Outotec Sustainability Report 2017

Refining data for sustainability

Sustainable use of
Earth's natural resources

Outotec

Contents

Confident and excited about the future

Our customers clearly have a more positive market outlook than a year ago. Recovery started in the second half of 2016 and continued throughout 2017. As demand for metals grows, new greenfield investments will start taking place, in addition to brownfield projects on existing sites. For example, the electric car market and renewable energy generation and storage increase the demand for lithium, nickel and cobalt as well as copper. The need for aluminum grows and the zinc market is active. Stainless steel use supports the production of ferrochrome.

CUSTOMERS SEEK RESOURCE EFFICIENCY

I met dozens of our customers during the year. The availability and cost of energy, water as a critical resource and digitalization are crucial for them. Elimination of harmful substances and cutting emissions are also high on the agenda. Customers strive to extract all valuable minerals from mined ores. The same applies to materials already extracted. This is sustainability in action: getting the best possible result with the smallest environmental impact.

The feedback Outotec receives is consistent; customers highly appreciate Outotec's leading technologies and expertise in minerals and metals processing. The more demanding the mineral, the more likely that we are involved, lithium being one example of many. Where we need to improve is in customer dialogue, in which a more proactive approach is sought. It is up to us to take initiative in going through processes together and suggesting improvements for customers.

NEW STRATEGY SHOWS DIRECTION FOR 2018–2020

Outotec aims to provide customers with leading technologies, superior customer service and excellent execution. Our new strategy builds on our mission, 'Sustainable use of Earth's natural resources'. Our business focuses on the entire value chain, from ore to metals, throughout the customers' plant life cycle. The equipment and plant business is strongly complemented by an increasing share of services, which brings stability to our business.

We have ambitious profitability and growth targets for delivering value to investors, who have shown patience during the recent difficult years. Global megatrends provide business opportunities, as Outotec has solutions for improving process efficiency and helps customers to choose the best, sustainable technology. We provide solutions that support water management as well as circular economy.

REFINING DATA FUELS DIGITALIZATION

As digitalization advances, the significance of collecting and analyzing data becomes more and more evident. Virtual models are increasingly developed and applied to process optimization and fault detection. The Outotec virtual

plant is a model that can be used to simulate the behavior of a real plant. The main goals of simulation-based digital products are increased productivity and availability, reduced energy consumption and sufficient product quality.

Digitalization of smelting processes improves recovery while enhancing sustainability and safety. When high risk manual tasks are eliminated in a smelter and decisions are based on reliable data, process stability improves and emissions decrease.

In November, the Junction 2017, Europe's biggest hackathon took place in Espoo, Finland. It gave young developers, designers and entrepreneurs a chance to show their innovation skills. Outotec was one of the partners of the event, with two challenges: a sustainability challenge and a service challenge.

The benefits of digitalization are highlighted in the case stories of this report.

GREAT LEAP TAKEN IN EMPLOYEE ENGAGEMENT

We want to offer our own employees an inspiring work environment. Our 2017 employee survey showed 18 %-points improvement of the engagement index from 2016 and we are well on track towards our long-term targets. Based on the results, senior leadership has succeeded in communicating a motivating future vision. People are proud to work for the company and they feel that their job is challenging and interesting. The link between one's own work and Outotec's objectives is clearer, as are roles and responsibilities.

Good results have been reached through collaboration. People provided extremely valuable input for the whole strategy process.

We paid special attention on clarity of roles and on communicating our strategy to all employees in cross-functional workshops. We completed a global leadership program for 100 leaders in 2017. In addition, local leadership programs were developed in each market area. Sales leadership, value selling and services trainings were also developed to enhance our competences in the customer interface.

On the other hand, we have not yet reached our diversity goals. Those goals include, for example, increasing the share of women in management positions. In safety, we have an ambitious ultimate target of zero accidents. The key indicator, lost time injury rate, improved slightly in 2017.

UN'S GOALS INTEGRATED INTO OUR SUSTAINABILITY AGENDA

We have defined our most significant impacts with regard to the UN Sustainable Development Goals and integrated the SDGs into our Sustainability Agenda. The five most important SDGs to Outotec's operations and sustainability work are: Good health and well-being; Climate action; Decent work and economic growth; Responsible consumption and production; Quality education.

Outotec is committed to supporting and implementing the principles of the UN Global Compact concerning human rights, working life, environmental affairs, and anti-corruption. Likewise, we respect The Universal Declaration of Human Rights. In 2017 Outotec carried out a human rights assessment. We did not find any significant risks or negative impacts of our business.

INSPIRING AND FRUITFUL COLLABORATION

Outotec achieved the EcoVadis Gold certification for its corporate responsibility practices in August 2017. The company ranked in the top 5% suppliers in its field. The Gold certification indicates a strong commitment to responsible sourcing practices. At the beginning of 2018, Outotec was ranked 5th in the Global 100 Index of the most sustainable companies in the world. Being included in the Index for six consecutive years is a great recognition to our work.

These acknowledgements and the feedback from our personnel, investors, customers and partners tell us that we are moving in the right direction. Thank you so much for the inspiring and fruitful collaboration. Together, we continue developing resource-efficient solutions for the sustainable use of natural resources.

Markku Teräsvasara
President and CEO

This is Outotec

In line with our mission targeting the sustainable use of Earth's natural resources, we develop and deliver resource-efficient technology and service solutions for processing minerals and metals, for water treatment, and for producing energy from biomass and wastes.

Outotec's unique position at the forefront of the mineral processing and metallurgical industry is founded on a century of scientific knowledge and operational experience, which have resulted in a wide range of applications, particularly for processing virtually all types of ores and minerals. The innovative research done at our in-house R&D centers and our continuous development work realized together with our customers have made us the leading developer of technology in our field.

Outotec's product portfolio includes hundreds of various plant concepts, processes, and pieces of equipment that are marketed under the Outotec brand. In addition, Outotec has a variety of service products related to the maintenance and upgrade of the equipment and plants delivered by Outotec. None of Outotec products or services are banned in any markets.

Our customers are large global mining companies, small and medium-sized mining, metallurgical and energy companies in developed countries as well as local mining and metallurgical companies in emerging regions. Customers are investing either in new processing plants or modernizing their existing plants to increase the profitability of their op-

erations, improve their resource efficiency, or reduce their emissions, energy consumption or fresh water use. We can deliver an entire process or plant, or a single piece of equipment, with related engineering, sourcing, commissioning, training and life-cycle services. New mining or industrial plant investments involving also Outotec's technologies may be subject to stakeholder questions and public debate in the target countries. These questions are mainly targeted to Outotec's customers.

We sell products and services to over 80 countries through our market area network. Europe, Middle East and North Africa (EMEA) is our largest market area in terms of sales and personnel.

Outotec, headquartered in Espoo, Finland, operates globally with offices in 36 countries. Major operations based on the number of employees are located in Finland, Germany, Australia, South Africa, Chile, Sweden and Brazil. Local customer centers provide full support for our customers' businesses – both in the everyday running of their operations and when they make new investments. In addition, we use sales agents in countries where we do not have established presence. Our two reporting segments – Minerals Processing; and Metals, Energy & Water – are dedicated to the creation of sustainable technology solutions and life-cycle services for our customers. As of April 2017, a new Services organization was established to focus on developing our service offering and competences as well as delivering services for our customers.

Outotec has been listed on the NASDAQ Helsinki since 2006, and the company was

rated in the Mid Cap category in 2017. The company's market capitalization at the end of 2017 was EUR 1,300 million. Outotec's total capitalization was EUR 470 million, of which EUR 320 million was funded by equity and EUR 150 million by a hybrid bond. The parent company Outotec Oyj has 100% ownership of

its subsidiaries. There were no major changes in Outotec's company structure, the ownership, or supply chain during 2017.

Read about Outotec's financial performance, legal entities and shareholders in our Financial Statements 2017 at www.outotec.com/investors.
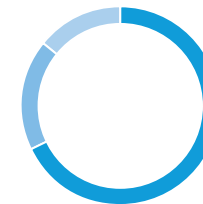
5th most sustainable company on the Global 100 list

SALES EUR 1,139 MILLION, BY REGION
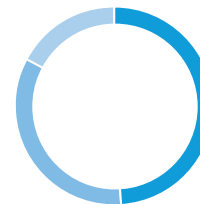
- EMEA 49%
- Americas 34%
- APAC 17%

PERSONNEL 4,146, BY REGION

- EMEA 68%
- Americas 18%
- APAC 14%

Key figures	2017	2016	2015
Sales, EUR million	**1,139**	1,058	1,201
Adjusted operating profit*, EUR million	**32**	-23	56
R&D expenses, EUR million	**56**	55	61
Priority applications	**38**	57	93
Number of employees	**4,146**	4,192	4,859
Employee engagement index, %	**60**	42	56
Wages and salaries, EUR million	**326**	329	353
Lost time injury rate (LTIR) per 1 million working hours	**1.7**	1.8	2.8
Share of environmental goods and services in order intake, %	**88**	90	90
GHG emissions avoided by using Outotec technologies, thousand tonnes of CO_2e	**6,218**	5,870	5,469
Total GHG emissions, tonnes of CO_2e per EUR 1 million sales	**24**	27**	30**
Total energy consumption, TJ	**160**	166	165

*) excluding restructuring and acquisition-related costs and purchase prize allocation amortizations
**) restated figure

Our strategy

Outotec's strategy is to serve customers with leading technologies, superior customer service and excellent execution.

In line with our mission - targeting the sustainable use of Earth's natural resources - Outotec is committed to protecting the environment in all its activities. We strive to serve our customers using our wide range of leading minerals and metals processing technologies and life-cycle services. By 2020, we also aim to achieve superior customer service and excellent execution.

Our commitment to sustainability binds us to take a holistic view of our customers' business. As countries start implementing the Paris climate agreement, we expect carbon emission controls to start playing an increasing role in addition to existing stringent restrictions on emissions of harmful substances to air or water.

Megatrends such as urbanization, resource efficiency and sustainability, coupled with digitalization bring opportunities for Outotec. While safety has long been a top priority for our industry, environmental performance and social license to operate are also increasingly at the forefront of our customers' minds, not least because of tightening regulation. We also see many unused business opportunities and some threats in China, the country producing over half of the world's metals and owning an increasing share of the world's mining assets. Volatility and the cyclical nature of our business is expected to continue, which drives us to further grow our service business.

The key in our climate change strategy, made in 2016, is harnessing our technology for the transition to a low-carbon industry. We have complemented the estimated impacts of megatrends with the opportunities and risks defined in connection with our climate change strategy work.

Our short-term priority is to improve our profitability to achieve economic sustainability. We also work to grow our service business to enhance our ability to create value over the cycles.

TO BE ABLE TO REACH OUR 2020 VISION, WE ARE WORKING ON FIVE DEVELOPMENT AREAS:

1) Customer focus
To deliver the best customer experience we will develop our account management, sales and leadership competences and improve responsiveness.

2) Service business
Services bring us a steady revenue flow, long-term customer relationships and sustained margins. We will increase local presence and focus on our existing customer relationships and installed base to maximize customers' return on investment. We aim to increase productivity by digitalization. Our Services organization, established in April 2017, is dedicated to developing our service offering and creating the growth.

3) Product competitiveness
We work to improve the cost competitiveness of our products by further differentiation through digitalization and improvements in energy and environmental performance. By redesigning products, by changing components without compromising on quality, and by searching for lower cost supply alternatives we aim to reduce sourcing costs.

4) Project excellence
We work to improve the quality of our project deliveries and bring flexibility to the cost base.

5) Our people
Since we are an expertise-based company, people are our most valuable asset. In recent years, we have unfortunately seen a dip in employee engagement. We are working to create an environment for our people to develop, succeed and find joy in their work. Leadership development is one focus area in this work.

