others, use of

resources, 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 for example identify forward looking statements by the use of words like 'may', 'could', 'should', 'project', 'believe', 'anticipate', 'expect', 'plan', 'estimate', 'forecast', 'potential', 'intend', 'continue' and variations of these words or comparable words.

Forward-looking statements do not guarantee future performance and involve risks and uncertainties. You should be aware that our actual results may differ materially from those contained in the forward-looking statements as a result of certain risks and uncertainties. These risks and uncertainties include, but are not limited to, economic conditions and trends in the semiconductor industry and the duration of industry downturns, currency fluctuations, the timing of significant orders, market acceptance of new products, competitive factors, litigation involving intellectual property, shareholder or other issues, commercial and economic disruption due to natural disasters, terrorist activity, armed conflict or political instability, epidemics and other risks indicated in our most recently filed Statutory annual report and other filings from time to time. The risks described are not the only ones. Some risks are not yet known and some that we do not currently believe to be material could later become material. Each of these risks could materially affect our business, revenues, income, assets, liquidity, and capital resources. All statements are made as of the date of posting unless otherwise noted, and we assume no obligation to update or revise any forward-looking statements to reflect future developments or circumstances.





# INTEGRATED CR STRATEGY



ASMI is committed to the vision of ZERO HARM! This means we strive to (i) prevent all injuries to our employees and our customers' employees, (ii) reduce our environmental impact, and (iii) make positive contributions to society. We help create value for society through our technological innovations. And we meet the expectations of our stakeholders by engaging with them on the issues that matter to them.

By committing to the Electronic Industry Citizenship Coalition (EICC) Code of Conduct and following the principles of the Organisation for Economic Co-operation and Development (OECD) Guidelines for Multinational Enterprises, we can better measure and report on our responsible business progress.

## CR AT ASMI

ASMI was founded in 1968. Since then, we have been supportive in your world, even though you may not realize it. Our long track record of scientific breakthroughs helps to create transistors only a few times larger than a single strand of DNA. We have pioneered technologies that are widely used today, including photolithography, epitaxy, ion implantation and atomic layer deposition (ALD). These, and our other extraordinary discoveries, have contributed to societal advances for a number of decades, and will continue to do so for a long time to come.

Our innovations have supported our customers' technology roadmaps that have enabled breakthrough technologies, including the home computer, smartphones, medical equipment, and nearly every device with an integrated circuit. Today, our technology enables the astonishing leaps that are supporting the Internet of Things (IoT), cloud computing, artificial intelligence and smart cars. And as we near our 50<sup>th</sup> anniversary, we continue to invest strongly in research and development to drive scientific advancement and develop leading-edge technologies, helping to create electronic devices with ever-greater performance and reduced energy consumption.

We work closely with our research partners and customers to go beyond what was previously thought possible. Using our technologies to increase processing power while shrinking transistor dimensions, our customers are able to further expand smart technologies into products that improve the quality of life for people everywhere.



### ASMI MISSION

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



### CR VISION

As a truly global citizen, our vision of **ZERO HARM!** means we strive to prevent all injuries, reduce our impact to the environment, and make positive contributions to society.



### CR STRATEGY

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

## BEING A RESPONSIBLE AND TRANSPARENT COMPANY

We believe that being a responsible company creates value for our company, our stakeholders and society. And we believe that our commitment to being a responsible company strengthens our brand. A stronger ASMI brand helps us build stronger relationships with all our stakeholders. Stronger relationships with our stakeholders - customers, employees and investors - help drive innovation and strengthen our product portfolio. We believe that doing the right thing is good for society and good for business.

### CORPORATE RESPONSIBILITY POLICY

Our key corporate responsibility philosophy is **ZERO HARM!** We strive for preventing harm to people and reducing impact on the environment. To be successful in these goals, we make effort to be innovative and challenge the conventional approaches, using our guiding principle 'Drive Innovation, Deliver Excellence'.

We recognize this is an ambitious goal, but we are an ambitious company. Our corporate responsibility policy lays out our commitment and expectations to health and safety, the environment, labor, ethics, and supply chain management. Each of these areas is further supported by policies, systems, programs and metrics to ensure that our ongoing progress is on track to meet our longer-term objectives. The full text of our CR policy is available on our website.

“BUSINESS SHOULD STRIVE FOR **ZERO HARM!** TO PEOPLE AND TO REDUCE ITS IMPACT ON THE PLANET. THIS IS AN AMBITIOUS GOAL, BUT WE ARE AN AMBITIOUS COMPANY.”

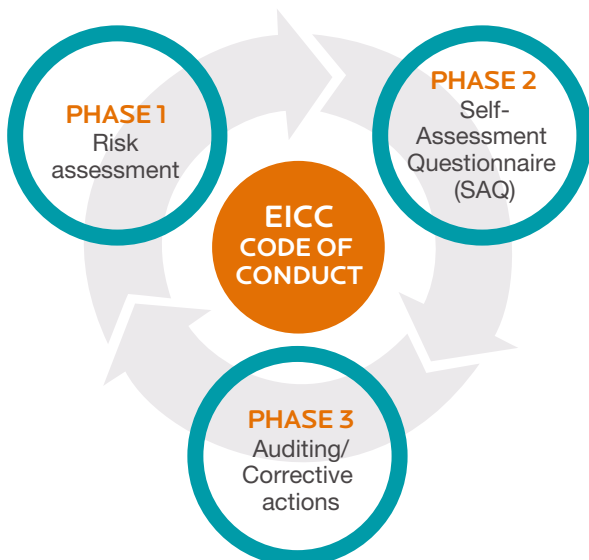
### EICC CODE OF CONDUCT

As an integral member of the semiconductor industry and its value chain, we have adopted and are committed to the Electronics Industry Citizenship Coalition (EICC) Code of Conduct. Many of our customers are EICC members, and as an industry we have united under one common set of standards. The EICC Code of Conduct is a set of standards covering social, environmental and ethical topics in the electronics industry supply chain. The EICC code references and principally follows multiple international expectations and standards including the OECD Guidelines for Multinational Enterprises, the Universal Declaration of Human Rights, the ILO International Labor Standards and International Organization for Standardization (ISO). Differences between the EICC Code of Conduct and the OECD Guidelines include business to consumer aspects which are not relevant to our business. The EICC code is updated regularly to stay abreast of societal norms and expectations and to address the evolution of other international standards and expectations. We are committed to upgrading our management practices as the EICC code and other standards and expectations evolve.

We also use the code and its framework to drive continuous improvement within the company. We have developed a self-assessment process that is thoroughly reviewed, from which action plans are created, and against which progress is monitored by the global EICC Committee which meets several times per year.

As the EICC Code of Conduct is an industry initiative and standard, we also use it as our Supplier Code of Conduct, and implemented a supporting risk assessment process with our critical suppliers. Our supply chain is diverse and operates in many countries under many different cultural norms. By aligning our Supplier Code of Conduct with the EICC Code of Conduct we are aiming for consistency in applying ethical and responsible standards recognized internationally.

### INTEGRATED CR STRATEGY





## STAKEHOLDER ENGAGEMENT AND COMMUNICATION

Our success is dependent on our ability to build strong relationships with all our stakeholders, including:

- › Customers;
- › Shareholders and investors;
- › Employees;
- › Suppliers;
- › Society, including regulators and governments;
- › Non-governmental organizations (NGOs);
- › Local communities in which we operate.

We develop and maintain open and transparent communication with our stakeholders along the entire value chain, using their feedback to help shape our corporate responsibility strategies. We believe that being responsible and transparent connects us to society, creating value for the company and our stakeholders. An overview of our key stakeholders' engagement channels and the benefits are listed in the following table. Reference the Statutory annual report for more information on engaging stakeholders.

### HOW WE ENGAGE WITH STAKEHOLDERS AND HOW THAT BENEFITS US BOTH

STAKEHOLDER	HOW WE ENGAGE WITH THEM	THE BENEFITS	SECTION
<b>CUSTOMERS</b>	<ul style="list-style-type: none"> <li>› Customers continuously provide feedback and guidance through our account support teams, customer satisfaction surveys, and customer training and support programs</li> </ul>	Enables us to identify areas for improvement. We prioritize customer requests about the quality and technology advancement of our products and services	See the Integrated CR Strategy section
<b>SHAREHOLDERS &amp; INVESTORS</b>	<ul style="list-style-type: none"> <li>› The Annual General Meeting of Shareholders (AGM)</li> <li>› Communication with investors, analysts and the broader investment community at set quarterly conference calls, broker conferences and investor meetings</li> <li>› Investor feedback emails via the Investors section on our corporate website</li> </ul>	Helps us better understand shareholders' priorities, concerns and expectations	See the Integrated CR Strategy section
<b>EMPLOYEES</b>	<ul style="list-style-type: none"> <li>› Through our open door policy, employees have access to management at all levels for communication up and down the organization</li> <li>› ASMI intranet website, CONNECT (ASMI internal newsletter), and Open Forums</li> <li>› Open and transparent Safety and Environmental issue reporting system</li> <li>› SpeakUp! tool offers anonymous phone and email access to report concerns and issues</li> </ul>	Allows us to have an open dialogue with employees and understand their concerns, identify gaps, set appropriate performance and improvement goals	See the Environment and Social sections
<b>SUPPLIERS</b>	<ul style="list-style-type: none"> <li>› We use the Electronic Industry Citizenship Coalition (EICC) Code as our Supplier Code of Conduct</li> <li>› Annual communication and hosted training webinars about EICC Code, policies and supplier compliance expectations with critical suppliers</li> <li>› Business Review Meetings</li> </ul>	Helps us to set consistent expectations for critical suppliers to control risk and improve efficiency. Based on supplier and industry benchmarking, it helps identify improvement areas and prioritize supply chain performance goals	See the Supply chain section
<b>COMMUNITIES</b>	<ul style="list-style-type: none"> <li>› Active engagement in regulatory, policy and compliance requirements with regulatory and policy makers globally, at major sites through participation in government committees and interaction with government committees and organizations (including the Transparency Benchmark of the Dutch Ministry of Economic Affairs annually)</li> </ul>	Helps maintain credible, trustworthy relationships with regulatory bodies and policy makers supporting our goal to be a valued corporate citizen in the communities we operate in	See the Integrated CR Strategy section
	<ul style="list-style-type: none"> <li>› Our university program actively engages with leading educational institutions to develop advanced technologies</li> </ul>	Strengthens our ability to develop new advanced technologies for the industry	See the Social section
	<ul style="list-style-type: none"> <li>› We participate and work with NGOs through industry consortium initiatives (SEMI, EICC, CDP, CFSI), joint projects, and multi-sector efforts</li> </ul>	Promotes mutual understanding on various social and environmental issues while creating partnerships that advance technology	See the Integrated CR Strategy, Environment, and Social sections

**IMPROVING TRANSPARENCY**

For a number of years, we have participated in the Transparency Benchmark organized by the Ministry of Economic Affairs of the Netherlands. The annual Transparency Benchmark's goal is to assess transparency in the area of corporate responsibility (CR) in the annual reports of Dutch companies. It encourages participants to be more transparent about their policy and performance results in the area of CR, to facilitate stakeholder dialogue, increase the focus on CR policy and improve business performance. Our benchmarking scores have improved continually since we published our first Corporate responsibility report. In the 2016 Transparency Benchmark, we scored above the industry average in the effectiveness and efficiency of our corporate responsibility policies and activities. This annual engagement provides us with the opportunity to continually strengthen our CR policies, reporting and transparency, as well as stakeholder engagement and communication activities.

**CUSTOMER RECOGNITION**

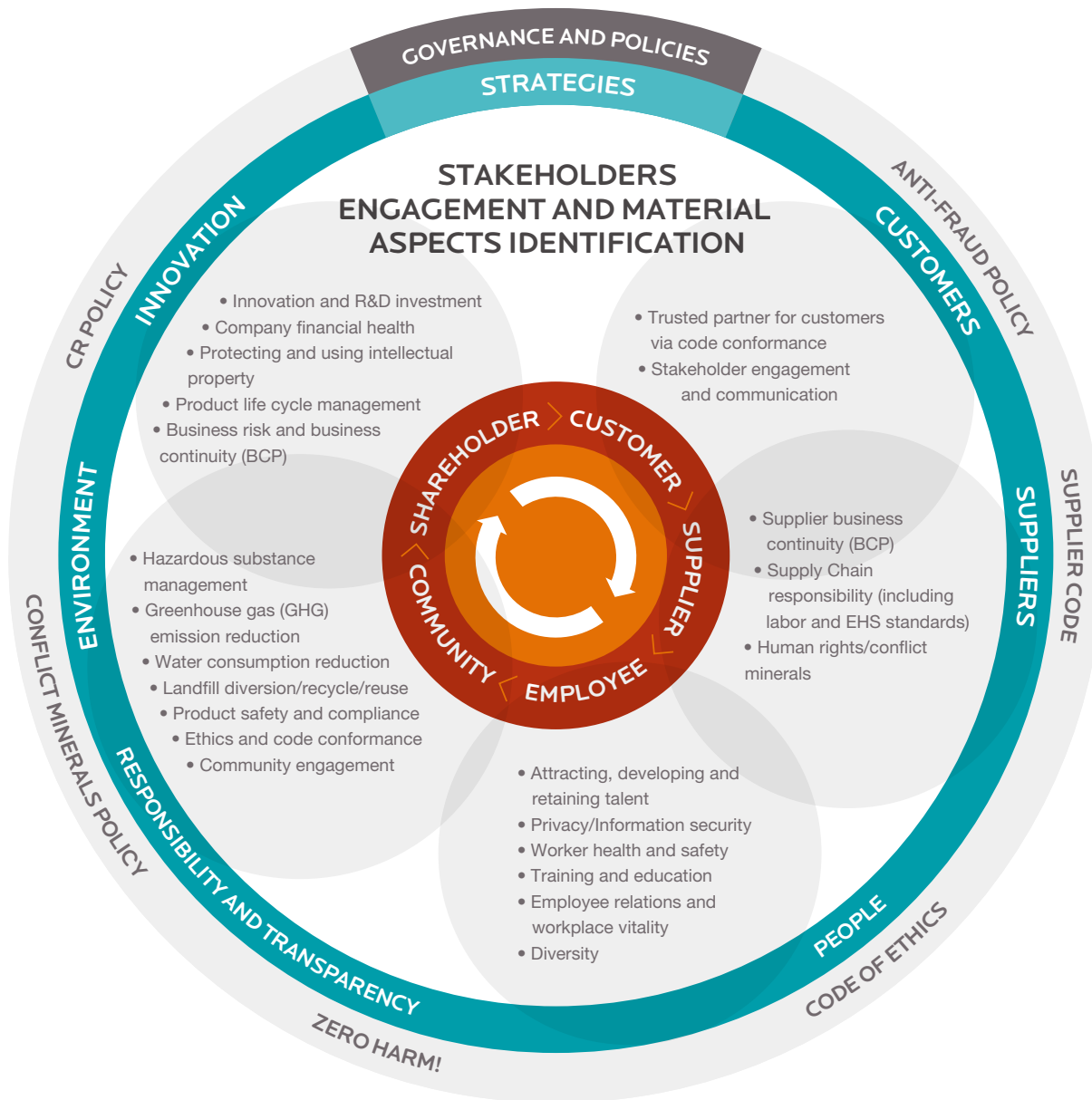
We regularly discuss the progress we are making within the area of corporate responsibility with our customers and solicit their views and feedback. In 2016, for example, we received a prestigious customer award for our 2015 supplier performance. The comprehensive assessment and qualification process covers business operations and performance, including social, environmental, health and safety areas.