Read also:
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Sustainability highlights in 2017

Q1

Q2

Q3

Q4
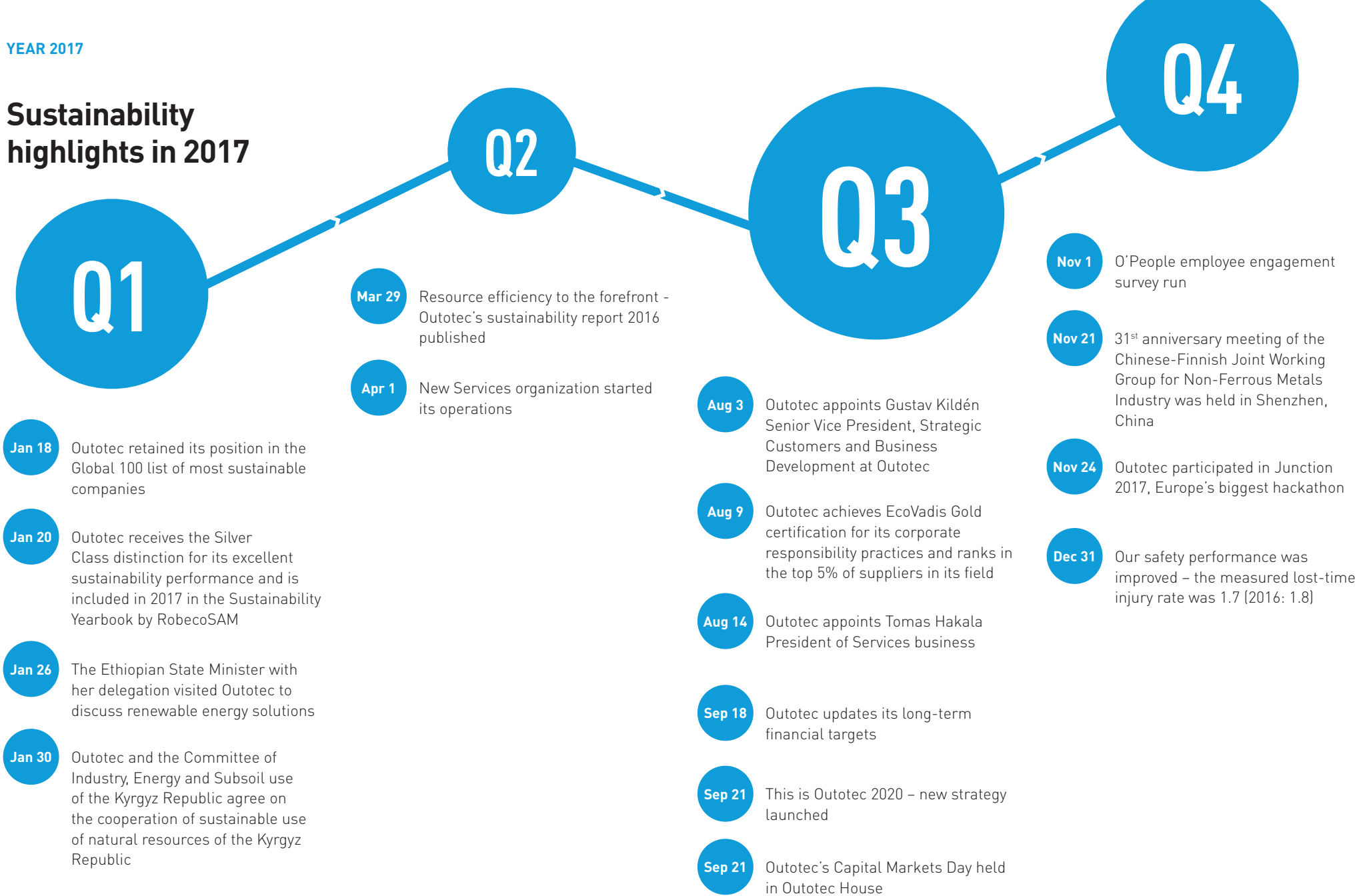
Jan 18 Outotec retained its position in the Global 100 list of most sustainable companies

Jan 20 Outotec receives the Silver Class distinction for its excellent sustainability performance and is included in 2017 in the Sustainability Yearbook by RobecoSAM

Jan 26 The Ethiopian State Minister with her delegation visited Outotec to discuss renewable energy solutions

Jan 30 Outotec and the Committee of Industry, Energy and Subsoil use of the Kyrgyz Republic agree on the cooperation of sustainable use of natural resources of the Kyrgyz Republic

Mar 29 Resource efficiency to the forefront - Outotec's sustainability report 2016 published

Apr 1 New Services organization started its operations

Aug 3 Outotec appoints Gustav Kildén Senior Vice President, Strategic Customers and Business Development at Outotec

Aug 9 Outotec achieves EcoVadis Gold certification for its corporate responsibility practices and ranks in the top 5% of suppliers in its field

Aug 14 Outotec appoints Tomas Hakala President of Services business

Sep 18 Outotec updates its long-term financial targets

Sep 21 This is Outotec 2020 – new strategy launched

Sep 21 Outotec's Capital Markets Day held in Outotec House

Nov 1 O'People employee engagement survey run

Nov 21 31st anniversary meeting of the Chinese-Finnish Joint Working Group for Non-Ferrous Metals Industry was held in Shenzhen, China

Nov 24 Outotec participated in Junction 2017, Europe's biggest hackathon

Dec 31 Our safety performance was improved – the measured lost-time injury rate was 1.7 (2016: 1.8)

Value creation and our impacts

The key resources for Outotec's value creation are deep know-how of processing natural resources, technology patents, research and development, as well as Outotec brand. In addition, long customer and supplier relationships are essential resources for the company.

FINANCIAL IMPACT

Outotec's approach to economic sustainability is demonstrated by our long-term financial targets involving profitability and continuous growth. We strive for transparency in our operations, and we base our decisions on sound business reasons and commercial rationale. Our approach is also reflected in four of our material themes:

- Sustainable offering
- Responsible business practices
- Sustainable supply chain
- Engaging with stakeholders

DIRECT ECONOMIC VALUE GENERATED AND DISTRIBUTED (GRI 201-1)

The market environment improved in 2017, and the year was clearly more positive for Outotec than 2016. Our order intake increased by 20% from 2016 and we saw an accelerated growth towards the end of the year. In terms of sales and profitability, our two business segments were in different phases. The sales of the Minerals Processing segment and services developed favorably throughout the year, whereas the sales of the Metals, Energy & Water segment decreased. Group sales in-

creased by 8% and service sales by 6% from 2016. The sales growth and our fixed cost savings improved our profitability. However, the result of Metals, Energy & Water remained negative. Therefore, we initiated new measures – such as the outsourcing of some engineering activities – to enhance flexibility and ensure the future profitability of the segment.

At the end of 2017, Outotec's market capitalization was EUR 1,300 million (2016: EUR 914 million). The total wealth created by Outotec in 2017 was EUR 347 million (EUR 344 million).

As Outotec's key asset is employees, the most significant economic value distributed is wages and salaries, which amounted to EUR 326 million in 2017 (EUR 329 million).

Long customer relationships and 3,000 direct suppliers are also essential resources for

Region	Wages and salaries, EUR million	Number of employees
EMEA	199	2,813
Americas	59	758
APAC	68	575

Outotec, since some 90% of our manufacturing (based on monetary value) is sourced from external suppliers.

Due to negative result in 2016, Outotec did neither pay dividends to shareholders nor contributions to charities in 2017. In future, Outotec aims to maintain its leadership in sustainable technologies and grow its service business to enhance its ability to create value over the cycles.

INDIRECT ECONOMIC IMPACTS (GRI 203-2)

Large mines and processing plant investments – built with Outotec technology – considerably boost the development of the host country and its economy. They may create hundreds or thousands of new jobs, while also leading to the establishment of new industrial plants and growth of businesses along the value chain from natural resource extraction to finished products. In such greenfield plant deliveries by Outotec, the indirect economic impacts are considered significant. Outotec has been active in developing the resource based industries in many developing countries, such as Mongolia, Kazakhstan, and Zambia, to mention a few.

As the majority of Outotec's manufacturing is sourced from external suppliers, we play an important role in supporting local businesses. This generates employment and wealth in local communities. In large projects, as many as several hundred local engineers and other specialists, contractors and service providers work for us. A single large project can consist of over 10 million working hours at customer's site. Most of this work is done by local suppliers or subcontractors.

In 2017, Outotec's largest projects under implementation in terms of number of contractors were in the United Arab Emirates, Brazil, Peru and Bahrain. In terms of money, the largest shares – each amounting to EUR 10–50 million – were spent in Australia, Brazil, Canada, Chile, China, Mexico, the USA and South Africa.

The remaining spend was distributed among 38 countries.

Where Outotec has long-term service contracts with customers, maintenance and service personnel are normally hired locally and we train them for their specific tasks after the plant has been built.

Often Outotec technologies help to improve the environmental conditions of the communities surrounding customers' plants, which improves the living conditions of people, contributes to a healthier population and boosts agriculture and small businesses. One example of measuring the environmental impacts is described in our case about the reduction of sulfur dioxide emissions verified by satellite data, p. 35.

We have also calculated the financial impact of the annual emissions avoided by Outotec's customers, in total 6.2 million tonnes CO_2e, using seven Outotec technologies. The CO_2 European Emission Allowances Commodity Price [www.markets.businessinsider.com/commodities/historical-prices/CO₂-emissionsrechte/EURO/1.1.2017_31.12.2017] (Dec 31, 2017) was EUR 5.76/tonne CO_2. By using this price, the value of the emissions avoided was approximately EUR 36 million. Using similar calculating method, the financial impact of our own emissions was EUR 159,000, and that of our supply chain EUR 2.9 million.

R&D activities generate jobs and enhance skills

Outotec also contributes to local communities through university cooperation and subcontracting R&D work, which generates local jobs and enhances skills and knowledge development. Ongoing research and develop-
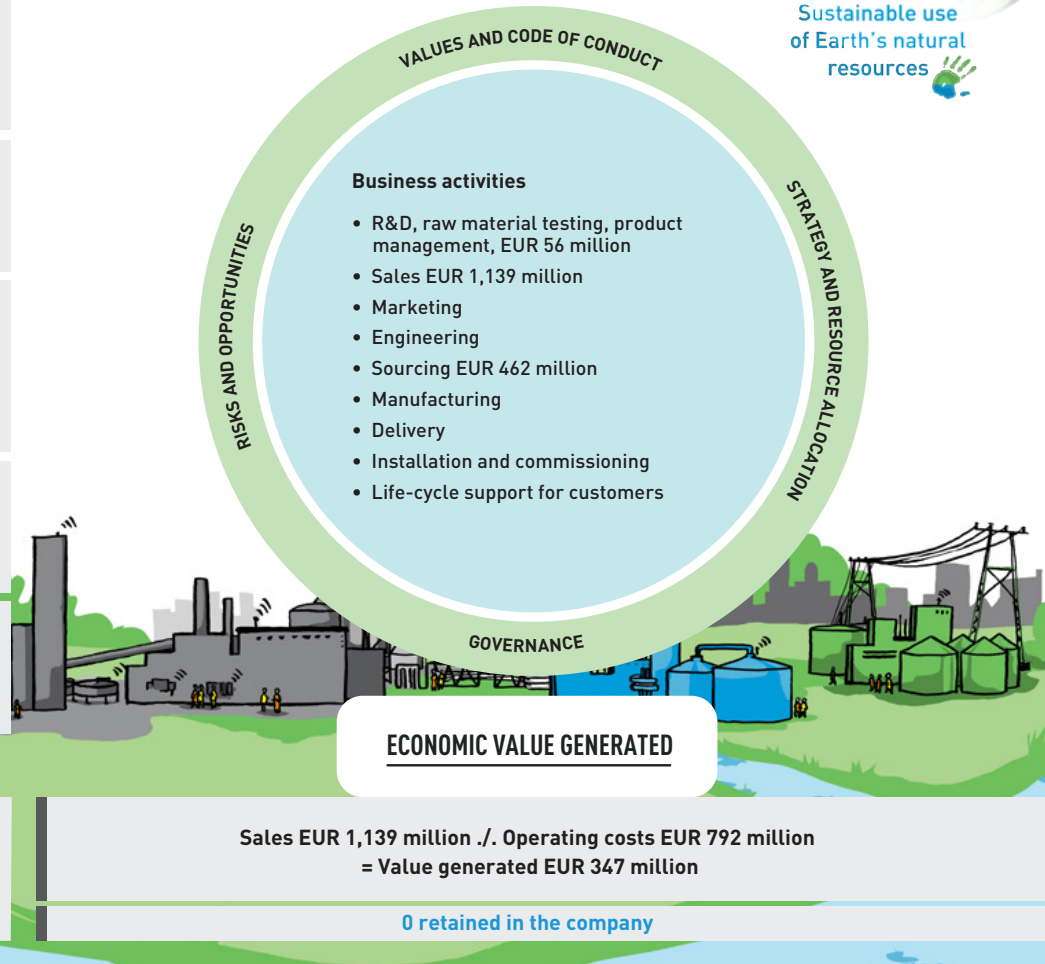
VALUE CREATION AND IMPACTS OF OUR BUSINESS

OUR RESOURCES

Intellectual
- Outotec brand and reputation
- IPRs, 763 patent families
- Tacit knowledge
- 2 R&D centers, 1 Dewatering technology center

Operational
- Operations in 36 countries
- 2 manufacturing units, 8 assembly or service workshops, 1 ceramic plate production unit, several warehouses

Natural
- ISO 14001 global certification for environmental management
- Materials used Steel 3,624 t; Wood packaging 186 t
- Energy consumption: 160 TJ
- Water withdrawal: 54,100 m³

Human
- 4,146 employees
- Outotec culture
- 2,410 contractors

Social
- Long customer relationships
- 3,000 suppliers
- Relationships with the academic community

Financial
- Capitalization EUR 470 million, of which
  - EUR 320 million funded by equity and
  - EUR 150 million by a hybrid bond

OUTOTEC OPERATIONS

Sustainable use of Earth's natural resources

VALUES AND CODE OF CONDUCT

STRATEGY AND RESOURCE ALLOCATION

RISKS AND OPPORTUNITIES

GOVERNANCE

Business activities

- R&D, raw material testing, product management, EUR 56 million
- Sales EUR 1,139 million
- Marketing
- Engineering
- Sourcing EUR 462 million
- Manufacturing
- Delivery
- Installation and commissioning
- Life-cycle support for customers

ECONOMIC VALUE GENERATED

Sales EUR 1,139 million ./. Operating costs EUR 792 million = Value generated EUR 347 million

0 retained in the company

ADDED VALUE TO STAKEHOLDERS

Customers
- Sustainable products and services
- Long-term support and partnership
- Social license to operate

Planet Earth
- Emissions avoided 6.2 million tonnes of CO_2e, valued at EUR 36 million
- Increased resource efficiency

Employees
- Wages and salaries EUR 326 million
- Wealth and professional growth
- Safe workplace, LTIR 1.7
- Respecting human rights

Suppliers
- Long-term partnerships
- Economic sustainability, EUR 462 million spent on suppliers
- Responsible business practices

Academic community
- Subcontracted R&D work EUR 8 million
- Thesis opportunities and internships for students

Local communities
- Employment and wealth
- EUR 287 million spent on local businesses
- Current income taxes EUR 5 million
- Community investments 0

Investors and financiers
- Market capitalization EUR 1,300 million
- Compliance and transparency
- Net finance expenses EUR 7 million
- Interest on hybrid bond EUR 11 million
- Dividends 0

ment activities run together with our external partners received EUR 2.5 million in public funding. We additionally subcontracted work packages out to universities and mainly small and medium sized enterprises for more than twice this sum, over EUR 7.7 million. We also cooperate with local universities to enhance the skills and knowledge of students and decision-makers and train future plant operators and service personnel.