“OUR SUCCESS IS DEPENDENT ON OUR ABILITY TO BUILD STRONG RELATIONSHIPS WITH ALL OUR STAKEHOLDERS.”

**MATERIALITY**

We use the sustainability materiality steps and matrix based on the Global Reporting Initiative's (GRI) G4 Sustainability Reporting Framework. We have identified the environmental, social, and economic aspects that have the greatest impact on our business and that have generated the greatest level of interest among stakeholders within our value chain. Our process for material aspects and boundary identification and prioritization includes our stakeholders at every materiality step.





**1. MATERIAL ASPECTS IDENTIFICATION**

We identify material aspects and issues through a stakeholder survey and other sources. In 2016 we conducted informal external benchmarking with our customers, peers or competitors, and industry leaders in corporate responsibility, sustainability and reporting and performed a gap analysis. This process helps us identify the non-financial aspects that are most important for business success, and add or revise material aspects which are most important to ASMI and our stakeholders.

**2. PRIORITIZATION**

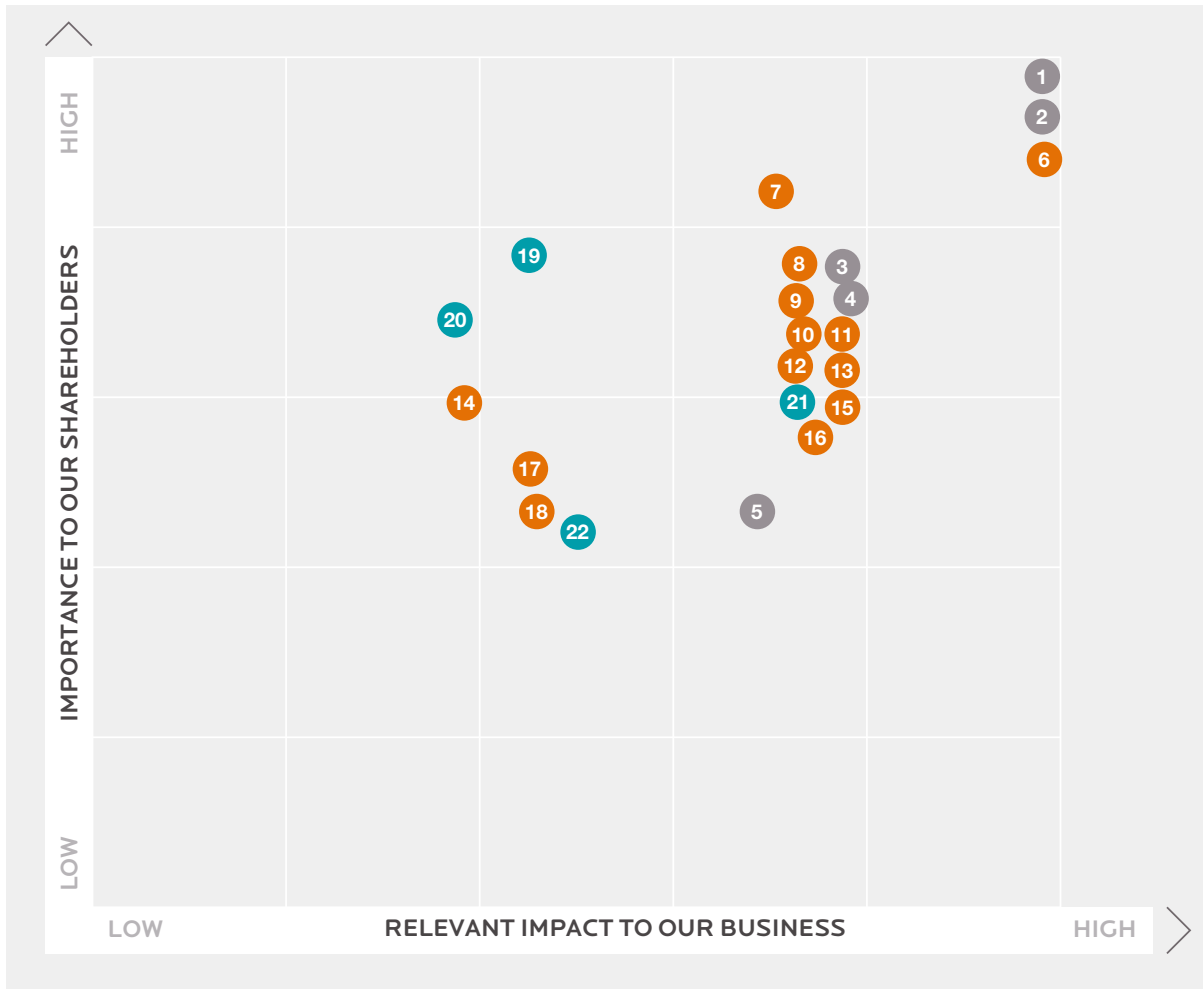
Then, we conduct our annual stakeholder priority survey and use a set of criteria that determine the priority of each material aspect we previously identified. Key criteria are:

- › Impact on business continuity;
- › Impact on brand or reputation;
- › Impact on revenue or future revenue;
- › Applicability to multiple regions;
- › Alignment with ASMI’s business strategies and corporate goals;
- › Impact on the community and environment;
- › Ability to attract and retain talent for continuing innovation;
- › Regulatory and trade impacts.

This helps us determine the Materiality and Stakeholder Priorities matrix that illustrates the materiality aspects that are of greatest interest to our stakeholders, and most relevant to our economic, social and environmental strategy and performance.



MATERIALITY AND STAKEHOLDER PRIORITIES



ECONOMIC	SOCIAL	ENVIRONMENTAL
1 Company financial health	6 Product safety and compliance	19 Water use/recycling
2 Innovation and R&D investment	7 Worker health and safety	20 Energy use/greenhouse gas (GHG) emissions
3 Business risk and business continuity (BCP)	8 Ethics and code conformance	21 Hazardous substance management
4 Protecting and using intellectual property	9 Stakeholder engagement and communication	22 Solid waste recycling/reuse
5 Product life cycle management	10 Trusted partner for customers	
	11 Information security	
	12 Attracting, developing and retaining talent	
	13 Employee relations and workplace vitality	
	14 Human rights/conflict minerals	
	15 Supply chain responsibility	
	16 Training and education	
	17 Diversity	
	18 Community engagement	

### 3. VALIDATION AND REVIEW

Through our internal management committees, we conduct regular performance reviews and validate our strategies. We conduct market research and benchmarking surveys to identify gaps and opportunities, as well as assess risks and challenges. As a result of this validation and review, we set new

performance goals, adjust or establish new policies, align our resources and then communicate with stakeholders. Further validation is conducted via participation in the Transparency Benchmark, the results of which measure our overall transparency performance from our Statutory annual report and Corporate responsibility report.

### KEY MATERIAL ASPECTS, THEIR STAKEHOLDERS AND BOUNDARIES

CATEGORY	MATERIALS ASPECTS/ WHAT MATTERS	KEY STAKEHOLDERS	SECTION TO COVER	BOUNDARY	COMPARING 2015
● ECONOMIC	Company financial health	Shareholders and customers	AR Financial performance	Operations	
● ECONOMIC	Innovation and R&D investment	Customers and shareholders	AR Research and Development	Operations	
● ECONOMIC	Business risk and business continuity (BCP)	Customers, shareholders, employees, suppliers	Integrated CR strategy	Operations, supply chain	added in 2016
● ECONOMIC	Product life cycle management	Customers, suppliers	Integrated CR strategy	Operations	added in 2016
● ECONOMIC	Protecting and using intellectual property	Shareholders, employees	Social	Operations	added in 2016
● SOCIAL	Ethics and code conformance	Community, shareholders, suppliers and employees	Social	Operations, supply chain	
● SOCIAL	Attracting, developing and retaining talent	Shareholders and employees	Social	Operations	
● SOCIAL	Worker health and safety	Employees and shareholders	Social	Operations	
● SOCIAL	Diversity	Employees, shareholders and community	Social	Operations	
● SOCIAL	Training and education	Community, employees and shareholders	Social	Operations, supply chain	
● SOCIAL	Human rights/conflict minerals	Community, shareholders and suppliers	Social	Operations, supply chain	
● SOCIAL	Community engagement	Community, employees and shareholders	Social	Operations	
● SOCIAL	Information security	Employees	Social	Operations	
● SOCIAL	Employee relations and workplace vitality	Employees, shareholders and community	Social	Operations	added in 2016
● SOCIAL	Trusted partner for customers via code conformance	Customers and shareholders	Integrated CR strategy	Operations, supply chain & customers	
● SOCIAL	Stakeholder engagement and communication	Shareholders, employees, customers, community and suppliers	Integrated CR strategy	Operations, customers, suppliers, investors, communities	added in 2016

CATEGORY	MATERIALS ASPECTS/ WHAT MATTERS	KEY STAKEHOLDERS	SECTION TO COVER	BOUNDARY	COMPARING 2015
● SOCIAL	Product safety and compliance	Customers, shareholders, employees and community	Integrated CR strategy	Operations, supply chain & community	added in 2016
● SOCIAL	Supply chain responsibility	Shareholders and employees	Supply Chain	Operations, supply chain	
● SOCIAL	Supplier Labor Standards (part of Supply Chain Responsibility)	Suppliers and customers	Supply Chain	Operations, supply chain	added in 2016
● ENVIRONMENTAL	Energy use/greenhouse gas (GHG) emissions	Community, customers, shareholders and employees	Environment	Operations, supply chain	
● ENVIRONMENTAL	Solid waste recycling/reuse	Community and shareholders	Environment	Operations, supply chain	
● ENVIRONMENTAL	Water use/recycling	Community and shareholders	Environment	Operations	
● ENVIRONMENTAL	Hazardous substance management	Customers, shareholders, employees and community	Environment	Operations, supply chain	added in 2016
● ENVIRONMENTAL	Supplier EHS (part of the Supply Chain Responsibility)	Suppliers, community	Supply Chain	Operations, supply chain	added in 2016

### ASSESSING, PRIORITIZING AND STRATEGIZING

Based on our marketing research, benchmarking and stakeholders survey, we identified trends and opportunities, assessed risk factors and challenges, and stakeholders’ prioritization results, from which we identified the strategic focus areas, our strategies and financial and non-financial measurements. It also helped us to plan and allocate resources to the best opportunities for sustainable growth while mitigating potential risks.

In 2016, we developed and aligned our CR strategic focus areas, our strategies and measures by taking into account both the concerns coming from multiple stakeholders as well as the global trends, opportunities and risks. You can see the results in the Material Aspects/Strategic Focus Categories table.



## MATERIAL ASPECTS/STRATEGIC FOCUS CATEGORIES

GLOBAL TRENDS, RISKS AND OPPORTUNITIES, CHALLENGES	OUR STRATEGIES	OUR MEASUREMENT	NEW IN 2016	RESULT/STAKEHOLDERS' IMPACT
<b>INNOVATION</b>				
<ul style="list-style-type: none"> <li>› Realize profitable, sustainable growth through innovation</li> <li>› Trends of continued scaling and evolution towards 3D device structures will further expand the number of applications for deposition</li> <li>› We aim to maintain technology leadership in deposition</li> <li>› Intellectual property management</li> </ul>	<ul style="list-style-type: none"> <li>› Invest in and develop new applications to support our customers' with increasing technology requirements</li> <li>› Leveraging our strong technology expertise to enhance customer/ stakeholder relationships</li> <li>› Create the company culture and environment for innovation and patent creation with strong IP protection programs</li> </ul>	<ul style="list-style-type: none"> <li>› R&amp;D investment € and % to sustain technology leadership</li> <li>› Patent filing #</li> <li>› Loyalty agreement</li> <li>› Professional training (€ and hours)</li> </ul>	<ul style="list-style-type: none"> <li>› Enhance company innovation culture with patent filing and strong IP protection program</li> </ul>	<ul style="list-style-type: none"> <li>› Technology leadership recognition with sustainable profitability and business growth</li> <li>› IP creation/Patent creation</li> <li>› Employees' professional development</li> </ul>
<b>PEOPLE</b>				
<ul style="list-style-type: none"> <li>› Attracting, developing, and retaining highly-qualified talent</li> <li>› Competitive labor market</li> </ul>	<ul style="list-style-type: none"> <li>› We use performance evaluation, succession planning, and employee learning and development programs</li> <li>› Establish leadership academy to ensure our leadership pipeline and stay competitive in labor markets</li> <li>› We partner closely with select top universities globally for technology development and recruitment</li> </ul>	<ul style="list-style-type: none"> <li>› Established talent management competency at all ASMI locations worldwide</li> <li>› Develop leadership pipeline and build high-performing teams.</li> <li>› Lower than industry turnover rate</li> </ul>	<ul style="list-style-type: none"> <li>› Established new HR portal for recruiting and employee development</li> <li>› Enhanced employee referral bonus</li> <li>› Delivered leadership training (EHS, etc.)</li> </ul>	<ul style="list-style-type: none"> <li>› Stable workforce with suitable technology and leadership capability</li> <li>› Employment creation and employee satisfaction</li> </ul>
<b>RESPONSIBILITY AND TRANSPARENCY</b>				
<ul style="list-style-type: none"> <li>› Corporate responsibility and transparency</li> <li>› Increasing social and Environmental/GHG requirement</li> <li>› Information security and privacy requirement</li> </ul>	<ul style="list-style-type: none"> <li>› Conducts business according to ethical and professional standards</li> <li>› Implement Ethics Code of Conduct, CR Policy, and commitment to EICC Code of Conduct</li> <li>› Secure IT systems</li> <li>› Contribute to the communities in which we operate, and continuously strive to reduce the environmental impact</li> </ul>	<ul style="list-style-type: none"> <li>› Integrated CR strategy and annual CR report</li> <li>› <b>ZERO HARM!</b> philosophy and comprehensive Health and Safety employee program and targets</li> <li>› Environmental targets and CDP reporting annually</li> <li>› Information security</li> <li>› Community engagement and activities reporting</li> </ul>	<ul style="list-style-type: none"> <li>› Integrated CR strategy and annual CR report</li> <li>› Benchmarked and achieved transparency improvement with corporate reporting</li> <li>› Enhanced IT system security</li> </ul>	<ul style="list-style-type: none"> <li>› Corporate citizenship</li> <li>› Employee health and safety</li> <li>› GHG and hazardous substances management</li> <li>› Information protection and privacy</li> <li>› Community contribution</li> </ul>
<b>CUSTOMER/ SUPPLIER PARTNERSHIP</b>				
<ul style="list-style-type: none"> <li>› Meeting customer expectations in the increasingly competitive market</li> <li>› Sustain technology leadership and partnerships</li> <li>› Supply chain risk management, responsibility and code conformance</li> </ul>	<ul style="list-style-type: none"> <li>› Provide our customers with the most advanced, cost-effective, and reliable products and services</li> <li>› Deposition technology leadership and partnerships for joint development</li> <li>› Partner with our suppliers to deliver products that support customer technology needs for leading technology</li> </ul>	<ul style="list-style-type: none"> <li>› Customer Satisfaction Survey result</li> <li>› Critical supplier Risk Assessment (Self-Assessment) completion and risk rating result</li> </ul>	<ul style="list-style-type: none"> <li>› Earned customer recognition for partnership in technology and management support</li> <li>› Integrating CR requirement into supply chain management</li> </ul>	<ul style="list-style-type: none"> <li>› Company financial health and shareholder value</li> <li>› Employment creation</li> <li>› Advanced and affordable technology for customers</li> <li>› Sustainable and flexible supply chain or value chain</li> </ul>
<b>ENVIRONMENT</b>				
<ul style="list-style-type: none"> <li>› Chemical and substances management</li> </ul>	<ul style="list-style-type: none"> <li>› Contribute to the communities in which we operate, and continuously strive to reduce environmental impact</li> </ul>	<ul style="list-style-type: none"> <li>› Environmental management system and ISO 14000 certification</li> <li>› Chemical and substance management</li> </ul>	<ul style="list-style-type: none"> <li>› Partnered with industry group for chemical and substance management</li> </ul>	<ul style="list-style-type: none"> <li>› <b>ZERO HARM!</b> philosophy toward the environment</li> </ul>

## OUR PERFORMANCE SUMMARY TOWARDS OUR GOALS

We use input from our stakeholders, the materiality assessments, and industry standards to set meaningful corporate responsibility objectives. The following table provides a high-level summary

of our company-wide corporate responsibility objectives for 2016. Detailed performance indicators and comparisons with previous years can be found in the appendix.

REPORT	2016 PROGRESS	TARGET
<b>INNOVATION</b>	<ul style="list-style-type: none"> <li>› We filed 95 patents and retained a total of 1,490 patents in force</li> <li>› R&amp;D investment of EUR 102 million</li> </ul>	<ul style="list-style-type: none"> <li>› Retain our technology leadership position in semiconductor equipment and processes with R&amp;D investment and Intellectual Property (IP) protection</li> </ul>
<b>PRODUCT STEWARDSHIP AND PRODUCT LIFE CYCLE</b>	<ul style="list-style-type: none"> <li>› We are making good progress in Product Life Cycle Management. We significantly strengthened our Product Safety Design team organization and standards</li> <li>› We continue to minimize chemical consumption needs during use of our products through design</li> </ul>	<ul style="list-style-type: none"> <li>› We have a goal of <b>ZERO HARM!</b>, which is not only during the design and manufacturing of our products, but also for the customers who use our product</li> <li>› We strive for <b>ZERO HARM!</b> throughout our product life cycle</li> </ul>
<b>PEOPLE/SOCIAL</b>	<ul style="list-style-type: none"> <li>› Retained number of employees, with increase in percent of employee in R&amp;D</li> <li>› 92.5% of all employees completed ethics training requirement</li> <li>› Our Recordable Injury Rate remains flat to prior years' performance at 0.34/100 employees</li> </ul>	<ul style="list-style-type: none"> <li>› Establish talent management competency at all ASMI locations worldwide</li> <li>› Develop leadership pipeline and build high-performing teams</li> <li>› Lower than industry turnover rate</li> <li>› <b>ZERO HARM!</b> to our employees</li> </ul>
<b>ENVIRONMENT</b>	<ul style="list-style-type: none"> <li>› We made good progress toward our 5-year water consumption, greenhouse gas emissions and landfill diversion goals</li> <li>› Our electricity usage is 31,814,761 kwh, our water consumption 178.7 (m<sup>3</sup> x 1,000), and non-hazardous landfill diversion rate is 72% which is up from the previous year</li> </ul>	<ul style="list-style-type: none"> <li>› Our 2020 environmental goals are to drive reductions in normalized greenhouse gas emissions and water usage per R&amp;D investment, and to increase our non-hazardous waste landfill diversion rate. See the Environmental Section of this report for full details</li> </ul>
<b>SUPPLY CHAIN</b>	<ul style="list-style-type: none"> <li>› We are integrating our corporate responsibility requirements into our supply chain management system including contracts, scorecard and business reviews</li> <li>› &gt;90% of our critical suppliers acknowledged their commitment to our Supplier Code of Conduct and 86% of them completed the Self-Assessment Questionnaire</li> </ul>	<ul style="list-style-type: none"> <li>› Our goal is for critical suppliers to acknowledge their commitment to the supplier code and develop their own management system to ensure supply chain conformance to labor, ethics and EHS standards, principles and policies, which supports us in having a resilient supply chain</li> </ul>

## LOOK AHEAD

Looking ahead, we wish to continue to standardize and unify our socially responsible business practices, and integrate them into our business strategies. Specifically, we intend to focus on the following key areas and strategies to continue to strengthen and further improve our overall corporate responsibility performance:

- › Communicate and interact with our stakeholders and use their feedback as input to design an integrated strategy, and to help manage and measure our performance and product stewardship;
- › Continue the progress we made in 2016 toward our 2020 Environmental Objectives;
- › Recruit and retain talent in technology development to maintain our technology leadership;
- › Supply chain governance and assurance.

“STAKEHOLDER FEEDBACK HELPS SHAPE OUR CORPORATE RESPONSIBILITY STRATEGIES.”

**GOVERNANCE**

**OUR CORPORATE RESPONSIBILITY GOVERNANCE**

We believe the best way to meet the interests of our shareholders, customers and employees is by creating a culture of responsibility, and supporting that culture with comprehensive policies and procedures.

We have embedded aspects of corporate responsibility in our management system. It starts with the Supervisory and Management Boards and the corporate governance standards they hold the company accountable to, and it involves everyone who works at ASMI. Details of our current corporate governance commitment, standards and practices can be found on our website.

**ENVIRONMENTAL, HEALTH, SAFETY, CORPORATE RESPONSIBILITY AND HUMAN RESOURCES**

Our Management Board is actively engaged in corporate responsibility through the Vice President of Human Resources, who is also Chairperson of the ASMI Ethics Committee, and the Vice President of Operational Excellence, who is directly responsible for the Environmental, Health, Safety and Corporate Responsibility of the company.

Working together, these two organizations have key roles in identifying and creating relevant policy, managing our approach to key aspects of corporate responsibility, and evaluating the results. These include aspects of environmental performance, employee health and safety, labor and ethics.

But corporate responsibility is not limited to just these aspects. For example, Trade Compliance and Finance are also addressed strategically and operationally within the relevant internal organizations.

**ETHICS COMMITTEE AND EICC COMMITTEE**

There are two committees that help us develop policy and manage our approach to these key aspects of corporate responsibility. Both committees are comprised of cross-functional members representing different but related aspects of the business.

The committees are:

- › Ethics Committee: Chairperson, VP of Human Resources;
- › EICC Committee: Chairperson, Director Global Environmental, Health and Safety/Corporate Responsibility (reporting to the VP of Operational Excellence).

**CORPORATE GOVERNANCE FRAMEWORK**



**OUR DISCLOSURE ACTIVITIES**

The Disclosure Committee, consisting of senior managers from various functional areas across the company, assists the Management Board to oversee the company's disclosure activities.



## FIND OUT MORE

More information about our management and control systems, which form the basis for how we run our company, is available in the corporate governance section of our Statutory annual report on our website.

The following information is available on our website:

- › Supervisory Board profile
- › Supervisory Board rules
- › Management Board profile
- › Management Board rules
- › Audit Committee charter
- › Nomination, Selection and Remuneration Committee charter
- › Code of Ethics
- › Whistleblower policy
- › Anti-Fraud policy
- › Rules concerning insider trading
- › Remuneration policy
- › Conflict Minerals policy
- › Supplier Code of Conduct

## GLOBAL TRENDS, RISKS AND OPPORTUNITIES

As a global company, our business and operations may be positively or negatively impacted by global trends. Alongside regional issues, global trends present us with a range of opportunities, challenges and risks. Managing these proactively helps ensure we achieve our strategic goals. For more information, please see page 95 of our Statutory annual report.

## RISK MANAGEMENT AND BUSINESS CONTINUITY

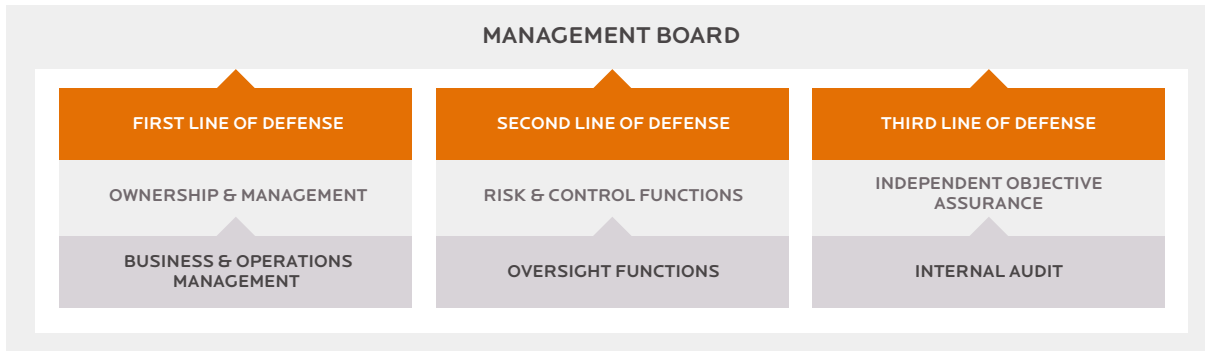
### Risk management

We operate a Risk Management and Control Framework based on the 'three lines of defense model'. This provides the Audit Committee and the Management Board with a clear overview of the effectiveness of our internal controls and risk management.

The model includes:

- › **First line of defense:** Business and operations management, which owns risk assessment and is responsible for maintaining effective controls and for executing risk and control procedures on a daily basis.
- › **Second line of defense:** Corporate risk and control functions, which set policies and procedures. They also provide oversight and support, and monitor the activities of the first line business management and operations functions to ensure that the risk and control procedures are operating as intended.
- › **Third line of defense:** Internal Audit, which provides independent objective assurance on the effectiveness of governance, risk management and internal controls.
- › To read more about our Risk Management approach and our risk appetite, please visit the Risk Management Approach section in our Statutory annual report.

“OUR GOAL IS TO CONTINUE TO STANDARDIZE AND UNIFY OUR SOCIALLY RESPONSIBLE BUSINESS PRACTICES.”



**Business continuity management**

We have established a set of global processes for risk assessments, control, disaster recovery and business continuity management. Business continuity is managed under our risk management governance structure.

At key locations, we perform regular business continuity risk assessments and drills.

The assessments provide our risk and control functions with an overview of our business and operational risks, based on the likelihood and impact of disaster, safety, environment, business and finance risk. These drills provide us with an opportunity to test our disaster recovery plans, while identifying gaps for continuous improvement.

In 2016 we standardized our site risk assessments, and aligned the rating of our risk likelihood, impact and control mechanisms. This creates consistency across our risk assessment results and helps us carry out more effective operational and business controls globally. Continually improving our assessment processes leads to better and more comparable communication, control and business continuity execution across our sites.

We also looked at whether our procedures and risk assessment measures are adequate when compared to our peers and industry best practices. The assessment concluded that the business continuity process is healthy.

With locations and suppliers all over the world, we must be prepared to respond to a range of disasters and ensure we can continue to operate to meet our customers’ demands. We also perform supplier business continuity risk assessments, and utilize a common industry method and tool to drive risk and business continuity management with our supply chain partners. Through this process, we require our critical suppliers to have their own business continuity and disaster recovery management plan and commit to communicating with us in the event of actual and potential business interruptions. The tool we utilize helps immediately identify suppliers who may be impacted by global events, such as weather, political, or other disruptions. In 2016 no significant business impact events were reported to us or experienced by our critical suppliers.