Non-discriminatory tax policy

As a globally operating company, Outotec engages in a variety of tax laws, regulations, practices and interpretations. The international tax environment is challenging to navigate, however we are committed to being a responsible, compliant tax payer in each country where we operate. We pursue transparency and fairness in our tax practices, and do not engage in aggressive tax planning. Our tax management has a proactive approach.

In 2017, Outotec paid a total of EUR 2.5 million (2016: 6.4 million) in corporate income taxes. The following table lists the corporate income tax rates for Outotec in the countries where we were subject to corporate income taxation in 2017. In Finland, Outotec paid EUR 1.6 million (EUR 2.3 million) in income taxes, and in other countries EUR 0.9 million (EUR 4.1 million). Outotec's effective tax rate was 87% (11%). The US tax reform had a one-time negative effect of EUR 6 million to the tax rate in 2017. Without this one-time item, our effective tax rate would have been 45%.

Also, Outotec pays, collects and remits other taxes and tax-like payments, such as value added and sales taxes, payroll taxes and capital taxes. Our total tax contribution varies depending on the geographical distribution of sales, which in turn is affected by our product mix and locations of customer projects. We have transparent communication with the tax

authorities in every country where we operate.

Outotec engages in large projects, however there may be only one project ongoing in a country. Due to the confidential nature of the information and the varying quantities of projects worldwide we cannot disclose country specific financial information. Also, the destinations of our sales typically do not correspond with the places in which the work and sales activities are performed, value created, and where the income must be reported and taxes paid. Providing country-specific tax information would not give a comprehensive picture of the fairness of the tax distribution in Outotec's case.

RELATED POLICIES:
- Outotec Corporate Governance Policy
- Code of Conduct
- Outotec Risk Management Policies
- Supplier Policy
- Supply Policy
- Tax Policy

Country	Corporate income tax, %
Australia	30
Austria	25
Bahrain	0
Brazil	34
Bulgaria	10
Canada	25.8
Chile	25.5
China	25
Finland	20
Germany	29.2
Ghana	25
Greece	29
India	30.9
Indonesia	25
Iran	25
Kazakhstan	20
Mexico	30
Mongolia	10–25
Morocco	10–31
Mozambique	32

Country	Corporate income tax, %
Namibia	32
Netherlands	20–25
New Caledonia	30
Norway	24
Peru	29.5
Philippines	30
Poland	19
Qatar	10
Russia	20
Saudi Arabia	20
Serbia	15
South Africa	28
Spain	25
Sri Lanka	28
Sweden	22
Turkey	20
United Arab Emirates	0
United Kingdom	19
United States	38
Zambia	35

Corporate income tax rates by country in 2017

Risks and opportunities due to climate change

Three billion new middle-class consumers will need vital resources such as metals and water in the coming decades. This makes it essential to optimize resource usage. Greater production capacity and more resource-efficient, sustainable technologies will be needed to fulfill the needs and on the other hand to tackle climate change related challenges. We feel that technology can change everything.

Our management annually evaluates the global megatrends that impact Outotec's business, examining related risks and opportunities to create the basis for strategic planning. Sustainability-related risks and opportunities are addressed in Outotec's routine risk management processes. The megatrends identified in our 2017 strategy review as impacting Outotec's business most are: Urbanization, Resource efficiency, Sustainability, Digitalization, and Volatility. Overall, these global megatrends appear to bring Outotec more opportunities than threats.

The key in our climate change strategy, made in 2016, is harnessing our technology for the transition to a low-carbon industry. We have complemented the estimated impacts of megatrends with the opportunities and risks defined in connection with our climate change strategy work. In 2017, we also studied the adoption of Science Based Targets to reduce

our carbon footprint and enlarge our positive impact, our handprint, to enable our customers reduce their carbon footprint. Policies relating especially to greenhouse gas emissions in different parts of the world are still evolving and we are following these changes, interacting with policy-makers as well as acting upon them in business development.

FINANCIAL IMPLICATIONS AND OTHER RISKS AND OPPORTUNITIES DUE TO CLIMATE CHANGE (GRI 201-2)

To mitigate the risks posed by climate change, Outotec spent EUR 56 million in R&D and product development to improve the resource efficiency and competitiveness of its products. Our vast knowledge of mineralogy and our comprehensive R&D facilities enable Outotec to develop process solutions for low-grade and complex ores. In 2017, some 79% (2016: 66%) of our R&D projects were related to initiatives targeting improved metals recovery, energy saving, waste minimization, emission reduction and/or safety improvement.

In line with our strategy, we develop new business concepts, modular products, and are increasing the use of target country suppliers and best-cost-country sourcing to increase our cost-competitiveness. We are also continuously investing in ICT systems and applications to utilize the opportunities of digitalization. In 2017, our investments amounted to EUR 21 million, consisting mainly of IT programs and intellectual property rights. Our plan is also to strongly develop our service business and expanding our waste-to-energy and water

management businesses to balance the cyclicality of the mining industry. Our service sales in 2017 was EUR 475 million and our target is to grow it annually by over 10%.

Read also:

MEGATREND	RISKS FOR OUTOTEC	OPPORTUNITIES FOR OUTOTEC
URBANIZATION Growing demand for minerals and metals to satisfy the needs of the new middle class requires greater processing capacity and more resource efficient methods.	− Our cost structure may be too high for some emerging countries. If we fail to keep our portfolio competitive, we may lose market share. − Consumers' changing behavior to replace metals with bio-based materials and plastics.	+ Our technologies enable efficient ore processing and higher yields, thanks to advanced process control. + As the concept of circular economy gains ground, we can sell more solutions for the production of metals from end-of-life secondary materials, such as electronic waste, metallic scrap, battery paste or scrap and mining and metallurgy related wastes still containing valuable materials. + Requirements for the efficient use of biomass and waste provide opportunities for our waste-to-energy solutions.
RESOURCE EFFICIENCY Valuable metals and minerals must be more effectively recovered, and tailings and waste must be better recycled and processed to enhance the efficient use of resources.	− Ore grades are declining and ores are becoming more complex and more difficult to process. If we fail to develop new technologies or keep our portfolio competitive, we may lose market share. − Energy shortages and Climate Change mitigation related increased energy costs can reduce our customers' competitiveness and risk their ability to operate. − Availability of water varies, often there is scarcity and sometimes floods.	+ Our customers will need to replace inefficient processes with new energy- and water-efficient solutions. Our technologies are energy efficient, recycle process water, decrease water loss, and lead to significant reductions in fresh water consumption. + Carbon taxes favor our energy efficient technologies. + Demand for closed water cycles provides business opportunities for our water know-how. + Our technologies are benchmarks for many production efficiency standards and fulfill even stricter future standards.
SUSTAINABILITY To maintain their social license to operate, our customers are paying more attention to environmental, health, safety and social responsibility with regard to their employees and local communities.	− Possible failure of Paris agreement, and lack of global regulation. Tighter regulation can cause customers to lose their competitiveness and cease to operate, carbon leakage. − The metals industry emits SO_2, which has significant environmental impacts. Fine particulate matter emissions to air, and heavy metals in hazardous dusts and fumes cause health problems. Eco-toxic substances from metallurgical operations can impact air quality, water, and soils. If customers do not gain social acceptance, they may be forced to close down their operations. − Customers' sites are often in remote locations with vulnerable habitats, flora and fauna infrastructures and biodiversity.	+ Outotec's inclusion in the Global 100 Index of most sustainable companies confirm our image as a leader in sustainable solutions, which helps customers to gain social acceptance and financing for their projects. + International climate agreements and future air pollution limits direct towards the use of clean technologies: compared to peers, our solutions emit less and go below the most stringent environmental regulations. + In emission trading, reductions can generate positive cash flow for our customers which they can use for new investments or services. + Our tailings and water management solutions enable mining companies to solve their environmental challenges. We also offer waste-to-energy solutions that significantly reduce landfill while producing clean energy.

OUR AGENDA

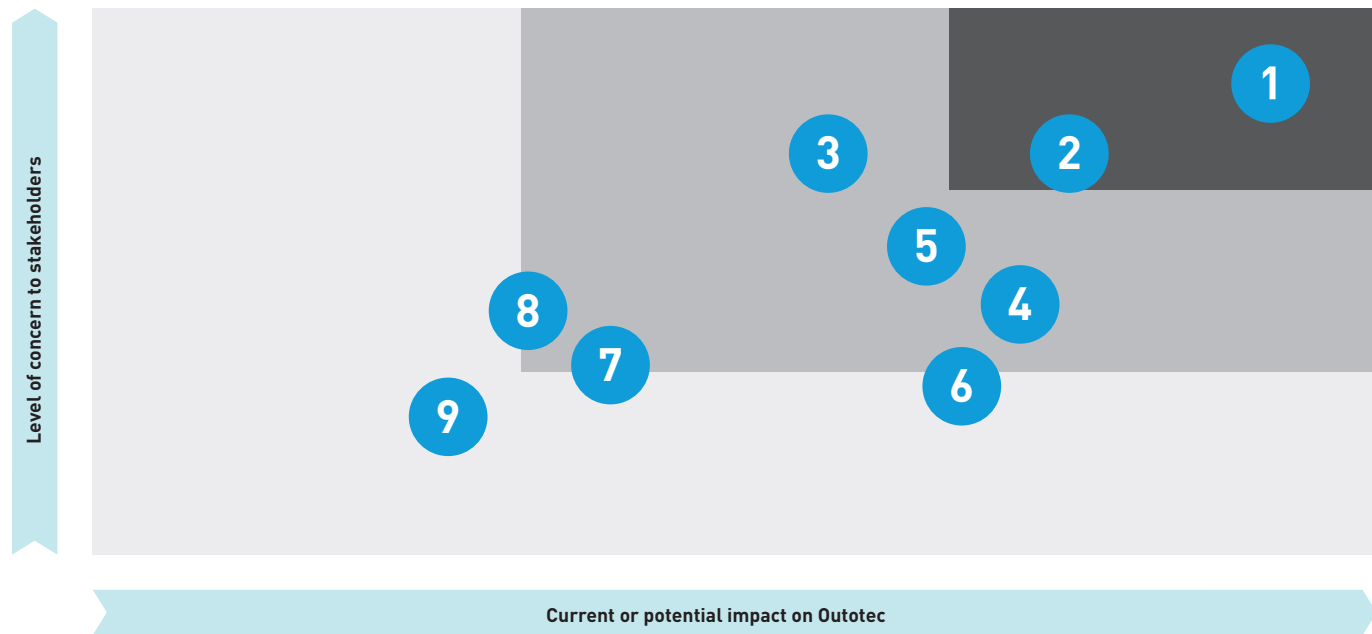| MEGATREND	RISKS FOR OUTOTEC	OPPORTUNITIES FOR OUTOTEC
DIGITALIZATION The world is increasingly driven by connectivity, data, and software. Cloud computing, combining big data sets, advanced analytics methods, new ways of interactions with machines, user experience requirements drawn from consumer applications and autonomous systems will become more commonplace in our business.	– Digitalization is seen to play a major role in mitigating climate change. If more agile players are entering the market, especially in high-value digital solutions, we may lose market share in our traditional areas.	+ Digitalization and the integration of customers' processes offer new possibilities to create value using our unique process technologies. New cost-efficient and interactive partnership models with customers will become possible, supporting performance-based earnings. + Closer engagement with our customers, and the provision of timely data over entire product life-cycles can open up opportunities for innovating new products, systems and services. + Advanced ICT systems offer business benefits and cost efficiency for Outotec. Through our worldwide network of experts, advanced master data management and ICT infrastructure, we ensure data quality and consistency across all business applications.
VOLATILITY Volatile investment activity rates, the speed of global GDP growth, metal consumption rates, and the balance or imbalance between supply and demand, capacity utilization rates and metal prices all greatly influence our business.	– Customers' operations require sufficient amounts of water, fossil fuels, power and mineral resources. Any changes related to the availability or the price of these commodities can increase customers' operating costs, which may lead to the closure of some operations, or postpone or cancel investments. – During downtrends, customers tend to minimize their investments in new processing capacity. The lack of large customer projects can significantly reduce our sales and thereby our yearly or quarterly financial results. – A volatile macroeconomy also hampers resource planning due to unpredictability.	+ 81% of our business comes from the cyclical mining and metals industry. Business opportunities will increase substantially in an uptrend. + Changes in the global economy may boost our businesses in some parts of the world, and increase the demand for certain technologies or services including upgrades and modernization. + We operate globally, and offer solutions for virtually all types of minerals and metals, which reduces our dependence on any single commodity or geographical market. Our long-term service contracts, as well as modernizations prolonging the lifetime of older equipment, counteract the highly cyclical mining and metals industry.

Most significant topics

Based on stakeholder dialogue, and considering the economic, environmental, and social impacts of our operations, we have defined nine sustainability topics that we see as important for Outotec in relation to risk management or value creation. Five of these nine topics are defined as most significant for Outotec and stakeholders.

Outotec conducted a wide-ranging review of material sustainability topics in 2014. Potential topics were first identified together with an external partner, based on a previous materiality assessment run in 2011, as well as management interviews, a review of sustainability trends impacting the industry, and stakeholder feedback. We next mapped all of the relevant economic, environmental and social impacts that can influence stakeholders' perceptions of Outotec.

Our Sustainability Working Group prioritized the identified significant topics in a workshop, which were then validated by the Leaders' Forum, where about 100 of Outotec's leaders shared their views on the topics. The results of the materiality assessment were also reviewed and verified by Outotec's Sustainability Advisory Council, representing our key stakeholders. Finally, the Executive Board validated the results of the materiality assessment in 2015.