## INNOVATION AND INTELLECTUAL PROPERTY (IP)

We have been an innovation leader within the semiconductor industry for nearly 50 years. During that time, we have helped shape the industry through a series of breakthrough innovations in technologies such as atomic layer deposition (ALD), plasma deposition and epitaxy.

### Culture of innovation

We strive to maintain a culture of innovation at every level of the organization. We attract and retain creative people from around the world, who help us create a steady stream of innovations that we bring to volume manufacturing through close cooperation with our customers.

Our vision is to increase value to the company and our customers through innovations and the use of our IP to differentiate our products, influence the market and provide additional monetization opportunities. We understand that a failure to adequately protect our Intellectual Property (IP) and/or leakage of our IP could result in the loss of our competitive advantage and adversely impact demand, as well as our financial performance.

We seek to minimize IP risk of products and R&D activities through strategic IP positioning and safeguarding technical know-how to preserve and grow our intrinsic value. We respect the IP of customers, suppliers and other entities. This is an integral part of our Code of Ethics and built into our business practices.

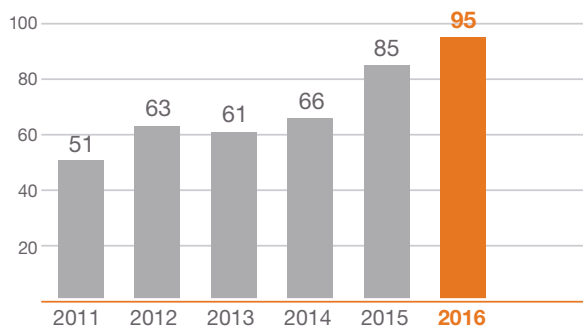
### 2016 and beyond

We have implemented a robust IP protection program that protects IP for ASMI, our customers, suppliers and partners. We train all employees not only on the importance of IP protection, but on how to recognize and report possible IP infractions. This training is provided to all new hires, and employees are given regular refresher training. As well as operating a global IP function, IP managers also work at all of our major R&D sites, where they capture technical know-how, patentable or otherwise, resulting from our R&D activities.

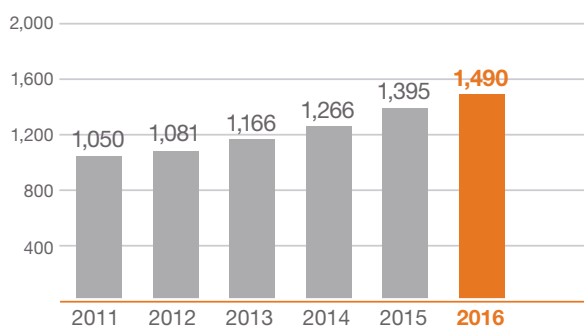
Each year we file an average of between 50 and 100 new utility patent applications, and by 2016 year-end we had over 1,490 patents in force worldwide. Hundreds of these patents relate specifically to the ALD process technology platform, and we expect new deposition technologies and chemistries to be a major driver for new IP in the future. In 2016 our investment in R&D totaled €102 million, resulting in the filing of 95 new utility patent applications.

We continue to implement new software, training and agreements which will allow us to better protect our IP and safeguard our technology developments.

### INITIAL PATENT FILINGS



### PATENTS IN FORCE





## PRODUCT STEWARDSHIP AND PRODUCT LIFE CYCLE MANAGEMENT

Focusing on product stewardship and product life cycle (PLC) management involves taking responsibility to reduce the product’s environmental impact along its entire life cycle. Ultimately, this approach enables our customers to be more efficient and productive.

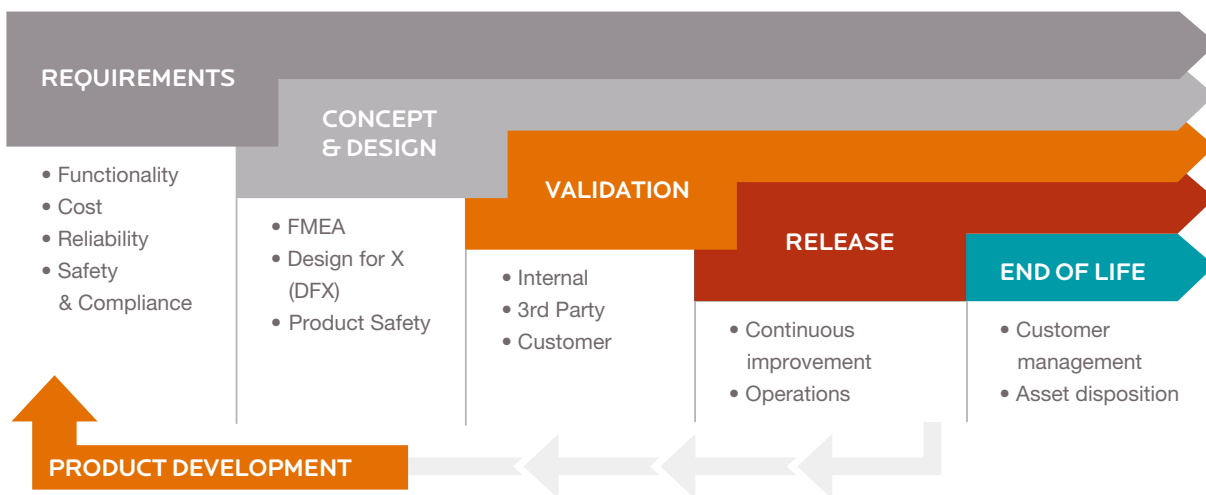
To achieve successful product stewardship and PLC management, we rely on our manufacturing, management controls and robust product and process design practices to produce high-quality, reliable and innovative products. We extend these processes to our supply chain partners, and work closely to develop and qualify them as strong partners.

To reduce the environmental impact of our products during the manufacturing phase, we work hard to conserve energy and water, while reducing air emissions. You can read more about how we manage the environmental impact of our product manufacturing in the Environment section of this report.

## PRODUCT STEWARDSHIP APPROACH AND PRODUCT LIFE-CYCLE MANAGEMENT

Our product stewardship focuses on the areas of product life cycle management, refurbishing and resale, and product safety. We integrate critical environmental, health and safety (EHS) requirements during the early stages of product development. This allows us to measure progress and retire risks against the design requirements through the PLC stages before the product is introduced to the market. Our design processes focus on achieving maximum product performance while trying to do so with a small physical footprint, thereby driving down the cost of ownership for our customers and improving the ecosystem. As our products reach the end of their life cycle, we work closely with our customers when requested to rebuild and refurbish them.

In a 2016 product alpha release, ASMI engineering teams successfully demonstrated a significant reduction of chamber volume, resulting in reduced chemical precursor consumption compared to competitive products. This not only leads to reduced cost of ownership for customers, but also reduces the amount of chemical emissions from the product. This is the second such successful project in two years that has resulted in significantly reduced process chemical consumption.



In 2016 we also successfully developed energy conservation product improvements, including reducing the energy needed to cool down reactors and used during wafer handling. Additionally, we implemented projects that successfully extend the lifetime of certain critical parts, resulting in fewer part exchanges. This reduces raw material use and lowers

the required number of cleaning cycles, reducing chemical consumption and waste. These advances not only improve the environmental footprint at our labs, but on a larger scale they improve the environmental footprint of all our customers who use this equipment.

### Product safety and governance

Our product safety policy is a part of our global business management system. This policy defines the requirements, processes, and roles and responsibilities in support of our vision to achieve **ZERO HARM!** in product safety.

Our product safety requirements are established during the early stages of product development. The requirements include legislation, and standards from the semiconductor industry and customers. The designs are continually assessed through design reviews and safety risk assessments to verify that safety requirements are being met. Independent third-party validations are done both at a sub-component and system level, and at various product maturity stages. This helps ensure that our products are safe to operate and maintain, both at our own locations as well as those of our customers.

Finally, the procedures used to operation, service, maintain and/or troubleshoot our product are vetted using a product safety team review and validated for safety prior to releasing the procedure for use at our facilities and customer locations. The procedures are integrated, governed and released as part of our regular Engineering Change Order (ECO) process, in which product safety is a key approver.

### Product and trade compliance

We operate an in-house global trade compliance (GTC) team. The team is responsible for developing and maintaining an effective program, guidance and enforcement to enable worldwide trade compliance with applicable import and export laws and regulations. To provide the best support within the organization, the GTC team welcomes questions and information inquiries from employees and stakeholders. In 2016 the GTC team introduced a project to streamline and improve the denied party screening process through an enterprise system enhancement. This will allow us to automate functionality, which will improve accuracy, efficiency and compliance to trade requirements.

### INFORMATION SECURITY

Rising global security threats require an effective technology security management framework. Our technologies, innovations, intellectual property, products and process data, as well as the sensitive information about our customers, suppliers and employees, are valuable assets. Any breach of our information systems could adversely affect our finances and operating results, as well as our reputation.

#### OUR APPROACH AND POLICY

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

Our measures to protect information in our IT systems include a combination of systems, processes and people. As well as continuing standard proactive control measures such as disaster recovery, risk management and access control, we have significantly strengthened our responsive cyber capabilities to detect, contain, investigate and mitigate information security events in a timely manner. We utilize experts to ensure the risks are controlled.

In addition to traditional awareness training and company-wide alerts or memos, we also utilize interactive means, such as simulations of phishing campaigns, to increase awareness and readiness against external cyber security attacks.

The senior management team receives regular updates to ensure cyber security risks are addressed and the security system is continuously improved. In addition to securing our IT systems, we conduct regular security training with our employees in various ways.

Our goal is to drive continuous improvement in information security to protect our intellectual property and privacy, while mitigating risks and achieving data security for our customers, employees and other stakeholders.

# ENVIRONMENT

At ASMI, we are committed to responsibly managing our overall environmental footprint. This includes our energy and water consumption, the air emissions associated with our operations, and our products and enabling technologies' environmental footprint. This ZERO HARM! philosophy drives continuous improvement in our Environmental Management System, which is certified to the International Standard Organization (ISO) 14001 standard.



## OUR APPROACH

Our enabling technologies are driving down the energy demand of computing power through smaller transistors that use less power. Our customers benefit from our R&D, ongoing innovation and product manufacturing. These benefits are then passed on to consumers and industry in the form of an increase in the number of calculations performed per kilowatt hour.

Our R&D requires continued investment in the form of advanced equipment installations, which leads to greater demand of energy and utilities. We meet this challenge by constantly evaluating our operations, R&D practices, manufacturing practices and waste management at our facilities, looking for greater efficiencies. We believe that we can make the necessary investments to further our enabling technologies and make the world a better place by responsibly managing the resources needed to do so.

In 2016 after closing a previous improvement cycle, we initiated a new five-year environmental roadmap aligned with our vision of ZERO HARM! This roadmap includes objectives that closely align with measures for the semiconductor industry. These areas target our greatest areas of environmental impact, and are based on 2015 baseline performance.

### ENVIRONMENTAL TARGETS FOR 2016-2020

- › Reduce greenhouse gas emissions by 5% per euro of R&D investment below 2015 levels by 2020;
- › Reduce water consumption by 10% per euro of R&D investment below 2015 levels by 2020;
- › Divert more than 90% of all waste from landfill through recycle or reuse by 2020;
- › All new construction projects to exceed the energy efficiency standards of local jurisdictions.

We utilize a robust management system for managing our environmental performance. We are certified to the ISO 14001 standard for Environmental Management Systems. In 2016 we successfully achieved recertification following a triennial audit. The management system provides a framework for implementing, monitoring and improving elements to support the ZERO HARM! philosophy.

## PERFORMANCE

We are committed to continually identifying opportunities to responsibly manage our environmental footprint. In 2016 we took a project-based approach to evaluate the environmental impact at each of our sites, performing a team risk assessment with key stakeholders involved in the use of significant environmental impacts.

These continuous improvement projects are integrated with our operational strategies, and measured as part of performance targets that are reported to the Senior Management Team (SMT) quarterly in an Environmental Progress report.

Some key highlights of initiatives completed in 2016 are:

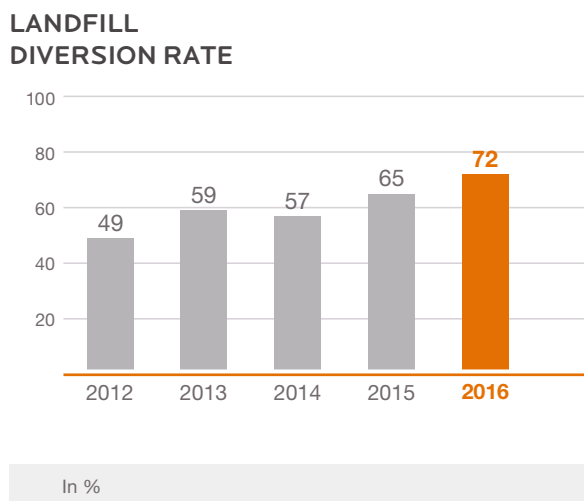
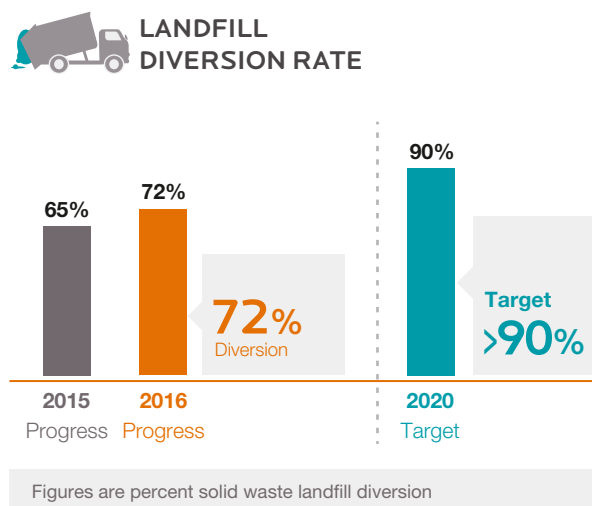
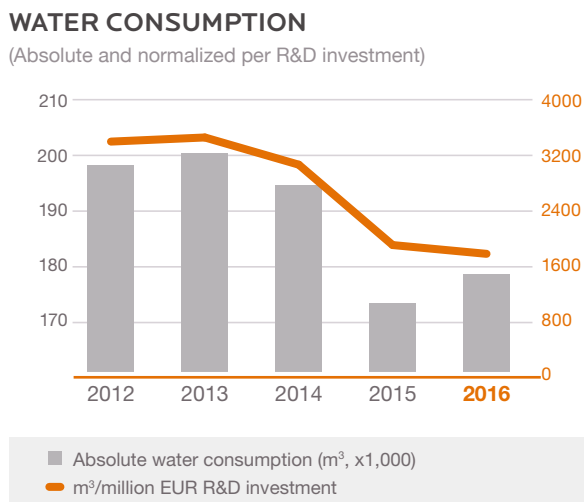
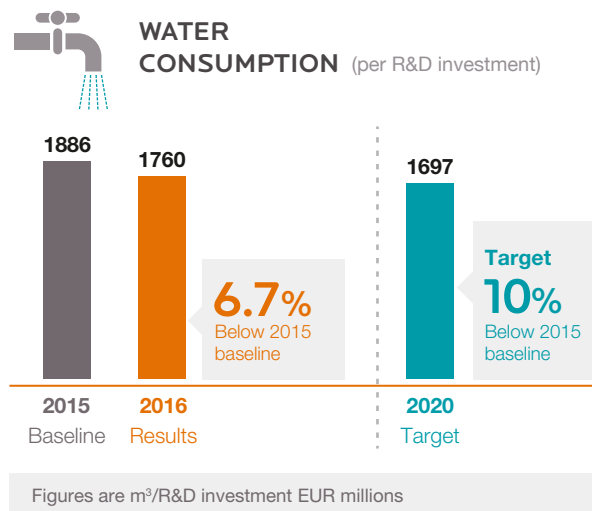
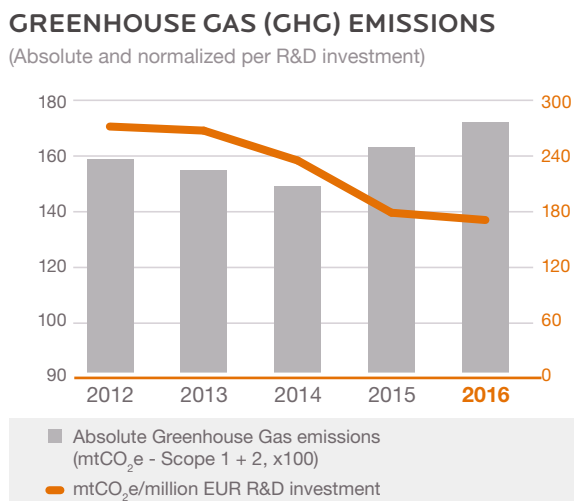
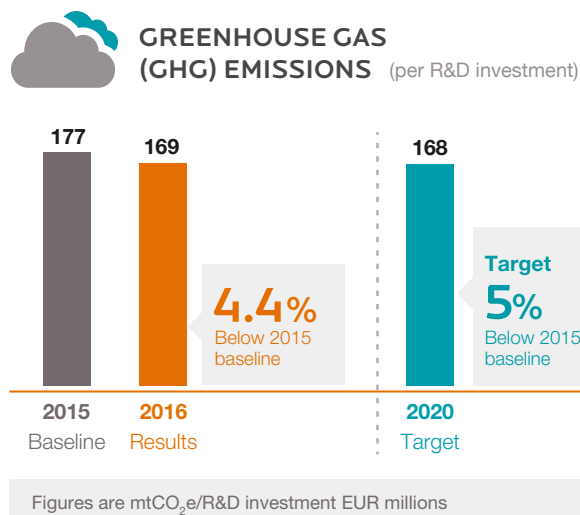
- › The installation of modern, energy-efficient air conditioning units at our Phoenix site, replacing three units that were over 20 years old;
- › The optimization of PLC controls on the cleanroom air handling units at our Singapore manufacturing facility;
- › The installation of low-energy LED lighting at our Almere and Phoenix locations, replacing fluorescent lighting;
- › The installation of low-flow water-efficient fixtures in Phoenix and Singapore.



These projects, combined with our daily focus on maximizing conservation through all equipment installations and new projects, contributed to the

following progress in the first year of the five-year cycle from 2016-2020.

## ENVIRONMENTAL PERFORMANCE AND TRENDS



## WATER CONSUMPTION

Water consumption affects the entire world, from simply having enough fresh drinking water in developing nations, to ample supplies to sustain agriculture. We recognize our responsibility in reducing our consumption, regardless of our proximity to these and other critical water-related issues. We believe we can continue to reduce our water consumption while growing our operations.

In Singapore, our manufacturing facility utilizes recycled water for many of its operations. In 2016 we increased the water consumed from recycled sources at our Singapore operations to 72%, a 10% increase from 2015.

Just under 90% of our global water consumption is through our research and development (R&D) operations. We see opportunities to manage water consumption through the R&D process, and are exploring ways to further increase our efficiencies.

At our Engineering and R&D facility in Phoenix, we introduced a project to install a system that will re-use wastewater for air scrubber abatement. Construction of the system was started in 2016, and is scheduled to be completed in 2017. As a result of this project, we hope to report significant water conservation results in next year's Corporate responsibility report.

## GREENHOUSE GAS EMISSIONS

Our 2016-2020 greenhouse gas emissions (GHG) reductions target is to reduce emissions by 5% per R&D investment as measured against a 2015 baseline.

We continue to expand our capabilities for R&D across all of our operations, and R&D accounted for approximately 79% of our GHG emissions in 2016. Of the total GHG emissions, 98% was attributable to Scope 2 Electrical purchases.

As our R&D increases, we look for opportunities across our R&D operations to reduce electrical consumption, for example by doing more with less. In 2016 we continued to maintain control of our energy consumption despite new equipment installations. Looking forward, we are evaluating the potential of air emission abatement solutions with a lower energy profile to further reduce our consumption and improve sustainability across our engineering operations.

## RECYCLING AND REUSE

Recycling and reuse of solid waste continues to be a core focus of our long-term environmental strategy. We are striving to divert 90% of our waste from landfill by 2020. In 2016 we increased our diversion rate to 72%, up from 65% in 2015.

In Singapore, where manufacturing relies on a variety of packaging types, we audited our waste vendor in an effort to maximize our understanding of their recycling capabilities. This effort contributed to a 12% increase in the diversion rate in Singapore. But we are not stopping there. Our packaging engineering team is evaluating opportunities to reduce our reliance on disposable packaging and increase reusable packaging.

## BIODIVERSITY

Biodiversity impacts can occur when operations impact designated and sensitive biodiversity areas. 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.



## CHALLENGES, OPPORTUNITIES AND MANAGING RISK

Our operations continue to be driven by innovation and new product introduction, meeting the dynamic smaller scaling of device architectures and technology nodes. This results in significant R&D investment and supporting operations, equipment and infrastructure. The equipment necessary to develop new products and processes is energy and utility intensive.

This is why we have chosen to focus on a five-year performance cycle that emphasizes energy and water consumption per R&D investment. This normalization helps drive development and project efforts related to the areas of greatest intensity.

A significant challenge is the sensitivity of our equipment to major fluctuations in process conditions. Our process of deposition involves layering atoms; literally, an atomic scale process which requires that we control fluctuations in equipment temperature, vacuum, or related process parameters. For these reasons, equipment cannot just be placed in idle mode when not in use. Ultimately, this influences electrical consumption, indirect greenhouse gas emissions, and water consumption.

Additional risks that all businesses, including ASMI, may face include risks associated with climate change. Ever-changing climate conditions are placing a strain on energy sectors to deliver reliable energy when demand can be affected by seasonal energy peaks or outages related to weather. Even with these factors, we do not currently anticipate that global climate change will present a significant physical risk to our current product development and manufacturing operations at our locations in the US, Japan, South Korea, the Netherlands and Singapore.

Our approach to managing climate change and water risks is to identify the operational parameters contributing to our footprint, and set strategies, objectives and internal reporting goals under our Environmental Management Systems (EMS).

In 2016 we introduced a quarterly Environmental report for senior management to help drive focus and effort in managing the risks and achieving performance targets. This complements the regional environmental teams working on these issues on a daily basis as part of our Environmental Management System. We use the reports and progress as input for target setting in future years.

## ANTICIPATING FUTURE CHANGES IN ROHS LEGISLATION

We see potential challenges in possible future changes to the Restriction of Hazardous Substances Directive (RoHS) as adopted by the European Union. Currently, our products are excluded from applicability under Article 2.4(d), but this could change in the near future. We are already planning for this possible change through RoHS-compliant article declarations from our suppliers, and integrating and improving controls within our Product Life Cycle (PLC).

# SOCIAL



The world we live in is made up of a series of connections: people connecting to people; people connecting to machines; and machines connecting to machines. What connects them all is a power we take for granted. Yet these connections only exist because of people. We know that it takes the right mix of people, working together, to solve big challenges. Investing in our people enables us to deliver the advanced nanotechnologies that enable better products to connect lives. This is why we continue to grow and invest in our R&D staff.

## ETHICS

Our Code of Ethics applies to our Supervisory and Management Boards, our Management Team, and to all our employees, consultants, contractors, temporary employees and critical suppliers. The Code promotes honest and ethical conduct throughout our global operations.

For employees, this starts on the day they begin working with us. New employees are required to familiarize themselves with the Code and associated policies and processes within the first week of employment.

In addition to the initial training, we also require all our employees to take refresher training every two years. In 2016, 92.5% of our employees completed the bi-annual Code of Ethics course.

## OUR SYSTEM OF ETHICS

Under the governance of our Ethics Committee, which reports to the Management Board, we continually track our performance against our goals and improve our ethics management system and performance.

In 2016 we continued to strive for zero ethics issues. Potential violations of our Code of Conduct can be reported through the SpeakUp! process, or directly to management, HR, or the compliance officer. When we receive complaints, these are investigated under the supervision of the Ethics Committee.

The SpeakUp! process lets employees and suppliers report ethics issues, concerns or complaints anonymously and in their own language. Independent of the way of reporting, our Code of Ethics includes

a non-retaliation policy that applies to any person making use of this process.

## ACTIVELY PROMOTING AWARENESS

We work continuously to increase awareness of, and promote ethical behavior. In 2016 we issued four publications to all employees through our global Connect! newsletter. The articles highlighted a range of relevant topics, such as the importance of the EICC Code of Conduct, ethics and integrity in our daily work, and the role of auditing in maintaining high ethical standards. We also improved access to our Ethics homepage and reporting mechanisms on the Intranet. All of these efforts aim to foster behavior in line with our Code of Conduct and in reporting potential violations.

## MANAGING CONCERNS

In 2016, three concerns were reported through our SpeakUp! System, while two cases were reported via other channels to the Ethics Committee. The slight increase in the number of reports in 2016 versus 2015 could be because people are more aware of the process and feel comfortable in reporting concerns.

All incidents were fully investigated and, in those cases involving violations to our Code of Ethics, appropriate actions were taken according to internal policies. The Ethics Committee reviewed all cases and approved the measures taken.

“TO ACHIEVE SUCCESS, WE NEED CAPABLE PEOPLE THAT ARE COMMITTED TO THE COMPANY AND OUR CUSTOMERS.”



## ANNUAL ETHICS SCORECARD

CRITERIA	SCOPE	PERFORMANCE CRITERIA	2016 RESULT
TRAINING	NEW HIRES	Mandatory sign-off on having received, read, understood and agreed to the Code of Ethics	87%
	ALL EMPLOYEES	Employees completion of bi-annual refresher training	92.5%
COMPLIANCE	ALL EMPLOYEES	Reported concerns from anonymous global reporting program SpeakUp!	3
		Reported concerns from other channels	2
AWARENESS	GLOBAL	Published articles in internal employee newsletter	4

### PEOPLE

We would not be the company we are without people who are passionate about innovation. People who are passionate about delivering excellence. It's these people – our employees, our customers' employees, and the people in the communities and supply chain in which we operate – who make us who we are.

We understand that every individual is unique, and we work hard to ensure our culture and standards reflect the need to provide a workplace free of discrimination, which is rich in diversity, and free of risks and hazards. We want everyone within the company to treat one another with mutual respect and dignity.

#### OUR GLOBAL EMPLOYMENT STANDARDS

Our Global Employment Standards (GES) summarize our position on key human rights issues and our approach to respecting human rights throughout our global operations and supply chain. They are written with everyone in our value chain in mind.

The GES reflect the principles laid out by the United Nations in the Guiding Principles on Business and Human Rights.

To ensure the GES reflect changing industry and international standards and norms, we monitor developments related to the EICC Code and other applicable regulations and standards. We are committed to updating our management practices to stay compliant with the EICC code as it evolves.

In 2016 we finalized updates to the GES and implemented supporting systems in a number of areas, including:

- › Religious accommodations;
- › Notification of automatic enrollment or representation by worker organization(s);
- › Separation of employment protections.

Updates to the global standards are communicated to all employees.



**447**  
EMPLOYEES IN R&D



**102**  
R&D INVESTMENT  
(EUR million)

## CONNECTING TALENT WITH ASMI

To achieve successful business results, we need capable people that are committed to the company and our customers. We connect with these people in a number of ways. One way is online, where we have a comprehensive careers section on our corporate website. This includes information that helps potential employees understand our business, and aims to inspire them to apply for opportunities. The site includes information about our financials, strategy, policies and best practices, and highlights our innovation, technology leadership and young professionals. In all, over 250 new hires joined ASMI in 2016.

Our New College Graduate (NCG) program enables us to attract, develop and retain top graduates with advanced degrees in physics, physical chemistry, chemistry, materials science and engineering. Working with a select list of universities that focus on the education and training that fits our technology needs, we participate in career events, partnerships and projects that give us the opportunity to showcase the company.