In 2017, the core team of our Sustainability Working Group reviewed the material topics against GRI Standards. The list of material topics was complemented by impacts and Ou-

totec's involvement with the impacts to comply with the GRI Standards reporting framework. Outotec's Executive Board validated the changes (GRI 102-46).

Based on the materiality assessment, the topics that matter most for Outotec are:
1   Safety
2   Sustainable offering for customers
3   Responsible business practices
4   Sustainable supply chain
5   Development of our people
6   Equal opportunities and diversity
7   Stakeholder dialogue
8   Community involvement
9   Minimizing our own environmental impact

The first five of these nine most material topics were chosen as the most significant issues for Outotec's business and are reviewed in more detail in this report (GRI 102-47).

The most material non-financial topics for Outotec are also discussed in the Non-financial report published in the Financial Statements 2017 (www.outotec.com/investors)

Read also:
• About this report, p. 48

Level of concern to stakeholders (vertical axis)

Current or potential impact on Outotec (horizontal axis)

Outotec's material topic	Boundaries	Current or potential key impacts	Outotec's involvement with the impacts
1 Safety	• Outotec's employees • Outotec's premises and project sites • Contractors working under Outotec's direct supervision	• Occupational health, safety and security • Working environment • Injuries and lost working time • Occupational diseases • Customer satisfaction	• Outotec may cause or contribute to the impacts, or is directly inked to them (e.g. unsafe act or condition)
2 Sustainable offering for customers	• Outotec's employees • Customers' employees and operations • Outotec's suppliers • Contractors working under Outotec's direct supervision • Customers' surrounding environment • Climate change	• Occupational safety • Product safety • Operation of customers' plants • Resource efficiency • Social acceptance • Customer satisfaction • Climate change • Biodiversity • Financial performance	• Outotec causes the impacts, contributes to the impacts, or is linked to the impacts through its suppliers or customers using the products and services
3 Responsible business practices	• Outotec's employees • Suppliers and contractors • Outotec's sales representatives and agents	• Relationships with business partners • Legal compliance • Reputation and stakeholder value • Financial performance	• Outotec causes the impacts or is directly or indirectly linked to the impacts
4 Sustainable supply chain	• Suppliers • Contractors working under Outotec's direct supervision	• Reputation • Quality • Human rights • Compliance and ethical business practices • Local employment and businesses • Climate change	• Outotec is indirectly linked to the impacts
5 Development of our people	• Outotec's employees • Outotec's operations at project sites • Contractors working under Outotec's direct supervision	• Employee motivation and competences • Talent retention • Customer satisfaction • Safety performance • Financial performance	• Outotec causes or contributes to the impacts
6 Equal opportunities and diversity	• Outotec's employees	• Company culture • Employee relations • Gender equality • Reputation	• Outotec causes the impacts
7 Stakeholder dialogue	• Outotec's key stakeholders	• Commitment to the company • Stakeholder involvement • Reputation • Shareholder value	• Outotec is directly or indirectly linked to the impacts
8 Community involvement	• Outotec's employees • Outotec's largest manufacturing units, R&D centers and project sites • Local communities	• Wealth • Support for science, research and education • Social acceptance • Reputation	• Outotec causes the impacts or is directly or indirectly linked to the impacts
9 Minimizing our own environmental impact	• Outotec's employees and premises	• Climate change • Biodiversity	• Outotec causes the impacts

Sustainability Agenda 2020

Our Sustainability Agenda is built on the five most material topics to our stakeholders and Outotec's business. We measure our performance with regard to 2020 targets set for each topic. We have defined our most significant impacts with regard to the UN Sustainable Development Goals (SDGs) integrated into our agenda.

Our Sustainability Agenda and goals for 2020 are unchanged, with the timeframe aligned with Outotec's strategy 2020. Five of the nine most material topics remain as the building blocks of our Sustainability Agenda: safety, our offering, business practices, supply chain, and our people. Our annual targets for the most material topics are linked to our 2020 goals. We continue to integrate the most relevant SDGs into our Sustainability Agenda and our annual targets, based on an internal evaluation and approved by the Executive Board.

We have analyzed Outotec's impacts on SDGs in an internal workshop, with eleven SDGs identified as most relevant overall, and two SDGs where we have indirect impact. Our commitment and impact analysis of the SDGs was approved by the Executive Board.

DEVELOPMENT WORK DRIVEN BY 2020 GOALS

Safety is the most material topic in our materiality analysis. Zero accidents was set as the ultimate high-level target for our development work, though this very ambitious target is seldom achieved by any company. Outotec's management believes that this level of commitment to a safe working environment is a necessity in the challenging project circumstances in which our employees, customers and suppliers work.

Our technologies and R&D have a central role in our operations, since they represent the key means of improving the resource efficiency of our customers' operations. For this reason, developing sustainable offering for our customers is also at the core of our sustainability work. Our second long-term goal relates to providing customers with even more sustainable technologies and services, to help them reduce the pollution and contamination of air, water and soil (SDG 3) and their ecological footprint. The baseline year for our long-term technology-related targets is 2012.

In line with the goals set by the UN General Assembly, we upgrade our customer's operations to make them more sustainable (SDG 9), while also improving energy efficiency (SDG 7). Through our technologies, we support actions to combat climate change every day (SDG 13). We also increase the efficiency of water use by reducing the amounts of fresh water needed in our processes, and by increasingly recycling and safely re-using water, thus decreasing the amounts of wastewater (SDG 6). With our solutions for renewable energy, we help to make cities more sustainable by enhancing sustainable urbanization (SDG 11). In addition, we have identified an indirect impact of our partnerships with our customers, suppliers, and other business partners (SDG 17) towards two SDGs in connection with our business operations. We cooperate with universities on R&D (SDG 4), and drive technological upgrades and innovations that will improve resource efficiency in production (SDG 8).

In the area of responsible business practices, we aim to develop strong common values and a robust Code of Conduct, as well as a solid governance structure. An integral part of this goal is to ensure that our Code of Conduct is also implemented in accordance with our values. We have zero tolerance for corruption. We continuously train our own employees on anti-corruption topics and require compliance from our business partners (SDG 16). Outotec implements non-discriminatory company policies and practices globally (SDG 10).

Because the majority of Outotec's manufacturing is outsourced, sustainability along our supply chain is highly important to us. In 2016, having reached the long-term goal for our supply chain, we defined a new long-term goal for our supply chain on supply chain development and auditing. By requiring sustainable practices along our supply chain, we also promote the wider adoption of sustainable management practices, thus enabling our clients to use natural resources efficiently (SDG 12).

Outotec's business is dependent on our people. We want to make Outotec the most desirable place to work in our industry, and to keep great talent with us. As an enabling and engaging culture is a key differentiating factor for Outotec, we aim to achieve 10% improvement in the employee engagement index by 2020 in our employee survey. This target was approved by the Board of Directors in 2017.

With equal opportunities as one of our material topics, we aim to increase women's opportunities for leadership to promote gender equality (SDG 5).

LONG-TERM FINANCIAL TARGETS

In addition to our Sustainability Agenda, Outotec aims to achieve continuous profitable growth. Outotec's Board of Directors set the following long-term financial targets for the company in September 2017:

- Sales growth faster than the market
- Annual average service sales growth over 10%
- Profitability (adjusted EBIT) 10% of sales by 2020
- Gearing at maximum 50%

TARGETS FOR 2020	RELATED SDG

SAFETY:
Zero accidents

SUSTAINABLE OFFERING:
Share of Environmental Goods and Services in order intake permanently over 90%

Customers generate 20% less CO_2 when using Outotec's metals-related technologies compared to annual baselines

50% reduction in fresh water intake per tonne of ore in non-ferrous metal concentrators compared to 2012

Double the energy produced through our waste-to-energy solutions compared to 2013

RESPONSIBLE BUSINESS PRACTICES:
Strong common values and Code of Conduct; solid governance structure

SUSTAINABLE SUPPLY CHAIN:
100% of our key suppliers audited regularly with supplier development actions drawn up according to audit findings

DEVELOPMENT OF OUR PEOPLE:
Employee engagement index 70% in the employee survey

FINANCIAL PERFORMANCE:
Continuous profitable growth

Annual targets

Our annual sustainability targets are aligned with our material topics, and defined to support our Sustainability Agenda 2020. We have also integrated the UN Sustainable Development Goals into our annual targets.

○ Not achieved   ◑ Partly achieved   ● Achieved

Target for 2017	Performance in 2017	Target for 2018	GRI indicator & relevant SDG
1. Safety			
• New lost-time incident management system implemented globally in major locations. • Reviewed and simplified harmonized product compliance management procedures in use globally.	◑ Harmonized principles for global incident management defined; system specification done. Implementation pending for 2018. ◑ Simplified and harmonized procedures are released and implementation for part of Outotec functions has been completed. The remaining will be completed during 2018.	• 5% reduction in lost time injury rate (LTIR)	GRI 403-2 GRI 416-1 3 GOOD HEALTH AND WELL-BEING
2. Sustainable offering			
• Environmental goods and services (EGS) to account for over 90% of order intake. • 20% reduction in CO_2 emissions to be achieved through the use of Outotec's metals-related technologies, compared to industry averages. • The piloting of the water treatment solution to be completed and our offering expanded to encompass the entire water management of a mine site. The safety benefits of our dry stacking alternative to be emphasized. • Reductions in the use of fossil fuels by Outotec's renewable energy solutions amounting to 12 MWe and/or by steam boilers amounting to 60 MWth.	○ EGS accounted for 88% of order intake. ● 22% reduction in CO_2 emissions achieved through the use of Outotec's metals-related technologies. ● Several laboratory scale pilots and four piloting tests were carried out for customers and the offering has been expanded. Safety benefits were emphasized. ○ Plants ordered in 2015 were under design and construction in 2017, but not yet in operation.	• EGS to account for over 90% of order intake. • 20% reduction in CO_2 emissions to be achieved through the use of Outotec's metals-related technologies, compared to industry averages. • Successful commercialization of new water treatment solutions and receiving at least two new orders based on this technology. • Waste-to-energy plants delivered by Outotec reduce the use of fossil fuels to exceed our annual targets from two previous years combined	OWN 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE
3. Responsible business practices			
• Working conditions to be assessed at Outotec's main manufacturing and service sites. • Code of Conduct training for blue-collar employees.	● Working conditions self-assessment was carried out at our main manufacturing and service sites. ○ 38% of blue-collar employees attended Code of Conduct training.	• Global working conditions guidelines concerning blue-collar employees to be created and implemented. • 80% of Outotec's employees trained on Code of Conduct	GRI 205-2 8 DECENT WORK AND ECONOMIC GROWTH

Target for 2017	Performance in 2017	Target for 2018	GRI indicator & relevant SDG
4. Sustainable supply chain			
• Audits to be run globally to cover 10% of key suppliers where a purchase order has been placed recently, for product quality, with supplier development actions planned (or implemented) according to the audit findings. • All key suppliers not certified under ISO 14000 and/or ISO 18000 to be audited on health, safety, environmental and social aspects.	● 21% of key suppliers, where a purchase order has been placed recently, audited for product quality, with supplier development actions planned (or implemented) according to the audit findings. ● All key suppliers not certified under ISO 14000 and/ or ISO 18000 were audited on health, safety, environmental and social aspects.	• Auditing 25% of key suppliers globally.	GRI 204-1 GRI 414-1
5. Development of our people			
• Index improvements of 6% in employee engagement compared to Pulse survey results from 2016. • Index improvement of 4% in performance enablement, compared to Pulse survey results from 2016.	● Employee engagement improved by 18%-points. ○ Performance enablement criteria changed and the results are not comparable to 2016 results.	• Index improvements of 4 %-points in employee engagement compared to employee survey results in 2017.	OWN
6. Equal opportunities and diversity			
• 2% increase in the number of female leaders in senior leadership positions compared to 2016.	○ The number of female leaders in senior leadership position did not increase.	• 2% increase in the number of female leaders in senior leadership positions compared to 2016.	GRI 405-1
7. Community involvement			
• One new community project started.	● New Sustainability Master Class launched with University of Helsinki	• No target for 2018.	GRI 413-1
8. Stakeholder dialogue			
• Continue with existing feedback surveys to measure our performance per customer relationship, and initiate a new transactional feedback survey for field service.	● Customer feedback surveys were successfully continued and established as a continuous process.	• No target for 2018.	GRI 102-43 GRI 102-44
9. Minimize our own environmental impact			
• ISO 50001 energy management systems, including energy saving concepts, to be implemented in all locations in Finland. • A new harmonized quarterly global energy consumption reporting concept to be created and implemented. • Maintain the same lower level of CO_2 emissions from flights per EUR 1 million sales as recorded in 2016.	● ISO 50001 was certified in all locations in Finland. ● A new energy consumption reporting tool was implemented in 2017 and is currently in use covering Outotec locations globally. ● The emissions from flights per EUR 1 million sales remained at the same level as recorded in 2016.	• Maintain the same lower level of CO_2 emissions from flights per EUR 1 million sales as recorded in 2016.	GRI 302-4 GRI 305-5

Refining data for sustainability

Digitalization keeps advancing, faster in some industries and with more caution in others. The primary drivers for adopting digital technology and solutions tend to be economic ones, mainly to do with increasing productivity through process efficiency. However, digitalization is also a major contributor to sustainability.

Perhaps the most important corporate responsibility impact digitalization has in the mining and metallurgical industry has to do with work safety. There is still a large amount of manual labor involved in ore processing, and some tasks can be hazardous. Working in close proximity to molten metal has its risks. Digital systems and smart sensors can render, for example, manual sampling unnecessary.