We give the new college graduates we hire the resources, opportunities and support to succeed in their careers. They are trained and begin working at the leading edge alongside experienced innovators, to resolve some of our toughest scientific challenges. Through our NCG program, participants are based at one of our innovation centers in Helsinki, Finland or Leuven, Belgium during the first two to three years of their career. After this, they have the opportunity to apply their advanced knowledge in different product areas and at other global facilities. In 2016, four of these NCGs completed their NCG program in Helsinki and Leuven and transferred to global ASMI locations like Phoenix and Tokyo to apply their acquired knowledge. New NCG candidates were hired from leading universities to backfill these positions.

Another great way how we connect with talent is through our internship program, which enables talented students to make the transition into the workplace. Interns are selected based on the quality of their application and how well they fit the role. A typical internship period runs for six months. In some cases, such as a thesis project, this period may be extended.

## CONNECTING WITH A CAREER

Since technological expertise and skills are fundamental to our success, we offer people a career, not just a position. Encouraging people to develop their career strengthens both the company and local communities.

Career development is supported as soon as a new employee joins with an onboarding process helping to familiarize them with the company, our technology, innovation and policies, and to determine realistic and achievable goals.

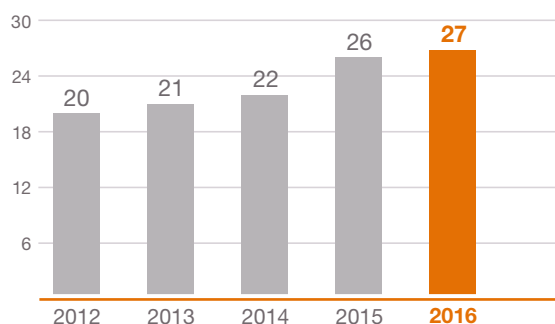
To continue developing talent and grow careers, we use a global Talent Management program, performance evaluation and development, succession planning, and employee learning and development programs. We have an established talent management competency set and a talent scorecard in place covering ASMI locations globally.

In 2016 we expanded our succession and talent reviews for the business. These reviews are needed to strategically determine our need for talent, foster internal development and succession. In addition, we organized leadership programs at different levels of the organization in all of our regions. In total 71 employees were able to develop their careers through these sessions.

## OUR WORKFORCE

At the end of 2016, we had a total workforce of 1,670 employees, representing 28 nationalities. The number of employees working in R&D grew to 447 (2015: 420), accounting for 27% of our total workforce. The continued growth in our R&D workforce demonstrates our ongoing drive and commitment to innovation.

### EMPLOYEES IN R&D in %



## RESPECTING LABOR

We respect prevailing labor relations and employment practices, including the right to be represented by trade unions and other employee organizations within

the framework of applicable laws and regulations globally. At the end of 2016, 9.5% of our global staff were covered by collective bargaining agreements.

## WORKFORCE

	2013	2014	2015	2016
EMPLOYEES	1,503	1,635	1,597	1,670
NATIONALITIES	28	26	29	28
MALE	87%	86%	86%	85%
FEMALE	13%	14%	14%	15%
VOLUNTARY TURNOVER RATE	7.4%	6.9%	6.1%	6.8%

## HUMAN RIGHTS

At the core of all employee relations is the respect for basic human rights. Our Global Employment Standards include principles to protect employees and potential employees, and includes the following:

- › Prohibit the use of forced or involuntary labor, including fees of any type to secure employment;
- › Prohibit the employment of child labor, and do not employ anyone under the age of 18;
- › 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. We are proud to do our part to shine a light on any human rights issues and ensure our operations are free of such risks. In 2016 we had no reports or evidence of any human rights violations or abuses within our global hiring or employment practices.

## RESPECTING DIVERSITY

We are an equal opportunity employer. We understand that every individual is unique. We recognize and respect the differences between individuals and we understand that these differences can include ethnicity, religious beliefs, nationality, age, gender, sexual orientation, family status, physical ability, experience and perspective.

Recruiting and developing a diverse workforce gives us a wide range of perspectives, and allows us to explore and adopt new ideas and innovations in technology. It also allows us to better understand and meet the needs of our diverse customers and communities.

Workforce diversity continues to be part of the strategic objectives that help us drive for innovation. We benefit from this diverse perspective and the advantages of bringing talented people of all backgrounds together to create new breakthrough innovations, turning today's challenges into tomorrow's opportunities.

In 2016 we continued to maintain a high diversity of nationalities throughout the company. At year-end, 15% of our workforce were women. In every area, we encourage female applicants to apply for open positions within the organization.

We discuss the diversity of the Supervisory and Management Boards in the Supervisory Board section of our 2016 Statutory annual report.

## HEALTH AND SAFETY

We have a simple philosophy we strive for with respect to the health and safety of our employees, our suppliers and our customers' employees who work with or around our equipment: **ZERO HARM!** We strive to prevent injury and health and safety incidents. The design of our systems, our processes, our sites, and the culture we foster, can all positively contribute to this philosophy, and we continue to challenge ourselves to improve to make **ZERO HARM!** a reality.

### OUR APPROACH

As part of the semiconductor industry value chain, we face a wide range of risks and hazards, including from chemical use, high voltage systems, ergonomic risks and many other physical hazards. Assessing, mitigating and eliminating where possible such risks requires the right leadership and culture.

In 2016 we initiated Safety Leadership sessions across all of our sites and operations. These sessions brought management together to openly discuss the pillars of a safety culture, and how everyone is a safety leader. In 2017 we aim to extend the model to all employees, because we believe when it comes to safety, every employee is empowered to lead.

During the year, we also extended our improvement plans for our key risk areas, including our service organization, engineering labs, and manufacturing operations. Through our service safety plan, we made significant progress with our customers in strengthening partnerships to improve safety at service locations, which benefits all stakeholders.

Our engineering lab safety plan introduced new programs to mitigate safety risks that could occur during R&D development activities under non-standard conditions. Our manufacturing safety plan strengthened coordination across manufacturing operations worldwide to ensure best practices from each site are shared and applied globally.

Over the last few years we have further strengthened our internal safety organization. In 2016 we hired experienced industry product safety personnel. These additions, coupled with continued standardization and the strengthening of design guidelines, improve the safety of our products by design, and thus will continue to reduce risks at both our sites and those of our customers.

And our safety improvement efforts have been recognized by customers. In 2016 we were recognized by a customer in a prestigious supplier quality award, which included our safety performance as a positive factor in their decision.



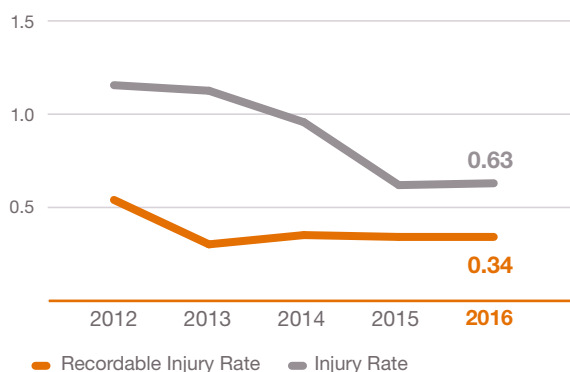
Our Singapore site successfully recertified in the bizSAFE program. The bizSAFE program recognizes companies for their safety programs and systems. We are proud to have been certified since 2014, and look forward to many more years of certification and engagement with the Workplace Safety and Health Council in Singapore.

### OUR SAFETY PERFORMANCE

Our health and safety goal is **ZERO HARM!** We believe that all injuries and incidents can be prevented, and we are setting annual targets toward the ultimate goal of **ZERO HARM!**

We track our safety performance using key measures, including an Injury Rate indicator and Recordable Injury Rate. The Injury Rate is a measure of all first aid or more serious injuries per 100 employees. The Recordable Injury Rate measures serious injury cases that require a medical response greater than first aid, including restricted duty or days away from work, per 100 employees. In 2016 our progress was relatively flat compared to 2015 but continues to be among the best in the industry. We continue to push ourselves for the next breakthrough in performance.

### GLOBAL INJURY AND RECORDABLE RATES





## CONNECTING EMPLOYEES AND WELL-BEING

We care not only about the occupational health of our employees, which is addressed through our workplace exposure controls and programs, but also about the health and well-being of our employees and their families as a whole.

We provide for and support health promotion programs, including fitness reimbursement and insurance premium reduction programs. In 2016 we continued to make progress in raising awareness of a healthy lifestyle among our employees. We promote a safe and healthy life style at work as well as at home.



### ASM KOREA HEALTH AHEAD AND PROMOTING EMPLOYEE'S HEALTHY LIFESTYLE

In 2016 ASM Korea improved the foods and snacks on offer in its canteens with seasonal fruit juice and mixed nuts instead of the less-healthy kimbob, hamburgers and chips. The response among employees has been very positive.



### HEALTH AND WELLNESS EXPO

In 2016 ASM America hosted a Health and Wellness Expo with 20 vendors on site. The vendors provided employees with free flu shots, free medical screening and vision tests, wellness and fitness coaching, ergonomics consultation and on-site massages. In addition, many of the ASM America insurance and benefit providers were on site to answer employee questions. The majority of on-site employees participated in the event and found it very helpful in promoting a safe and healthy lifestyle.



### ASM AMERICA: FIGHTING OBESITY AND FITNESS REIMBURSEMENT PROGRAM

In the 2015 Corporate responsibility report, we reported on our efforts to fight obesity in the US through a fitness reimbursement program. The program reimburses employees for a significant portion of membership fees at a fitness facility. Recognizing that not everyone is able to go to a gym, and that there are many ways to get exercise, in 2016 we expanded the types of fitness facilities eligible for reimbursement. This, along with a greater interest in fitness programs, led to 63% of our US employees taking part in the program.

## RESEARCH AND DEVELOPMENT INVESTMENT AND PARTNERSHIP

Our greatest contribution to society is driving innovation and technology advancement in the semiconductor industry in support of our customer technology roadmaps. In 2016 our investment in research and development (R&D) came to a total of €102 million, which includes staffing engineers and researchers that develop new materials and processes. For more information on R&D, please see our Statutory annual report.

## PARTNERSHIPS WITH UNIVERSITIES AND INDUSTRY ASSOCIATIONS

As part of our efforts to increase innovation, we continue to pursue and enhance strategic R&D partnerships with universities, industry groups and customers. This includes our long-term partnership with the Interuniversity MicroElectronics Center (imec) in Leuven, Belgium and the University of Helsinki, in Finland.

In 2016 we started a new R&D partnership with the University of Ghent in Belgium, which will involve collaborating on the study of atomic layer deposition processes.

“WE STRIVE TO MAINTAIN A CULTURE OF INNOVATION AT EVERY LEVEL OF THE ORGANIZATION.”

## SUPPORT OF UNIVERSITY AND INDUSTRY PROGRAMS

Our support of university and industry programs also included:

- › Sponsoring several PhD students at the University of Helsinki, and providing financial support for several other university programs in the Netherlands, Japan, Belgium and Korea;
- › Continuing to participate in defining the Multi-Annual Strategic Research Innovation Agenda (MASRIA) and Multi-Annual Strategic Plan (MASP) for the Electronic Components and Systems for European Leadership;
- › Membership of the Semicon Europe Semiconductor Technology Programs Committee;
- › Membership of AENEAS, and on the CATRENE (Cluster for Application and Technology Research in Europe on NanoElectronics) board, support group and steering group; active participation and support in discussions for new European funding cluster PENTA (Pan European partnership in micro- and Nano-Technologies & Applications);
- › Continuing to participate in industry alliances such as SEMI (Semiconductor Equipment Manufacturer Industry) and SEAJ (Semiconductor Equipment Association Japan);
- › Actively participating in several ECSEL (Electronics Components and Systems for European Leadership) Key Enabling Technologies (KET) pilot projects to promote advanced scaling activities for 14nm to 7nm technology nodes and beyond.



## COMMUNITY CONNECTION

One of the most important connections we make is with the communities in which we operate. As a global company, we have roots in local communities in Europe, North America and across Asia.

In 2016 we participated in a number of new community efforts, and continued with others we were already involved with. In all cases, we are proud to provide support for programs that are important to our employees and that address important community needs.

## CONNECTING TEENS AND TECHNOLOGY



We embrace innovation challenges. Over the past decade, however, society has faced a challenge with an aging population and fewer students being attracted to technical education. Technology industries, including our own semiconductor industry, are facing shortages of talented young engineers and the expectation is that this will continue unless something is done to reverse the trend. To help address this issue in the Netherlands, Dutch industry has established a collaboration program between the government and high schools called JetNet.

JetNet aims to inspire children and teenagers to learn more about technology and to stimulate them to consider a technical education and career. We support JetNet as a partner organization, and joined the platform in 2015 by developing a relationship with Almere High School to promote technology classes. In 2016 we organized a research project and facilitated job shadowing sessions to raise students' interest in technology. We also continued our lectures, on-site experiments and technical games at the school, and students were given an opportunity to visit ASMI to directly understand and respond to our technology challenges.

We also broadened the scope of the engagement in 2016, giving students in their final year an opportunity to perform a small research project. One pair of students developed an algorithm on the wafer-handling robot in our furnace, with which they could separate good and bad quality wafers. Their ASMI supervisor attended their presentation at school. The project was very well received, opening the way for future high-school student research projects. We look forward to continuing this tradition in years to come, helping to develop future engineers.

## CONNECTING WITH ORPHANS



During 2016 ASM Korea employees promoted their health and companionship by gathering and working out together at annual ASM Korea group activities. These included holding a sports day and supporting employee soccer clubs. They also wanted to extend their passion for healthy lifestyles and started supporting a youth soccer program by regularly volunteering time to support children from a local orphanage. In addition to volunteering time, they make monthly donations toward the orphanage soccer program. ASM Korea is looking into additional ways to strengthen the mentoring between employees and children at the orphanage.