"Our customers' strategic targets often include keeping accident rates at the lowest possible level. Removing people from dangerous places is one way of avoiding accidents. Computers can do the measuring and monitoring, and the human element comes in when it is time to draw conclusions from the data provided by machines," says **Jari Moilanen**, Outotec's Automation Director.

LEARNING BY SIMULATION

Another way to increase work safety and avoid accidents is simulation training. The operators can safely practice and learn their job in a virtual environment where the simulator generates the response to the operator's actions, instead of the live process.

"Virtual training is well suited for practic-ing scenarios that happen rarely in real life. For instance, exceptional situations in which the process is disrupted can pose unforeseen risks, for which simulated training scenarios can help prepare. A stable process that is under the operator's control is naturally less risky," **Kari Saloheimo**, Director, Digitalization says.

The virtual world is also applied to the optimization of plant operations. A virtual plant that simulates the operations of an actual plant can be used to detect problems or malfunctions as well as to increase productivity and availability, reduce energy consumption and ensure product quality.

MACHINES WORK WHERE PEOPLE CAN'T

Well-being at work is not only about safety. Day-to-day working conditions have a major impact as well. The location of a mine is determined by the location of the deposit. This is not always an optimal environment for people. One new mine and concentration plant for which Outotec supplies equipment and systems is located at an altitude of more than 4 kilometers, in a place that is very difficult to reach.

"People who are not accustomed to such heights cannot work there for long periods of time, and it is the customer's wish that the mine and its concentration plant are operated with minimum personnel. This means we need to strongly support the operation from a less hostile and more accessible work environment. A host of digital solutions are needed to track what the measuring equipment on the mountain show and to simulate scenarios for both running the process and managing equipment maintenance," says Jari Moilanen.

Expert and advisory systems also play a part in well-being at work, which depends on more than just the physical environment. Having facts and knowledge-based advice to support decision-making reduces the psychological load of process control personnel. Well-applied digitalization can also help the working community to promote a culture of sharing and cooperation.

EFFICIENCY GOES UP, EMISSIONS GO DOWN

Improving efficiency is, of course, on everyone's agenda. Better resource efficiency means – in Outotec's world – more metal from the same amount of ore, using the same amount of energy, water and chemicals. Consequently, a smaller amount of valuable metal ends up in the tailings area or slag pile. So, resource efficiency is good for business, but it's also good for the environment.

"When humans drive processes, they tend to be more cautious than machines. Digital technology allows plants to operate closer to their optimal parameters, which minimizes the use of energy and chemicals per production ton. This translates to reduced emissions," says Jari Moilanen. "The sustainability of mining operations is currently a hot topic, especially in China, where the government gives significant financial support to so-called 'Green mines' that are able to improve their material, energy and water efficiency."

The efficiency of maintenance operations can also be improved with digital technology. Instead of replacing parts and components according to calendar-based, pre-determined schedules, equipment can monitor their wear and tear to determine when they need to be replaced. Comparing the condition of the part to historical data gives an indication of its remaining lifetime. This means that maintenance intervals can be extended and breakdowns still avoided. And if a machine can indicate that trouble is on the way, the necessary maintenance personnel can be alerted and parts delivered before the situation is critical.

DIGITALIZATION GIVES A COMPETITIVE EDGE

One of the key goals in Outotec's strategy is to grow its service business. This is yet another opportunity to put digital technology to good use.

"Digitalization enables us to engage in constant dialogue with our customers. It allows us to apply the expertise of the entire company by giving our maintenance personnel easy access to digital data. It speeds up our ability to deliver spare parts. All in all, digitalization gives us a considerable competitive edge compared to smaller, local service companies," **Olli Nastamo**, Senior Vice President, Operational Excellence says.

Digitalization gives new meaning to human factor

Engaging with stakeholders

WHAT ABOUT THE JOBS?

Digitalization often evokes a concern about disappearing jobs. When machines replace us, what is left for us to do? According to Olli Nastamo, there is no need to worry.

"It is Outotec's view, as well as that of leading consultancies in the industry, that work will change but not disappear. People will be needed also in the future, but their tasks will involve fewer hazards and less repetitive, manual work. The changing roles call for new skills, and this is something the mining industry has now realized. The industry cooperates with educational institutes and research facilities as well as with mining companies' stakeholders to find ways to update the know-how of workers," Olli Nastamo says.

Outotec also participates in a mining industry cluster to tackle this issue. The company is currently determining the best ways it can contribute – for instance by offering its digital solutions or its own networks for educational and research use.

In the end, the best way to safeguard jobs is to ensure the continuity of the business. Competitiveness in today's world requires that the benefits and opportunities offered by digitalization are seized. Sustainable operations are increasingly required by governments and investors. By operating profitably, competitively and sustainably, Outotec can continue to employ personnel, pay taxes and thereby contribute to society.

Stakeholder dialogue was identified as one of the nine most material topics in our materiality analysis. We aim to enhance transparency by maintaining continuous dialogue with our key stakeholders.

Outotec defined its key stakeholders in connection with the materiality analysis review conducted in 2014. Approximately 120 Outotec leaders shared their views on the relevant topics and stakeholders, and the results were verified by Outotec's Sustainability Advisory Council. The material topics and stakeholders are reviewed at approximately 2-3 years intervals by the Corporate Responsibility function and the Sustainability Working Group.

The Executive Board reviews the effectiveness of our stakeholder engagement and gives briefings to the Board of Directors. In addition, Chief Compliance Officer reports the issues raised through grievance mechanisms to the Board of Directors. (GRI 103-3)

We have defined the following groups as our key stakeholders (GRI 102-40):

• Customers
• Employees
• The academic community
• Investors and financiers
• Suppliers
• NGOs and media

We also consider our planet and future generations as stakeholders when evaluating whether Outotec's offering and operations are future-proof.

In 2017, a Global Procedure for stakeholder engagement was launched as part of Outotec's globally harmonized Quality, Environment, Health and Safety Management System. (GRI 102-42). In a review of key stakeholders conducted during 2016 by the Sustainability Working Group and the QEHS team, the academic community was added as a key stakeholder group due to frequent business-related engagement. The Sustainability Working Group has not identified any stakeholder groups that Outotec would not engage with.

To measure our success in engaging with stakeholders we have set targets related to customer surveys, employee engagement and local community engagement initiatives.

Outotec's Sustainability Advisory Council, established at the end of 2014 to advise the company regarding sustainability trends, strategies and reporting, has given input on how our stakeholders view the economic, social and environmental impacts of our decisions. The six Council members represented customers, investors, suppliers, NGOs and academia. In 2017, we decided to continue our stakeholder dialogue through our regular engagement tools and methods, and the Sustainability Advisory Council ceased to convene; see page 24 for more details on our engagement tools.

We have asked our employees for feedback about the report, future themes and topics of interest in sustainability communications, using our internal social media. We have also discussed our sustainability reporting with some investors and sustainability focused portfolio managers and received feedback from them. Other forms of stakeholder engagement were not undertaken specifically as part of the report preparation process. (GRI 102-43)

To collect open feedback from our stakeholders we have published a form on our website [www.outotec.com/contacts/contact-information/feedback/] through which feedback can be submitted anonymously. Through this public feedback channel there were no concerns raised in 2017.

LISTENING TO CUSTOMERS

Customer satisfaction is high on our agenda. We build up our understanding of our customers' needs and challenges by systematically collecting feedback. We have also invested in internal feedback channels and feedback management to improve our products, services and operations.

The key parameters used by Outotec to measure global customer satisfaction are our Net Promoter Score and Customer Satisfaction ratings. We started our global survey program in 2015, and in 2017 we integrated our feedback surveys to our CRM to enable managing the feedback with other customer activities. The key drivers behind customer recommendation and overall satisfaction have not significantly changed from 2016, the main drivers being technologies, product quality and Outotec expertise while improvement areas are found within response and delivery times. Our focus on service development is something our customers clearly appreciate.

In our feedback survey, we request customers to comment on the most important factors behind the scores they give. This focus on open comments helps us to tune in to customers' true feelings and hear their voices. These comments form the basis for actions designed to achieve improvements from individual accounts to the global level. We are

analyzing the comments for improvements, and have started several development initiatives based on the analyses. In 2017, we collected more than 3,000 customer comments to analyze for actions, and our ambition is to continue to expand the sample going forward.

Outotec is continuously cooperating with its customers, especially in technology and process development. In joint R&D or delivery projects, both Outotec and its customers are able to improve their competences and requirements, e.g. to increasing resource efficiency or digital competences (remote access, process control & optimization).

One such project in 2017 was Critical Elements pilot case in the Pori Research Center, where piloting demonstrated that the conversion of Critical Elements' spodumene resources into lithium carbonate battery quality using the thermal leaching process was easily achievable. Read more at. www.cecorp.ca/en/critical-elements-successfully-completes-pilot-plant-work-lithium-carbonate-conversion/

ENGAGING WITH EMPLOYEES

The new strategy "This is Outotec 2020" was launched in September and presented first in townhall meetings to all employees. In addition to the main events organized and broadcasted in the headquarters, the main locations organized their own events. Furthermore, the most prominent strategic themes were discussed in events organized in all locations where trained colleagues and top management facilitated the discussion. The feedback from employees was positive.

The bi-annual employee engagement survey was conducted in November 2017. 82% of the employees gave their feedback in the survey. After many challenging years in employee relations, the survey marked an upward curve in the engagement index, which improved 18 %-points.

We continued to hold the CEO's quarterly internal briefings. Employees may ask questions during these briefings, and they can also watch a video recording afterwards. To support the strategy cascade, we introduced a new monthly strategy chat concept, a live video broadcast with selected top management representatives. Audience has possibility to ask questions and comment the strategic themes in these facilitated discussions.

Our global intranet serves as a platform for day-to-day information sharing. To complement this platform, our Outotec News Channel for video communications and the new Office365 collaboration tools play ever increasing role in internal collaboration. The new internal social media tool Yammer was quickly adopted for discussion and dialogue. By the end of 2017, over 3,800 employees were sharing their opinions in Yammer, in over 470 discussion groups which demonstrates that the new tool was quickly and widely adopted.

Two Outotec Round Table events were held during 2017, bringing together some 20 personnel representatives and top management. The topics discussed included our new strategy, rewarding (performance development dialogue and compensation policy), travel safety, GDPR and data privacy issues as well as employee engagement survey results.

Employees as owners

Many Outotec employees are also shareholders through the employee share savings plan, which was launched in 2013. The Plan rewards employees for their long-term commitment to the company. Approximately 20% of employees participated in this program in 2017.

1,223 employees who participated in the

Plan in 2014, and kept their shares until May 2017, received free shares. Outotec offered beneficiaries one free share (gross, with cash payments for taxes deducted) for each two shares bought with the 2014 savings.

Enhancing feedback culture

A new portal for internal feedback collecting was launched in late 2016 and deployed in 2017 to enable internal feedback to be submitted and processed smoothly. Feedback can range from improvement requests and ideas from business and application to facilities, well-being and products, and to reported non-conformities related to quality in project and service delivery. The deployment was done in stages and it included also training sessions for the different parts of the organization. In 2017, total of 244 feedback entries were received through the portal. Nearly half of the entries were related to quality of product and service deliveries. The portal will be further developed as a part of the continuous improvement process.

REGULAR DIALOGUE WITH INVESTORS

Outotec's approach to investor relations and communicating with the financial markets is based on Finnish law, EU directives, and our own policies on corporate governance and disclosure, as well as stock exchange rules and regulations.

At the end of 2017, Outotec had 25,478 (29,686) shareholders. Shares held in 11 nominee registers accounted for 35% of all Outotec shares, while private Finnish investors held 14%. Fourteen sell-side analysts and one credit analyst conducted research focusing on Outotec.

The annual Capital Markets Day event was held on September 21 at Outotec House in Espoo, Finland.

In addition to our quarterly investor briefings and annual financial statement briefings, the CEO's mid-quarter Q&A sessions continued to be an important channel for maintaining dialogue. These audio casts aim to further clarify information that has already been made public. In addition, we met frequently investors and analysts in one-on-one discussions, at industry seminars and road shows.

In order to serve the capital market efficiently, to ensure equal access to company-related information, and to comply with disclosure requirements, all our audio casts are recorded and available for on-demand viewing at www.outotec.com/company/investors/reports-and-presentations/. In 2017, we also started streaming our quarterly investor briefings live in Facebook.

COMMUNITY INVOLVEMENT

Community involvement is one of the material topics at Outotec. As a buyer of goods and services, Outotec generates employment and contributes to socio-economic development in local communities. Our cooperation with universities and subcontracting R&D work packages generate local jobs and enhance skills and knowledge development.

Our reporting on community involvement covers the cooperation with the academic community, voluntary work of our employees, as well as local initiatives of our largest manufacturing units, R&D centers and project sites (GRI 103-1). The key impacts of community involvement are related to wealth, social acceptance of the company's operations, Outotec's reputation as well as supporting science, research and education.

Our target for 2017 was to start one new community project. This was achieved through our involvement in the Sustainability Master Class program at the University of

Helsinki in Finland as described below.

Cooperation with the academic community
Partnerships and networks with universities and research institutions are an important part of Outotec's everyday business. In 2017, Outotec cooperated with more than 30 universities and research institutions worldwide.

In Finland, Outotec's closest research partners in 2017 were Aalto University, VTT Technical Research Centre of Finland Ltd, Lappeenranta University of Technology, University of Oulu, the Geological Survey of Finland and the University of Helsinki. In Germany, where Outotec also has an in-house research center, we have had good collaboration with technical universities in Aachen, Erlangen, Darmstadt, Karlsruhe, Hamburg and Freiberg. The scope of these partnerships varies, but they are primarily related to process technology, resource efficiency, digitalization and IoT development, circular economy, hybrid materials and water issues.