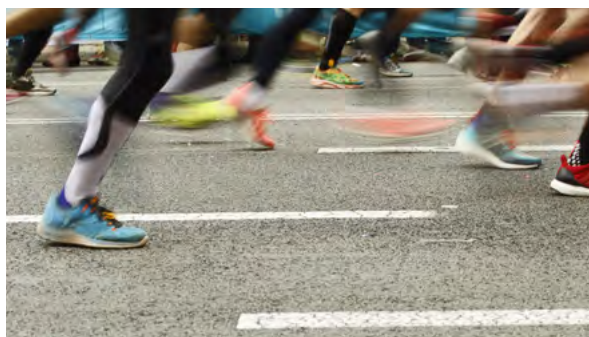


## CONNECTING WITH A TEAM SPIRIT



Instead of holding a typical teambuilding event, in 2016 30 members of the ASMI IT team in Singapore chose to sponsor and volunteer at Dignity Kitchen, a local social enterprise that helps the disabled and disadvantaged. Our IT staff spent the day learning how to prepare local hawker food, helped by disabled hawkers. (Hawkers are open food court markets where community foods are typically prepared and sold). The team then served lunch to 40 elderly people from a local senior activity center, who were brought by bus to the Dignity Kitchen as part of the Lunch Treat for the Elderly initiative. As well as cooking, our employees also sang karaoke with their guests. In addition to being a very enriching and inclusive experience for everyone involved, our IT team also had a fabulous time bonding with each other which makes them more effective at their work.

## CONNECTING WITH MERCY RELIEF



In observance of World Humanitarian Day, ASM Singapore participated in Singapore's charity Ground Zero Run for Humanity, organized by Mercy Relief.

Mercy Relief is a Singapore NGO that provides emergency aid within 72 hours of an appeal in the aftermath of a disaster. The employees from ASM's Singapore manufacturing site registered and participated in the 10km Race Against Time charity run. Mercy Relief also champions longer-term sustainable development projects aimed at uplifting and empowering communities in five key areas: water and sanitation, shelter, sustainable livelihoods, healthcare and education. We look forward to engaging with Mercy Relief in future community and sustainable development projects.

“WE ARE PROUD TO SUPPORT PROGRAMS THAT ARE IMPORTANT TO OUR EMPLOYEES AND THAT ADDRESS IMPORTANT COMMUNITY NEEDS.”





# SUPPLY CHAIN

Our diverse global supply chain consists of suppliers that manufacture and assemble key aspects of our products as well as those who provide us materials and components that go into our products. Our supply chain is critical to our success. We hold ourselves to high corporate responsibility standards, and are integrating the same into our supply chain. That is why we use the EICC Code of Conduct as our Supplier Code of Conduct, including performance assessments of our critical suppliers. We believe a resilient and responsible supply chain benefits us, our suppliers, and all of our stakeholders.



## A DIVERSE GLOBAL SUPPLY CHAIN

Our mission at ASMI is to build a world-class supply chain that provides our customers with the most technologically advanced products, services and global support network, at a competitive semiconductor industry cost of ownership. We partner with hundreds of suppliers who provide goods and services to manufacture our products and serve our customers. They play a critical role in enabling us to achieve this mission, covering a broad spectrum of commodities across 24 countries and

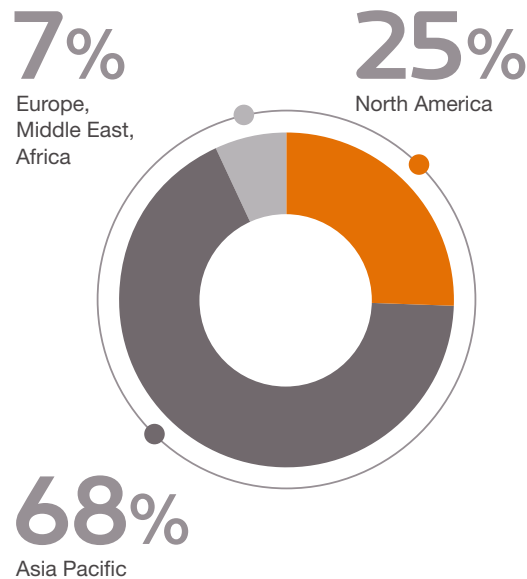
regions worldwide. The main categories include, but are not limited to, contract manufacturers, metal fabrication, gas systems, robotics, electronics and high-tech chemistries. These suppliers manufacture advanced materials to tight tolerances as required to achieve our stringent design specifications and requirements. This approach enables us to remain innovative and swiftly meet the challenging demands of our customers.



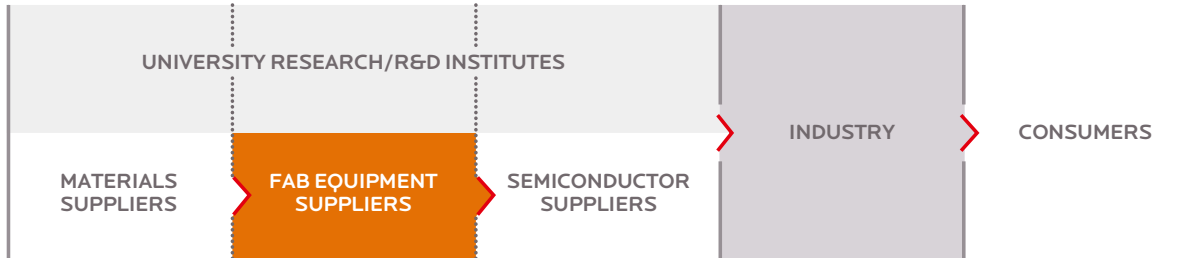
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NUMBER OF COUNTRIES  
IN OUR SUPPLY CHAIN

## SUPPLY CHAIN SPEND BY REGION



**THE VALUE CHAIN IN OUR INDUSTRY**



**MANAGEMENT APPROACH**

Our supply chain is a critical part of our end-to-end value chain. To fulfill our customers’ expectations and requirements, we need to manage our suppliers effectively and ensure that they meet our performance requirements.

Our customers and stakeholders increasingly expect greater transparency within our supply chain, including how our products are manufactured, whether labor standards are upheld and workers are treated fairly, and what impact the supply chain has on the environment.

To extend our commitment and approach to corporate responsibility, we use the Electronic Industry Citizenship Coalition (EICC) Code of Conduct as our Supplier Code of Conduct, and we are establishing management systems for our critical suppliers that match the industry standard supplier assessment process. By integrating corporate responsibility into our supply chain management process, we believe that we can create long-term business value and further mitigate supply continuity risk.

As part of our supplier relationship management process, we have developed a critical supplier risk assessment process based upon a multitude of criteria. Every year, we assess our supply chain and identify our critical suppliers based on key elements such as, but not limited to, the amount we spend with them, how many similar or alternative suppliers exist, and the amount of time we would need to switch suppliers if we had to.

**SUPPLIER EXPECTATIONS**

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

Our critical supplier requirements include but are not limited to their commitment to:

- › The EICC Code of Conduct;
- › ASMI’s Environmental Health and Safety Policy;
- › ASMI’s Code of Ethics Policy;
- › ASMI’s Intellectual Property Policies;
- › Hazardous materials identification regulations;
- › Conflict materials identification and disclosure.

These requirements are outlined on our public Supplier Management web page.

In 2016 92% of our critical suppliers formally acknowledged our Supplier Code of Conduct, which exceeds our internal goal for supplier communication and commitment.

**INTEGRATED SUPPLIER MANAGEMENT**

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

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

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

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

**RISK ASSESSMENT AND MANAGEMENT**

We operate globally and have partnerships with suppliers from 24 countries across Asia, North America and Europe. We place high expectations on our supply chain when it comes to operational flexibility and responsiveness, and together we must be prepared to respond quickly to a wide range of unplanned events. This requires working proactively with our supply chain partners to ensure they are able to assess and manage risks.

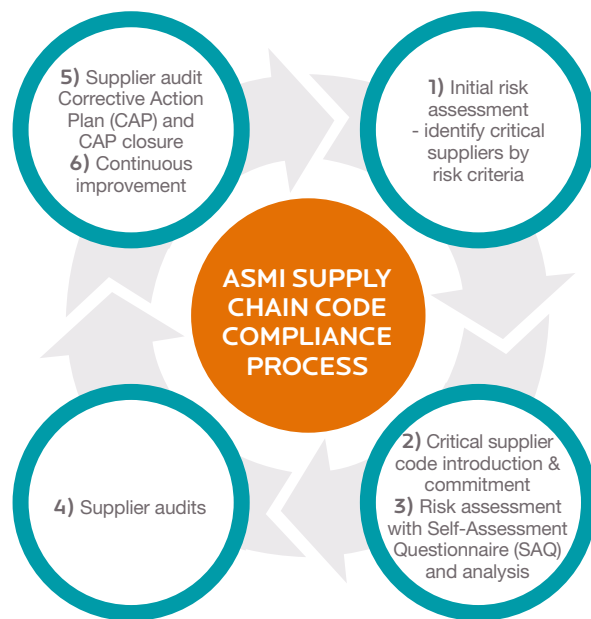
Our critical supply chain risk management process consists of a combination of supplier risk assessments, supplier self-assessments, EICC audits and training and capability building activities to help our supply chain be both resilient and responsible.

We actively engage our critical suppliers to drive:

- › EICC Code Compliance and SAQ compliance;
- › Business Continuity Planning;
- › Financial Risk Monitoring;
- › Strategic Business Reviews.

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

**GLOBAL SUPPLY CHAIN PROCESS**



Our supplier risk assessment process and self-assessments help us identify and measure social, environmental and ethical risks in our supply chain. This helps us better understand how our critical suppliers are performing against the code and standards. We work closely with these suppliers to influence corrective actions to ensure continuous improvement. In 2016 86% of our critical suppliers completed the required self-assessment with low or medium risk, which is equivalent to 94% of our total critical supplier baseline spend.

## SUPPLIER DEVELOPMENT AND PERFORMANCE MANAGEMENT

### SUPPLIER DEVELOPMENT

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

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

We continue to invest in our own capability to meet these increasing challenges. In 2016 we once again grew our capabilities and resources in our Global Procurement organization, inclusive of our Supplier Development Engineering team. Through a comprehensive audit process, they evaluated supplier compliance across a multitude of business elements.

These audit areas included their employee health and safety, Quality Management System, ISO compliance and Intellectual Property management. During these audits, we had an 88% closure rate on corrective actions.

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

### PERFORMANCE MANAGEMENT

As part of our Supplier Relationship Management process, we regularly evaluate each of our critical suppliers against a wide range of performance and compliance criteria. This includes elements such as on-time delivery, quality, lead-time, as well as scoring criteria for corporate responsibility.

We review our critical suppliers' performance semi-annually during Executive Business Reviews and put action plans together to address any gaps. We hold multiple supplier days with our suppliers to deliver industry updates, business unit product insights, and overall direction of our company. Using our performance scoring criteria as a baseline for results, it is at these events where we publicly recognize those suppliers who excel. Suppliers who routinely underperform in any area, or who continually demonstrate a risk to our continuity of supply or corporate responsibility, are assessed for removal from our portfolio.

### MOVING FORWARD

In 2017, we will continue to identify opportunities to improve supplier communication, supplier training, and embedding these in our supplier management system and procedures. One such example is enhancing our supplier portal and improving upon supplier communications related to supply chain initiatives, business requirements and supplier performance.

We are in the process of formalizing Supplier Scorecards in our internal framework, which include corporate responsibility and safety requirements, supporting our vision for supply chain conformance to the EICC Code of Conduct and other relevant standards.

## CONFLICT MINERALS AND HUMAN RIGHTS

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



## OUR APPROACH

We do not directly source minerals from mines anywhere, including from the DRC or adjoining countries. Our Conflict Minerals Policy, which is published on our website, communicates our commitment to responsible sourcing. To enforce this policy, we developed, and have been executing, our supply chain Conflict Minerals due diligence process annually since 2014.

We joined, and have participated in, the widely-recognized Conflict-Free Sourcing Initiative (CFSI). The CFSI brings together the electronics, automotive and other industries to jointly improve conditions in the extractives industry ([www.conflictreesourcing.org](http://www.conflictreesourcing.org)).

In 2016 we continued to communicate our policy, train and survey our critical suppliers, and collect supply chain sourcing information on the sources of tin, tantalum, tungsten and gold (3TG) using the industry-standard Conflict-Free Sourcing Initiative (CFSI) template, known as the Conflict Minerals Reporting Template (CMRT). We actively engage with critical suppliers for Reasonable Country of Origin Inquiries (RCOI) and conduct due diligence based on OECD (Organization for Economic Co-operation and Development) guidance.

## OUR PERFORMANCE MANAGEMENT AND GOAL

After we complete our due diligence survey, we carry out detailed data verification and analysis with identified smelters, from whom our critical suppliers source. This process establishes traceability to the smelters and measures the smelters identified with the validated conflict-free smelters (CFS) list published by the Conflict-Free Sourcing Initiatives (CFSI). This helps us ensure that the products and components we source are DRC conflict-free. We encourage all

of our suppliers to source 3TGs responsibly, and to use certified conflict-free smelters using recognized certification organizations, such as the Conflict-Free Smelter Program (CFSP). Our goal is to trace all of our critical suppliers and ensure they are using only certified conflict-free smelters, and that our sourcing funds do not finance conflict in the covered countries.

## COMPLIANCE WITH US LEGISLATION AND 2017 OUTLOOK

As part of our compliance with US legislation, we filed a 2014 Conflict Minerals Report with the US Securities and Exchange Commission (SEC) in May 2015. The filing and current information on the due diligence process and our policy can be found on our website, in the Supply Chain section under Corporate Responsibility.

As of 21 August 2015, we no longer trade under US SEC governance, and from 2015 no longer file SEC reports. However, we are committed to the EICC Code of Conduct, including its commitment to conflict-free sourcing, and will continue our active participation and contribution to the Conflict-Free Sourcing Initiative (CFSI) and our engagement with other relevant stakeholders. These include the European Parliament and other international NGOs, through our engagement with CFSI.

In November 2016, an agreement was reached by European institutions on the text of an EU Regulation which will require upstream importers, smelters and refiners to conduct due diligence checks from 2021 to ensure they do not source conflict minerals. As a European headquartered company, we are closely monitoring the future development of the possible EU disclosure requirement and thresholds for raw materials importers.