Outotec is a core partner in the European Institute of Innovation and Technology's (EIT) Raw materials Knowledge and Innovation Community. This platform aims to make raw materials into a major strength for Europe by boosting competitiveness and the attractiveness of the raw materials sector. Outotec participates in nearly 20 related projects, aiming to create new business by upscaling technologies, while also generating new educational programs and strengthening Europe's infrastructural network. The volume of these projects in total is ca. one million euros yearly.

Also, Outotec participates in further EU Horizon 2020 projects in the fields of Industrial Leadership, Societal Challenges and Excellent Science. We have 9 Horizon projects ongoing, with an overall volume of nearly two

million euros yearly. These projects are carried out together with industrial actors and academic partners. This allows us to develop our technologies in close interaction with our customers, thus achieving a greater impact on real environmental problems.

Besides project-related research cooperation, Outotec has permanent type of partnerships with many universities or other educational institutes. These partnerships involve contributing to educational steering committees, guest lecturing, software licensing, hosting student groups, and collaborating on Bachelor's, Master's and PhD theses.

Outotec also participates in the technical secretariat of the EU's Operational Environmental Footprint Sectoral Rules (OEFSR), piloting for copper.

Outotec had the Presidency of the European Sustainable Phosphorus Platform (ESPP) in 2017. Read more about our representation in industry associations and commitment to external initiatives on www.outotec.com/sustainability.

One example of educational cooperation in 2017 is the Sustainability Master Class, which was jointly run by the University of Helsinki and Outotec to fuel innovation by activating an interdisciplinary group of 45 young researchers and professionals. In the four-month program the participants were divided into six groups which focused on the real business challenges set by Outotec. The co-creation work was mentored by business and technology experts. In the final pitch in April the first prize went to MineLoop, an online tool for real-time continuous communication between the mining companies and local communities. The application enables effective stakehold-

er dialogue and data collection of both "hard data" from environmental measurements and "soft data" i.e. feedback, questions and concerns from the locals. The application period for the next Master Class was open in November and the program continues in 2018.

Outotec has also established sustainability prize to encourage university students to apply their ideas to create practical innovations. In Central South University in China Outotec has awarded the ten best projects promoting sustainable design since 2013. In 2016 a decision was made to continue this cooperation biannually for at least four more years.

Working with NGOs and local communities
Outotec aims to support local projects that benefit communities where our major customers operate. These community projects are based on local needs, and defined through dialogue with local communities. We strive to realize community projects in collaboration with our customers, using joint financing. We also aim to integrate voluntary work into community projects – both during and outside working hours. All community projects must bring measurable benefits to the local community (GRI 103-2).

Outotec has continued to support the Baltic Sea Action Group's initiatives for the rehabilitation of the Baltic Sea, and additionally sponsored the Millennium Technology Prize. We also see the Sustainability Awards we give to students in South Africa, China and Australia as a means of engaging with local communities.

Charitable financial donations were frozen for 2017, after Outotec's Board of Directors proposed to the Annual General Meeting of shareholders in April that there would be no budget for such donations for 2017.

In 2017, 24% of our operations ran small local community engagement programs (GRI 413-1) mostly based on voluntary work. Such activities had to be reduced due to the weak financial performance of the company. Outotec did not make any social or environmental impact assessments in 2017.

Engaging with the media
We interact with media representatives both locally and globally to publicize our sustainability work. Our CEO's quarterly briefings provide basic information about Outotec's performance. We also organize interviews where journalists can discuss our goals, new products and newsworthy events with our management representatives. We publish case stories on our website for the media, and aim to organize press trips to Outotec's R&D centers or reference plants at customers' sites, in order to show concrete examples of our work to journalists.

Our experts additionally meet trade press representatives at exhibitions and conferences, and share the latest product news with them.

RELATED POLICIES:
- Global Procedure for Stakeholder Engagement
- HR policies
- Disclosure Policy
- Social media guidelines
- Donation Policy
- Code of Conduct
- Supplier Policy

STAKEHOLDER EXPECTATIONS
AND FEEDBACK (GRI 102-44)

Expectations	Our engagement tools
CUSTOMERS	
• Creating value for customers • Sustainable and safe products and services • Social license to operate	• Regular meetings held as part of Outotec's Account Management, Sell and Deliver processes • Customer satisfaction surveys • Joint R&D projects • Training, user meetings, workshops • Seminars, conferences, trade shows
EMPLOYEES	
• Safe working environment • Company values and a culture that enables professional development • Long-term economic perspective • Compliance and transparency • Fair and competitive compensation • Proper communication and feedback channels	• Regular briefings and info sessions • Global intranet, collaboration tools and social media • Performance development dialogues • Outotec Round Table • Employee surveys • Compliance helpline and feedback channels • Young Professionals network
SUPPLIERS	
• Fair treatment • Long-term partnership • Economic sustainability	• Contacts through Outotec's Deliver process • Supplier Policy • Code of Conduct • Supplier assessments and audits • Joint continuous improvement of processes • Outotec Supplier Days
ACADEMIC COMMUNITY	
• Relevant technological and scientific challenges for research • Feedback and encouragement from industry • Operational data • Partnerships	• Joint programs • Seminars, lectures, visits • Thesis opportunities for students • Internships • Networking

Expectations	Our engagement tools
INVESTORS AND FINANCIERS	
• Return on investment • Long-term economic perspective • Compliance and transparency	• Quarterly briefings • CEO's mid-quarter Q&A sessions • Capital Markets Day • Roadshows, one-on-one meetings, industry seminars • Annual General Meeting • Excursions to Outotec sites • Annual surveys
NGOS AND LOCAL COMMUNITIES	
• Transparency and proactivity • Engagement and local presence • Social responsibility and respect	• Joint social programs with customers • Support for local initiatives • Joint seminars and events • Active use of social media
MEDIA	
• Transparency and access • Interesting stories • Walk the talk	• Quarterly media briefings and interviews • Success stories and blog postings on website • Active use of social media • Excursions to Outotec sites

Safety – our number one priority

Zero harm is the ultimate target for Outotec's work on occupational health and safety, as well as product safety. Our lost-time injury rate improved in 2017 and our target is to further improve it in 2018.

Safety has been spotlighted as the most material theme for Outotec, partly as a result of deeper stakeholder dialogue, and partly because our top management saw a need to improve our safety performance and culture.

According to Outotec's QEHS Policy, the safety of employees and products is the priority in Outotec's operations. Zero harm is the ultimate target for Outotec's development work on occupational health and safety as well as product safety. Outotec's management remains committed to continuously enhance safety performance throughout the company's operations. We enable all employees and subcontractors working under our responsibility to work safely, by providing the necessary procedures, instructions, training and personal protective equipment.

Occupational health and safety related risks are considerable in the minerals and metals processing industries. Outotec has not identified any major risk of specific occupational diseases. For Outotec, the main health and safety risks occur on project sites, manufacturing units, and defective use of Outotec technologies. Increasingly Outotec's employees work in countries where risks have lately increased. When traveling in developing countries, there is a risk of incidence related local traffic, local diseases and local developing safety culture on site. In 2017, 684 Outotec employees or persons working under our

supervision traveled in countries with high medical and 28 persons in countries with high security risks (GRI 403-3). All employees have the right to refuse work that would be exposed to hazard or incident.

A new Global QEHS Steering Group was established in 2017 to make coherent decisions on QEHS topics, prioritize, strengthen the connection to business, and steer the development work. It convened three times in 2017. The Global QEHS Steering Group conducts management reviews once or twice a year to ensure the effectiveness of Outotec's QEHS system.

Our local health and safety committees monitor actions, collect feedback, and discuss health and safety issues in their respective locations or projects. Our entire workforce (100%) is duly represented in these committees (GRI 403-1).

Our health and safety reporting covers all Outotec employees and any third parties' employees who work under Outotec's direct supervision at premises and project sites under Outotec's control. It also encompasses Outotec products and services, with regard to compliance issues and incidents over their entire lifetime. In 2017, 2,410 contractors were working for Outotec in projects, and these persons are included in our safety performance reporting.

We primarily measure our safety performance through the lost-time injury rate (LTIR, number of injuries per 1 million work hours), while also collecting data on near misses and hazards. Our LTIR in 2017 was 1.7 (2016: 1.8) (GRI 403-2). See also Social data, p. 43.

Outotec's certified, globally harmonized QEHS management system covers all our

main locations. It includes procedures, work instructions and form templates to be used throughout our global business processes. Key elements in our QEHS management system include:
- compliance with legislation
- identifying and minimizing health and safety risks
- preventing incidents
- recording and investigating incidents
- personnel training
- continuous improvement of our QEHS performance

In 2017, we internally audited safety practices at our permanent units and main site activities. Site activities continued to have very good safety performance. Improvement work focused on field activities in the service business and our own manufacturing and R&D units.

External audits were successfully conducted by TÜV Rheinland Cert GmbH at our locations in Finland (Espoo, Turula, Pori, Turku), in China (Suzhou), in India (Bangalore, Kolkata), in Sweden (Skellefteå), in Australia (Dandenong, French Forrest) and in Germany (Oberursel), as well as at our construction sites in Brazil. The relevant documentation on all of our certified locations was also audited. The certificates can be found on www.outotec.com/company/about-outotec/qehs/qehs-management-system-certificates/.

SAFETY IN FIELD OPERATIONS
The safety of our employees and contractors is an important aspect of Outotec's field operations at customers' sites. Our project managers are responsible for the site activities of Outotec and our sub-contractors, includ-

ing the management of environmental issues, safety, systematic practices, and cleanliness.

Outotec's specialists also follow our customers' own safety regulations when working on site. The greatest safety risks arise in countries where awareness of safe working practices is low, and occupational safety culture is underdeveloped. In such countries, our employees are instructed to additionally follow Outotec's own safety principles.

Outotec has a good track record of QEHS performance in large customer projects, and the company has received several safety-related awards from customers.

Employees working on site operations are trained regularly in health and safety matters, the use of protective equipment, hazard identification, risk assessment and required control actions. In 2017, we introduced a new eLearning course about travel safety. It is recommended to all employees and mandatory for all employees who travel for business.

Outotec has a medical and security services agreement with the global service provider International SOS. This 24/7 service covers all Outotec employees and service providers for emergencies occurring during business trips. Through the related Medical Alerts and Travel Security Online service our employees can find information about endemic diseases and other health, safety and security issues, as well as country-specific risk ratings. Before any trip, travelers should check risk levels and find out what actions may be needed to reduce security and health risks

RELATED POLICIES:
- Code of Conduct
- QEHS Policy

Sustainable offering for customers

Our contribution towards overcoming the world's environmental challenges is made through our products and services, which enable our customers to run environmentally sound, profitable and socially acceptable businesses.

Outotec's key strength as a technology leader in the minerals and metals processing industry is the capability to deliver technologies and products that are resource-efficient. Our product portfolio covers hundreds of various plant concepts, processes, pieces of equipment and services. In line with our Technology Policy, we continuously develop our offering according to the principles of sustainable development. Our business process Manage and Develop Products and Technologies takes into account all the activities related to product and technology development from idea management and product development to productization as well as technical and commercial product management.

A corporate level Product Board oversees and steers Outotec's approach in product and technology development and the related innovation ecosystem. The Corporate Product Board consists of the Executive Board members, Chief Technology Officer (CTO, acting as the chairman), and business unit representatives. Corporate Product Board decides, among other things, the sustainability measures and development targets of Outotec's products. To ensure that our offering is being developed in line with our mission 'sustainable use of Earth's natural resources' we established new business unit specific sub-boards to the Corporate Product Board in 2017.

The most significant environmental impact of our business activities materializes through our products and services that indirectly reduce various emissions, including the global carbon dioxide emissions. We measure this positive impact to combat climate change, our handprint, by the emissions avoided by the metallurgical industry through the use of seven Outotec technologies.

OUR TARGETS AND ACHIEVEMENTS

We follow our performance with four indicators each having 2020 as well as annual targets. To achieve these targets, we continuously work to reduce the negative environmental impacts of our technologies through R&D and product development.

2017 targets and achievements:

1. **The share of Environmental Goods and Services** (OECD criteria) in our order intake was 88% (2016: 90%). Our target is to keep the percentage permanently above 90%.
2. **Customers generate 20% less CO_2 emissions when using seven Outotec technologies** compared to industry averages and annual baselines. These technologies include our ferrochrome process; copper flash smelting; alumina calcination; ceramic filters; the co-generation of electricity in the ferrochrome process; coated titania anodes; and TankCell 300 flotation cells. Emission reductions are directly proportional to energy savings. In 2017, Outotec's customers generated 6.2 million tonnes less of CO_2 equivalent, representing 22% reduction (GRI 305-5).

3. **Implementation and commercialization of our water recycling concepts**. In 2017, we carried out several laboratory scale pilots and four piloting tests for our customers on new water treatment and recycling solution, and we have expanded our offering accordingly. The aim is to commercialize these new solutions in 2018.
4. **Reduction in the use of fossil fuels resulting from Outotec waste-to-energy plants**, with targets of 60 MWe and steam boilers that equal 60 MWth. Due to the changes in the business environment, the ordered new plants in design and construction phase were not put in operation in 2017, but we expect them to start operations in 2018 (GRI 302-4).

IMPACTS OF OUR PRODUCTS AND SERVICES

Although the processing of minerals and metals have negative environmental impacts, through advanced technology the negative impacts can be managed. For this reason, R&D has a central role in Outotec's business. Developing sustainable offering for our customers is at the core of our sustainability work.

Our solutions utilize primary resources efficiently, reduce energy and water consumption, and produce less waste to landfill and emissions – while also cutting operating costs. We additionally offer solutions for processing secondary resources and turning side streams into saleable products. Equipment upgrades, plant modernization projects, and our long-term operation and maintenance services all ensure that customers' plants will run smoothly, safely, and efficiently, with minimum environmental impact at all times.

Outotec's products and services – if defectively manufactured, installed or used – have the potential to cause health and safety problems for our employees, contractors, and customers as well as indirectly harm the environment and local communities surrounding our customers' plants. Indirectly, Outotec's products and services also have an impact on climate change.

To mitigate these risks, we offer training and other services to our customers to help them maintain safe and environmentally sound operation. Furthermore, we train and audit our suppliers to ensure good product quality.

Efforts to mitigate the environmental impacts of our products and services	2017	2016	2015
R&D expenditure, EUR million	56	55	61
R&D expenditure, % of sales	5	5	5
Number of new patent applications filed	38	57	93
New national or regional patents granted	672	630	531
Number of patent families	763	786	824
Proportion of EGS in order intake, %	88	90	90

Our handprint – our positive overall effect to combat climate change – is considerably bigger than our ecological footprint.

Outotec has a Product Compliance Management process in place to make sure that our products and services reliably meet all applicable safety standards during all phases of the product life-cycle. We follow negative impacts and incidents through our QEHS management and product compliance management systems, as well as through customer feedback collected after each major delivery and in customer surveys. The majority of our offices already use harmonized product compliance management procedures. In 2017, we reviewed and simplified our product compliance management procedures, and started implementing the new procedures globally. The work will continue in 2018.

Compliance with legal requirements is the prime concern in Outotec's product compliance management work. We maintain an extensive database of product compliance procedures and documents used during business processes, including the development, sales and delivery of our products and services.

We provide relevant information to our customers about the impacts of our products and services, including their energy consumption, emissions, metal recovery rates, and water usage, as well as safety information provided according to industry standards.

In technology development, we focus on increasing resource efficiency – aiming to reduce energy and water consumption, emissions, effluents and waste. In 2017, 79% of our R&D projects were related to initiatives targeting sustainability improvements.

Progress on product development
In 2017, we launched three new products for sustainable tailings and water management including Outotec Process Water Recycling Plant concept, Thickened Tailings Plant concept and Dry Tailings Plant. We continued developing modular plant concepts. We have also focused on the development of monitoring, controlling and optimization capabilities for complex industrial processes, together with digital platform development, through several programs run in collaboration with various research partners. From a sustainability perspective, the concept of the redefined plant of the future enables a far more efficient use of resources by optimizing the underlying process with new tools, e.g. machine learning. We have launched several training packages based on simulation of the processes involved.

Customer health and safety (GRI 416-2)
Outotec has not identified any significant negative impacts of its products on employees' or suppliers' health and safety or local communities. No fines were imposed in relation to non-compliance with laws and regulations or voluntary codes regarding the use of Outotec products in 2016.

Outotec's customers can give feedback about our products and services in regular customer surveys and through an external feedback channel and Compliance Helpline on our website. In 2017, no issues were raised regarding Outotec products and services through external feedback channels.

However, the possibility remains that information on indirect negative impacts occurring after the completion of any project delivery may not have been disclosed to Outotec by customers or local communities.

Product safety
Safety issues form an integral part of our operational manuals for industrial processes. Equipment and services delivered by Outotec fulfill safety-related industrial standards such as:

- ISO 12100 and IEC 62061 for the safety of machinery
- All safety-related industrial standards applicable where they are utilized
- Procedures for detecting hazards such as explosion, fire, and lightning, and related IEC 61882 HAZOP studies
- SIL Allocation Assessments (mandatory at Outotec)
- The SafExpert risk assessment tool, which ensures that equipment designed by Outotec fulfills all relevant safety standards.

Outotec manuals cover the entire life-cycles of the products delivered, in line with the IEC 82079-1 standard. This means they contain information on transport, installation, operation, maintenance and decommissioning. In addition, we offer our customers maintenance services as part of a wider package. We also routinely provide safety training for our customers as part of our product training services

RELATED POLICIES:
- Technology Policy
- Intellectual Property Rights Policy

Responsible business practices

In line with our core value, 'committed to sustainability', we aim to incorporate social, economic, and environmental sustainability into all aspects of our operations. We foster good governance and ethical business practices through thick and thin, valuing integrity in all contexts, and striving to protect Outotec's good reputation.

Outotec's governance is based on the principles of good governance and transparency, as well as our own group-wide policies and globally harmonized business processes. We follow the Finnish Corporate Governance Code issued by the Securities Market Association for listed companies. Our management system documentation is compatible with and audited against such standards as ISO 9001 for Quality Management, ISO 14001 for Environmental Management, and OHSAS 18001 for Safety Management. In addition, the locations in Finland and Germany are certified to ISO 50001 for Energy Management. Our performance is followed-up regularly through internal and external audits (GRI 103-3).

Outotec's corporate governance is described in more detail in our Corporate Governance Statement 2017 [www.outotec.com/cg]. Our reporting covers Outotec's premises and employees, our products and services, our contractors, and our suppliers' operations (GRI 103-1).

Outotec endorses ethical business practices and complies with national and inter-national laws and regulations. We are committed to working against corruption in all its forms. We similarly expect our suppliers, contractors and business partners to follow the same principles and to fully comply with all applicable anti-corruption laws. We have not identified any non-compliance with laws and/or regulations or voluntary codes, neither has the company paid any fines in the social, economic or environmental area in 2017 (GRI 419-1, 307-1, 416-2).

Read about product compliance in Our offering, p. 26. Our approaches to equal opportunities and labor practices are described in Driving employee engagement, p. 33.

CODE OF CONDUCT

Outotec's values [www.outotec.com/company/about-outotec/values/] and Code of Conduct: [www.outotec.com/company/about-outotec/code-of-conduct/] define our common way of working (GRI 102-16). Working according to Outotec values is important in all operations to avoid corruption and bribery related risks. Our Code of Conduct sets out the principles of business conduct and gives guidance on ethics, compliance with laws and regulations, solid governance and management of sustainability and risks. The Code is approved by the Board of Directors, and all employees are expected to follow it.

Our SVP – Legal, Contract Management and Corporate Responsibility, who is a member of the Executive Board, has the overall accountability for corporate responsibility including mechanisms to seek advice about and report on behavior. The Chief Compliance Officer reports unethical behavior and non-compliance cases and actions taken quarterly to the Audit and Risk Committee of the Board of Directors. There are no independent mechanisms for advice and concerns about ethics in use.

Outotec's target is that employees participate in e-learning on the Code of Conduct, or attend the related classroom training on a regular basis. During 2013-2017, 57% of employees have completed Code of Conduct training. In 2017, the focus was on training blue-collar workers, and as a result, 38% of blue-collar workers participated in the Code of Conduct class-room trainings. In 2018, we will launch a new training based on the revised Code of Conduct to all Outotec employees.

Outotec also requires its new sales agents and representatives as well as existing ones upon contract renewal to commit to Outotec's principles. The company also conducts compliance checks on new customers and project related third parties. All projects of a certain size or complexity are subject to a specific risk assessment which includes various compliance and ethics queries and escalations for the identified risks. They may involve more detailed investigations internally or through a third party, and may result in Outotec declining to bid for certain projects. In addition, unknown and potential risk customers, suppliers or agents are regularly being assessed for compliance risks using a dedicated external tool with escalation paths.

Outotec did not have to pay any fines or fulfil any non-monetary sanctions for non-compliance with anti-corruption laws in 2017 (GRI 419-1). Furthermore, Outotec was not subject to any legal actions for anti-competitive behavior, anti-trust cases or monopoly practices (2016: no cases) (GRI 206-1).

BOARD OF DIRECTORS

A knowledgeable and engaged Board of Directors is a significant resource that can help to reach our short- and long-term goals, and create sustainable increase in the shareholder value. The work, duties, composition, committees, and remuneration of the Board of Directors are described in our Corporate Governance Statement 2017 [www.outotec.com/cg].

There is no correlation between the compensation for Board members and Outotec's social or environmental performance.

The Board of Directors' diversity principles are also detailed in Corporate Governance Statement 2017. Based on these principles, the Board members must have the necessary knowledge and experience regarding the business, social, and cultural conditions in the most significant markets to Outotec's business; while they must also constitute a fair and balanced combination of professional experience, skills, gender, nationality, knowledge, and variety of opinions and backgrounds considering Outotec's current and future needs.

Outotec's long-term objective is to have a fair and balanced representation of both genders in the Board. When preparing for nominations to the Board of Directors, Outotec's Nomination Board aims to ensure that these diversity principles are followed, that the Board functions well as a whole, and that the competence profile of the Board of Directors supports Outotec's existing and future businesses and is consistent with our strategic goals.
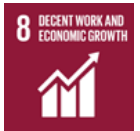
COMPLIANCE HELPLINE
FOR RAISING CONCERNS

Outotec's compliance helpline on the company website is available for anyone to raise concerns related to corruption, human rights or any unethical behavior. All concerns raised are treated confidentially, and there is a clear no-retaliation policy. More severe compliance cases may be submitted to Outotec's Compliance Board, whose members are the Chief Compliance Officer, the General Counsel, the Chief Financial Officer and the Head of Human Resources. The Chief Compliance Officer reports compliance cases and actions taken quarterly to the Audit and Risk Committee of the Board of Directors.

In 2017, there were two confirmed incidents of corruption, concerning collusion and facilitation payments. These cases were reviewed by management in co-operation with global Human Resources and Legal functions and the Chief Compliance Officer. Agreed remedial actions were implemented, including the termination of one employment contract (GRI 205-3).

RISK MANAGEMENT AND INTERNAL AUDIT

Outotec's strategic and operational risks are described at www.outotec.com/investors, and the company's risk management policies, responsibilities and processes are set out in our Corporate Governance Statement 2017 on pages 9-10.

Our risk management is based on our Enterprise Risk Management Policy. Environmental, social and economic sustainability related risks are covered in the project risk assessment tool, which is used to assess all new projects worth at least one million euros (GRI 205-1). Appropriate follow-up actions are defined based on these findings. The assessments are project specific, for this reason the number and percentage of operations could not be reported. No significant risks related to corruption were identified and escalated from the project risk assessment.

In 2017, two company-wide sales process audits were conducted: key controls in order-to-cash processes in the Shared Service Center and selected projects; and bank account and internet banking access rights. In addition, specific audits were conducted in Canada, USA and Germany, as well as follow-up audits for China and Morocco.

Outotec's internal and external audit processes take into account any corruption suspicions and fraudulent acts that may occur. We train our employees in connection with audit activities at our market area operations in anti-corruption policies and procedures for preventing misconduct and crimes. Virtual training, processes and guidelines on anti-corruption are also available to all employees (GRI 205-2).

In product management, we use a gated process, in which the first phase of product development includes criteria related to risks and especially opportunities to mitigate climate change, i.e. energy savings, emissions reduction, water savings, waste minimization, improved metals recovery and safety improvement (GRI 102-11).

RESPECTING HUMAN RIGHTS

Outotec respects the internationally proclaimed human rights in line with the company's commitment to the United Nations Guiding Principles on Business and Human Rights. Outotec joined the United Nations Global Compact Initiative in December 2010 and is committed to its principles, as well as the principles of the Universal Declaration of Human Rights. These commitments are re-iterated in Outotec's Code of Conduct and substantiated in the HR policies, QEHS Policy and Supplier Policy.

In line with our target, a working conditions self-assessment was conducted in our main service and manufacturing sites to assess local working conditions and labor practices. As a result, no major human rights risks were identified. There will be targeted actions based on the findings, e.g. increasing awareness on grievance mechanisms and code of conduct. Further, global guidelines for working conditions of blue-collar workers will be created and implemented to ensure a harmonized approach in different Outotec locations.

We have also identified and mapped our human rights impacts in our own operations in 2017, based on the self-assessment and interviewing representatives of Outotec key functions. Potential risks and human rights impacts in our business relate to project site work in high-risk countries, and there may be unidentified human rights risks or impacts in the supply chain. There were no incidents filed through formal grievance mechanisms related to our suppliers' human rights impacts (GRI 414-2), impacts on society or labor practices. For more information on supplier audits, see Building a sustainable supplier base, p. 31.

In 2017, four (2016: two) reported incidents of discrimination were filed through formal grievance mechanisms within Outotec (GRI 406-1). These incidents were reviewed locally, in cooperation with global Human Resources function and/or the Chief Compliance Officer. Remediation action plans were implemented and results reviewed through our routine management review processes. These incidents are no longer subject to action.

Outotec has not identified, through formal grievance mechanisms or in its risk assessments, any significant negative impacts of its operations, products or suppliers regarding health and safety (GRI 416-2), or local communities (GRI 413-2). During 2017 no issues emerged concerning the rights of indigenous people.

MANAGING SUSTAINABILITY

The Code of Conduct, Supplier Policy, HR policies, Donation Policy, as well as QEHS Policy define the basic requirements for Outotec's environmental, social and economic sustainability. We continuously train our employees and suppliers on these principles.

Outotec's Executive Board reviews and approves our Sustainability Agenda (GRI 102-18). The Executive Board additionally approves our sustainability strategy, targets and reporting. The Board of Directors approves our statement on non-financial information covering environment, social and employees, anti-corruption and human rights. Our SVP – Legal, Contract Management and Corporate Responsibility, who is a member of the Executive Board, has overall accountability for corporate responsibility.

Responsibility for the sustainability of our products and services lies with a corporate

level Product Board. It oversees and steers Outotec's approach in product and technology development and the related innovation eco-system. The Corporate Product Board con-sists of the Executive Board members, Chief Technology Officer (CTO, acting as the chair-man), and business unit representatives. Cor-porate Product board decides, among other things, the sustainability measures and devel-opment targets of Outotec's products.