# APPENDICES

## APPENDIX 1: ENVIRONMENTAL PERFORMANCE SUMMARY

CATEGORIES	INDICATORS	2015	2016	TARGET (2016-2020)
<b>ENERGY CONSUMPTION</b>	Purchased Electricity	30,303,776 kwh	<b>31,814,761</b> kwh	See Greenhouse Gas Emission Target
<b>GREENHOUSE GAS EMISSION</b>	Scope 1 & 2	177 mtCO <sub>2</sub> e/R&D investment M EUR	<b>169</b> mtCO <sub>2</sub> e/R&D investment M EUR	5% reduction per euro of R&D investment below 2015 levels – mtCO <sub>2</sub> e/R&D investment (in EUR million)
<b>WATER CONSUMPTION</b>	Water consumed	1886 m <sup>3</sup> /R&D investment M EUR	<b>1760</b> m <sup>3</sup> /R&D investment M EUR	10% reduction per euro of R&D investment below 2015 levels – m <sup>3</sup> /R&D investment (in EUR million)
<b>LANDFILL DIVERSION</b>	Solid waste	65%	<b>72%</b>	Diversion rate: >90% (<10% to landfill)

## APPENDIX 2: SOCIAL PERFORMANCE SUMMARY

CATEGORIES	INDICATORS	2015	2016	TARGET
<b>WORKFORCE COMPOSITION AND DIVERSITY</b>	Employees	1,597	<b>1,670</b>	
		male 86%	<b>male 85%</b>	
		female 14%	<b>female 15%</b>	
	Nationalities	29	<b>28</b>	
<b>EMPLOYEES IN R&amp;D</b>		26.3%	<b>26.8%</b>	
<b>EMPLOYEES COVERED</b>	By collective bargaining agreements	10.3%	<b>9.5%</b>	
<b>EMPLOYEES RETENTION</b>	Voluntary turnover rate	6.1%	<b>6.8%</b>	
<b>HEALTH AND SAFETY</b>	Recordable injury rate	0.34 /100 employees	<b>0.34</b> /100 employees	0.3
	Injury rate	0.62 /100 employees	<b>0.63</b> /100 employees	0.56
<b>TRAINING – ALL EMPLOYEE</b>	Ethics training	98.4%	<b>92.5%</b>	
<b>TRAINING – NEW HIRE</b>	Ethics training	100%	<b>87%</b>	
<b>CORPORATE RESPONSIBILITY AND ETHICS COMPLIANCE</b>	Reported concerns from anonymous global reporting program SpeakUp!	0	<b>3</b>	
	Reported concerns from other channels	2	<b>2</b>	
	Ethics Awareness communication articles	4	<b>4</b>	
	EICC Self-assessment rating	low risk	<b>low risk</b>	low risk
<b>SUPPLY CHAIN RESPONSIBILITY (CRITICAL SUPPLIERS)</b>	Code acknowledgement	90%	<b>92%</b>	>80%
	Self-assessment completed with low or medium risk	80%	<b>86%</b>	>80%

## APPENDIX 3: NON-FINANCIAL DATA GLOSSARY

INDICATORS	DEFINITIONS	SECTION COVERED	SCOPE OF THE DATA
# of Employees	Employee is a person with a fixed contract excluding temporary labor. Definition may be varied by country per local and country labor law. The # of employees at the last day of the reporting period	Our company	ASMI worldwide
Employee % in R&D	Employees on the last day of the reporting period whose work is directly related to the research and development of the product during the reporting year	Social	ASMI worldwide
R&D investment	All expenses incurred for the research and development of the product during the reporting year	Social	ASMI worldwide
Patent filed	Total number of patent applications filed and applied with patent offices globally by ASMI for the invention described	Social	ASMI worldwide
Managerial personnel	Managerial personnel are those people having authority and responsibility for planning, directing, and controlling the activities of a team, operation or other people	Social	ASMI worldwide
Employees based on nationalities	The number of nationalities of employees on the last reporting day of the period	Social	ASMI worldwide
Employees covered by collective bargaining agreements	% of employees that are covered by collective bargaining agreements per local labor requirement (located in the Netherlands and China) divided by the total number of employees at reporting year-end	Social	ASMI worldwide
Reported concerns from anonymous global reporting program SpeakUp!	The number of questions / remarks / concerns reported to the Ethics Office related to a potential violation of the Code of Conduct and Business Policies via reporting tool SpeakUp! in the reporting period	Social	ASMI worldwide
Turnover rate	Turnover rate is the percentage of employees in a workforce that leave during this reporting period	Social	ASMI worldwide
Recordable injury rate	The Recordable Injury Rate measures cases that require a response greater than first aid (or serious injuries) per 100 employees in reporting period	Social	ASMI worldwide
Injury rate	The Injury Rate is a measure of all first aid or greater injuries per every 100 employees in reporting period	Social	ASMI worldwide
# of employees invited to complete the online training and % of employees who completed the training – Ethics training	All employees invited to complete the online compliance training courses annually during our compliance month with the reporting year. We track # of employees and % of the total that completed the training. It is applicable to all employees	Social	ASMI worldwide
Ethics concerns reported through employee grievance channel	The # of any ethics concerns reported by employees through our employee grievance channel "SpeakUp!"; that may be related to a potential violation of the Code of Conduct and Business Principles or Policies in the reporting year	Social	ASMI worldwide
EICC Code of Conduct	We adopted the industry standard EICC Code of Conduct. More detail about the code can be find at <a href="http://www.eiccoalition.org/standards/code-of-conduct/">http://www.eiccoalition.org/standards/code-of-conduct/</a> .	Integrated CR Strategy	ASMI worldwide
Self-assessment Questionnaire (SAQ) risk rating/result	We adopted EICC standard tool for risk assessment Self-Assessment Questionnaire (SAQ) to assess our own and supply chain risk. This rate apply to our own operation SAQ results with our major sites	Integrated CR Strategy	ASMI worldwide
Critical Suppliers	Suppliers that are determined to be critical to our business either because the business spends, or critical components or critical materials, or strategic technical partnership	Supply Chain	ASMI worldwide
Supply chain spend by region	Total amount of Euro spent with our global suppliers for the materials, components and services that are used to produce our products and services for our customers and for non-product related products services that enable our operations globally in the reporting period	Supply Chain	ASMI worldwide

continued &gt;

INDICATORS	DEFINITIONS	SECTION COVERED	SCOPE OF THE DATA
Critical Suppliers' code commitment %	% of critical suppliers that have acknowledge their commitment to EICC code or whose code of conduct is assessed to be acceptable as it covers the similar principles of the EICC Code of Conduct	Supply Chain	ASMI worldwide
Critical suppliers' low medium risk rank based on Self-assessment Questionnaire (SAQ) result	% of critical supplies who are completed the required Supplier Self-Assessment Questionnaire and resulted with low and medium risks	Supply Chain	ASMI worldwide
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	Supply Chain	ASMI worldwide
Critical suppliers' Conflict Minerals survey completion rate/result	% of suppliers of the total inquired critical suppliers that completed the conflict minerals survey requirement and return acceptable information based on Conflict Free Sourcing Initiative's Conflict Minerals Request Template (CMRT)	Supply Chain	ASMI worldwide
Greenhouse Gas (GHG) CO <sub>2</sub> emissions	# of metric tons of CO <sub>2</sub> equivalent emissions including both the direct CO <sub>2</sub> equivalent emissions (scope 1) and indirect CO <sub>2</sub> equivalent emissions (scope 2) in the reporting period	Environment	ASMI worldwide
Purchased electricity amount by region	Total electricity purchased in the reporting period for the major locations/ regions we track, that used to calculate the GHG CO <sub>2</sub> equivalent emissions (scope 2)	Environment	ASMI worldwide
Water consumption	Total amount of water usage for the reporting period	Environment	ASMI worldwide
Landfill diversion rate	The percentage of solid waste diverted from landfill with recycle and reuse efforts in the reporting period	Environment	ASMI major sites



## APPENDIX 4: DEFINITIONS AND ABBREVIATIONS

**AENEAS:** AENEAS is an association, established in 2006, providing unparalleled networking opportunities, policy influence & supported access to funding to all types of RD&I participants in the field of micro- and nanoelectronics enabled components and systems.

**AGM:** Annual General Meeting of Shareholders (AGM) is the annual general meeting of shareholders.

**ALD:** Atomic Layer Deposition (ALD) is a surface-controlled layer-by-layer process that results in the deposition of thin films one atomic layer at a time. Layers are formed during reaction cycles by alternately pulsing precursors and reactants and purging with inert gas in between each pulse.

**BCP:** Business Continuity Plan.

**Boundary:** As used in the Key Material Aspects, Their Stakeholders and Boundaries table, refers to Global Reporting Initiative G4 definition of boundary as “refers to the description of where impacts occur for each relevant topic. In setting the Boundaries, an organization should consider impacts within and outside of the organization.”

**CAP:** Corrective Action Plan.

**CATRENE:** Cluster for Application and Technology Research in Europe on NanoElectronics.

**CDP:** The Carbon Disclosure Project (the CDP) is an organization based in the United Kingdom which works with shareholders and corporations to disclose the greenhouse gas emissions of major corporations.

**CFSI:** Conflict-Free Sourcing Initiative (<http://www.conflictreesourcing.org>).

**EMS:** Environmental Management Systems (EMS).

**CMRT:** The CFSI Conflict Minerals Reporting Template (CMRT) is an industry widely adopted standard template used by companies to collect conflict minerals due diligence data.

**Conflict Minerals/3TG:** Tin, tantalum, tungsten and gold.

**CONNECT:** CONNECT is ASMI's internal newsletter.

**CR:** Corporate Responsibility.

**CVD:** Chemical Vapor Deposition (CVD) is a chemical process used to produce high quality, high-performance, solid materials. The process is often used in the semiconductor industry to produce thin films. In typical CVD, the wafer (substrate) is exposed to one or more volatile precursors, which react and/or decompose on the substrate surface to produce the desired deposit. Frequently, volatile by-products are also produced, which are removed by gas flow through the reaction chamber.

**DFX:** is a term can be used interchangeably, where the X is a variable which can have one of many possible values, such as design for manufacturability, power, variability, cost, yield, reliability, or sustainability (DFS).

**DRC:** The Democratic Republic of Congo.

**ECO:** Engineering change order.

**ECSEL:** Electronics Components and Systems for European Leadership that promote advanced scaling activities for 14 to 7nm technology nodes and beyond.

**EHS:** Environmental, Health & Safety.

**Epitaxy:** Epitaxy is one of a portfolio of wafer processing technologies for which we provide equipment. The word comes from the Greek epi meaning “above”, and taxis meaning “in an ordered manner”. It involves the deposition of silicon or silicon compounds to form layers that help to continue and perfect the crystal structure of the bare silicon wafer below. Epitaxy improves the electrical characteristics of the wafer surface, making it suitable for highly complex microprocessors and memory devices. Selective Epitaxy is an Epitaxy process that only deposits silicon or a silicon compound on certain predetermined areas of the wafer.

**EICC:** The Electronic Industry Citizenship Coalition (EICC) is the world's largest industry coalition dedicated to electronics supply chain responsibility (<http://www.eiccoalition.org>).

**FMEA:** Failure Mode Effects Analysis.

**GES:** ASMI's Global Employment Standards.

**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](http://www.globalreporting.org)).

**GTC:** ASMI's Global Trade Compliance organization.

**IFRS:** International Financial Reporting Standards.

**imec:** imec is an international renowned research institute that performs research in different fields of nanoelectronics. It is headquartered in Leuven, Belgium, and has offices in the Netherlands, Taiwan, US, China, India, Nepal and Japan.

**IoT:** Internet of Things.

**IP:** Intellectual Property.

**ISO 14001:** The ISO 14001 Environment Management System (EMS) standard is an internationally recognized environmental management standard.

**JDP:** Joint development program.

**KET:** Key Enabling Technologies.

**NCG:** New College Graduate (NCG).

**NGOs:** Non-Government Organizations.

**LPCVD and Oxidation/Diffusion:** Low Pressure Chemical Vapor Deposition (LPCVD) is a thermal process that deposits various films at low pressure. LPCVD processes include polysilicon, silicon nitride and silicon oxides. Diffusion (sometimes referred to as annealing) is a thermal treatment used to move dopants, or impurities, and make dopants introduced by ion implantation electrically active. Oxidation forms a silicon oxide layer on the wafer's surface, which acts as an insulating or protective layer over it.

**MASP:** The Multi-Annual Strategic Plan.

**MASRIA:** The Multi-Annual Strategic Research Innovation Agenda.

**OECD:** OECD (Organization for Economic Cooperation and Development) is an international organization helping governments tackle the economic, social and governance challenges of a globalized economy. It publishes guidance and frameworks such as OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas.

**PEALD:** Plasma Enhanced ALD (PEALD) uses specific chemical precursors just like in thermal ALD. However, it also makes use of cycling an RF-plasma to create the necessary chemical reactions in a highly controlled manner.

**PECVD:** Plasma Enhanced Chemical Vapor Deposition (PECVD) is the CVD that utilizes plasma to enhance chemical reaction rates of the precursors. PECVD processing allows deposition at lower temperatures, which is often critical in the manufacture of semiconductors. The lower temperatures also allow for the deposition of organic coatings, such as plasma polymers, that have been used for nanoparticle surface functionalization.

**PENTA:** Pan European partnership in micro- and Nano-Technologies & Applications.

**PLC:** Product Life Cycle.

**R&D:** Research and Development.

**RCOI:** Reasonable Country of Origin Inquiries (RCOI).

**RoHS:** The Restriction of Hazardous Substances Directive (RoHS), short for Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment, was adopted in February 2003 by the European Union.

**SAQ:** Self-Assessment Questionnaire (SAQ) is one of the EICC's standardized risk assessment tools.

**SEC:** Securities and Exchange Commission.

**SEAJ:** Semiconductor Equipment Association Japan.

**SEMI:** Semiconductor Equipment and Materials International (SEMI) is a global industry association of companies that provide equipment, materials and services for the manufacture of semiconductors, photovoltaic panels, LED and flat panel displays, micro-electromechanical systems (MEMS), and related micro and nanotechnologies.

**SMT:** Senior Management Team.

**ASM International NV**  
Versterkerstraat 8  
1322 AP Almere  
The Netherlands