Sustainability is integrated into all rele-vant organizational functions, such as QEHS, Supply, Human Resources & Communica-tions, and Legal & Contract Management. We have a Sustainability Working Group, whose core team coordinates sustainability work and meets frequently whenever needed.

Outotec's Sustainability Advisory Coun-cil, which was established at the end of 2014 and was not part of our formal governance, ceased to convene during 2017. We have con-tinued stakeholder dialogue through our reg-ular engagement tools and mechanisms, see Engaging with stakeholders, p. 21.

Sustainability-related personal targets are included in the annual bonus plans of the Executive Board members, QEHS managers, and environmental and sustainability manag-ers. Inventors working with new, patentable solutions receive monetary rewards for their inventions. Furthermore, Outotec rewards all employees for making proposals that improve the sustainability of the company's internal processes.

RELATED POLICIES:
- Code of Conduct
- Donation Policy
- Supplier Policy
- Enterprise Risk Management Policy
- Disclosure Policy
- QEHS Policy
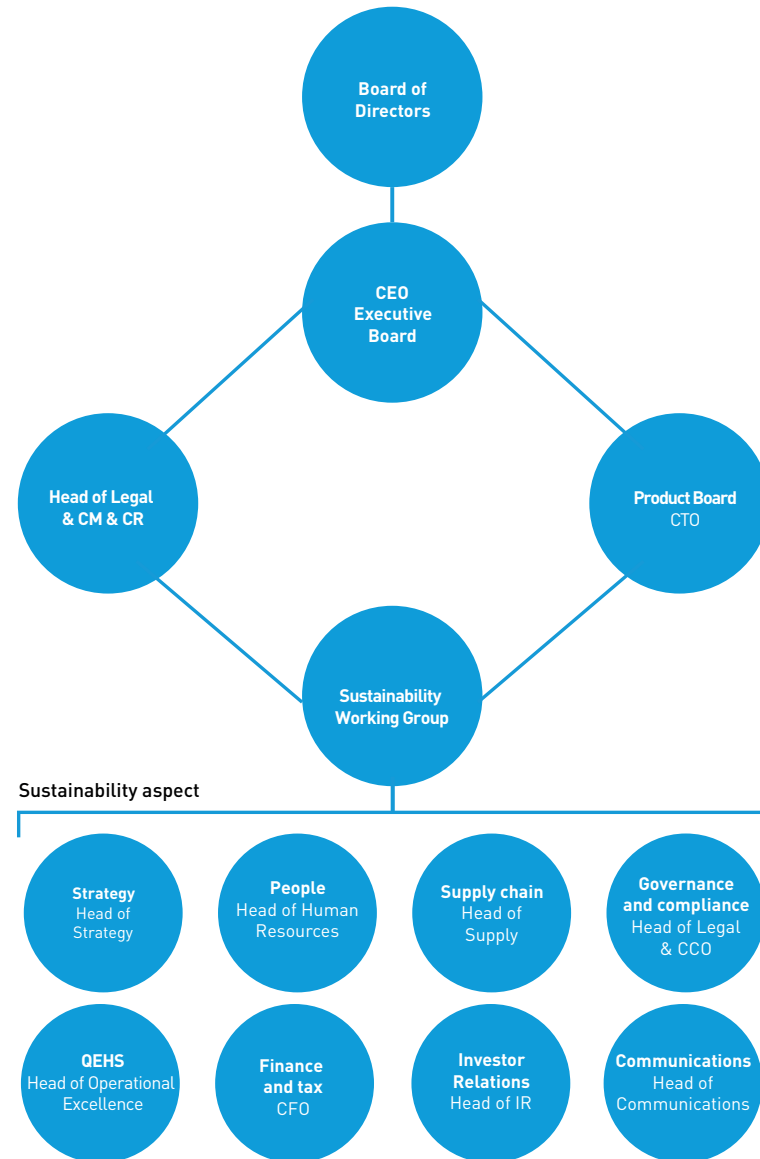
Building a sustainable supplier base

Our wide product range and a high number of different delivery locations make our supply chain development and management challenging. Standardization, harmonization and focusing on fewer suppliers are key drivers in establishing a sustainable supplier base.

As 90% of Outotec's manufacturing, based on monetary value, is sourced from external suppliers, sustainable supply chain and supplier selection is important for Outotec. Our Global Supply function manages our supplier base and global sourcing. Operational Supply personnel are involved in day-to-day supplier management during the delivery phase of customer projects. Our management approach is validated in the Executive Board reviews as well as in internal and external audits.

Outotec has two main policies serving as the basis for collaboration with suppliers. Our Supply Policy steers supply activities throughout the company, defines ways to enhance supply quality, and provides guidelines for everyone involved in supply-related activities.

A parallel Supplier Policy imposes strict requirements on Outotec's suppliers, by clearly setting out our principles on ethical conduct, compliance with laws and regulations, respecting human rights, environmental impacts, health and safety, labor, intellectual property and improper benefits. Suppliers are expected to ensure compliance with Outotec policy, identify any devi-

ations, manage corrective actions, ensure the transparency of these actions, and communicate with us systematically on such issues.

All our 221 key suppliers (2016: 100%) were committed to Outotec's Supplier Policy in 2017. We define key suppliers as companies that are categorized as important suppliers in financial, strategic and operational dimension, or in terms of product quality and delivery time. All of potential new direct suppliers are assessed through our Supplier Assessment and Approval Process before getting supplier status.

Our reporting covers our suppliers' operations, contractors working under Outotec's supervision and our project sites. We measure our performance by calculating the percentage of new suppliers screened and key suppliers audited using labor practices, environmental and human rights criteria.

OUR SUPPLIERS

Our manufacturing facilities are relatively small. They all have local quality, health and safety systems in place, and they duly manage, sort and process their wastes. The majority of our direct suppliers are either manufacturing workshops or component/equipment manufacturers. The rest are logistics, engineering and construction companies, and other service providers. In addition, thousands of our direct suppliers' own suppliers form part of Outotec's supply chain.

Outotec had approximately 3,000 (2016: 3,300) active direct suppliers in 2017. As product competitiveness was one of Outotec's

strategic development areas in 2017, our work focused on the supply base management with a target of having fewer suppliers and increasing best-cost-country sourcing in China, India, Eastern Europe and Mexico.

Our total spend on customer-related purchasing in 2017 was EUR 462 million (486 million).

SUPPLY SPEND BY CATEGORY

- ● **Machinery 32%**
- ● **Basic metals and fabricated metal 28%**
- ● **Supporting and auxiliary transport activities 11%**
- ● **Electrical and optical equipment 11%**
- ● **Rubber and plastic 7%**
- ● **Other 11%**
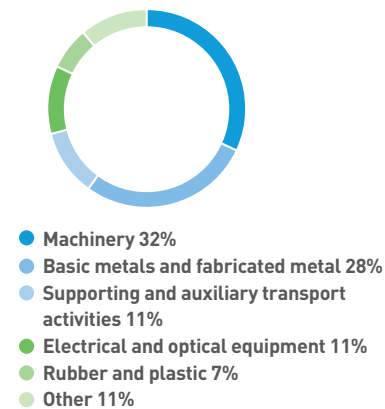
SELECTING NEW SUPPLIERS

Outotec screened 89 (164) suppliers, equaling 11%, using environmental (GRI 308-1), human rights, and labor practices (GRI 414-1, 414-2) criteria. Screening is a spot check on certain topics, and we select the companies from the high and medium risk category to be screened. All the screened companies qualified as new suppliers, as none of the companies were identified as having significant potential negative human rights, social or environmental impacts. Suppliers that we do not normally

Our main challenge is to improve cost efficiency without compromising on product quality, safety and sustainability

screen are for example, one-time indirect suppliers, such as consultants. Some of these non-screened suppliers have, however, signed our Supplier Policy.

In 2017, a student in the Lappeenranta University of Technology made his Master's Thesis about socially sustainable supplier selection in minerals processing. He studied Outotec's current status of supplier selection and the approval process for manufactured spare parts in light of what social sustainability criteria are already in place and how they could be further developed. The study showed that social sustainability is viewed as having an important role in our supplier selection and approval process. It was evident that Outotec already utilizes related elements in its current process. However, Outotec could improve the identification of different social risks also in the pre-classification phase.

AUDITING APPROVED SUPPLIERS

Outotec audits key suppliers on quality, health and safety as well as human rights related issues regularly. Supplier development actions are drawn up according to audit findings. Our target for 2020 is to audit all key suppliers regularly over a period of two years in high-risk countries and every three years in other countries.

We audited 46, equaling 21%, of our key suppliers during 2017. In our supplier audits, none of the audited suppliers were identified as having potential negative environmental impacts (GRI 308-2) and 6 suppliers, equaling 13% of the audited suppliers, as having potential negative health and safety impacts. However, none of those were considered significant (GRI 414-2) and improvement measures were agreed with these suppliers. No relationships have been terminated as a result of our supplier audits. However, some suppliers have been temporarily rejected in China.

WORKING TOGETHER WITH OUR SUPPLIERS

Outotec's Supplier Account Managers work with our most important global or local suppliers. They facilitate collaboration between Outotec and the suppliers across and above individual projects. This procedure enhances visibility, alignment and the management of supplier-related risks, while also improving overall collaboration between Outotec and individual suppliers.

The main challenge for our supply chain management concerns the need to improve cost efficiency without compromising on product quality, safety and sustainability. The allocation of more business to fewer suppliers enables better management and development partnerships, in turn enhancing delivery excellence and cost competitiveness.

During 2017 we reviewed our Supplier Policy and a revision will be published and taken into use in 2018. We took our project risk assessment process and tool into use and trained 133 persons to use it. The risk assessments have provided our management with important information about major risks and planned mitigation actions.

SPENDING ON LOCAL SUPPLIERS

Outotec's supply chains often combine global project deliveries and purchases from local suppliers. Our most significant operations, based on the number of employees, are in Finland, Germany, Australia, South Africa, Chile, Sweden and Brazil. We report 'local supply' as the percentage of our supply spend in these countries of the total procurement spend of Outotec. The calculation method was changed in 2017 to fulfil the reporting requirements. In our large delivery projects, we prefer to use suppliers in the target country. Normally we buy steel structures and detail engineering, for example, in the target country. The amount of such supply in the country of the project site can be significant. This, in turn, creates local employment and benefits local businesses.

Our spending on suppliers that are local to our major operations in 2017 amounted to EUR 287 million, equivalent to 62% of our total supply spend (GRI 204-1). The remaining supply spend was distributed among 47 countries.

The largest shares by country – each amounting to EUR 10–50 million – were spent in Australia, Brazil, Canada, Switzerland, Chile, China, Mexico, the USA and South Africa. The remaining spend was distributed among 38 countries.

Our largest suppliers in terms of spend in 2017 and in alphabetical order were Airmech Company W.L.L., Siempelkamp Giesserei GmbH and Swiss Tower Mills Minerals Ltd.

ACTUAL AND POTENTIAL NEGATIVE IMPACTS IN THE SUPPLY CHAIN

According to our human rights self-assessment made in 2017, no notable risks related to the use of child labor (GRI 408-1) or forced or compulsory labor (GRI 409-1) have been identified in Outotec's own manufacturing units.

The main sustainability-related risks in the supply chain, identified in our internal workshop consisting of our global supply team, include bribery and kickbacks, occupational safety, protecting information and reporting misconduct. Forced or compulsory labor has not been identified as a potential risk in Outotec supply chain (GRI 409-1).

We have identified three countries in our supply chain, namely China, India and Mexico, with potential risks regarding child labor (GRI 408-1), hazardous work, or rights to exercise freedom of association or collective bargaining (GRI 407-1). In 2017, 5% of our suppliers were based in China, 3% in India, and 3% in Mexico. To mitigate these risks, our dedicated supply personnel in each of our market area offices assess suppliers according to our approval process and make observations during audits and other visits. However, the human rights risks and impacts of suppliers may not be fully identified.

With regard to environmental issues, material toxicity and chemicals were ranked as the greatest risks (GRI 308-2, 414-2). If not appropriately manufactured, used, or maintained, Outotec's products have the potential to harm the environment. To mitigate product quality related risks, we provide training to our suppliers and audit them. View historical supply data.

The carbon footprint of our supply chain (GRI 308-2)

The sustainability of our supply chain also has an impact on climate change. The methodology of calculating supply chain emissions was changed in 2017 due to the discontinuation of the supply chain emission factors, defined by the UK Department for Environment, Food and Rural Affairs (DEFRA). New calculations are based on Outotec's spending and carried out using a scope 3 screening tool developed by GHG Protocol and Quantis. The emissions were recalculated for years 2015 and 2016 according to the new methodology to guarantee comparability over the years. To be able to use the scope 3 screening tool, Outotec's spend on supply was converted from EUR into USD. In 2017, the EUR to USD annual average exchange rate was 1.129 (1.107 in 2016 and 1.110 in 2015, source: http://x-rates.com.

The carbon footprint of our supply chain, at 508,400 (2016: 516,470, 2015: 559,850) tonnes of CO_2 equivalent), was considerably larger than the footprint of Outotec's own operations, which amounted to 27,202 tonnes of CO_2e. The biggest sources of CO_2e emissions in Outotec's supply chain were basic metals and fabricated metal, representing 43% of the total. In 2017, the carbon footprint of our supply chain decreased by 1.6%.

GRIEVANCE MECHANISMS

Outotec's compliance helpline and an external feedback channel on the company website are available for anyone to raise concerns related to corruption, human rights or any unethical behavior in Outotec's business activities. In 2017, no issues were raised through these grievance mechanisms regarding our suppliers or supply practices.

RELATED POLICIES:
- Supplier Policy
- Supply Policy

Driving employee engagement

After several years of restructuring, driving employee engagement continues to be the key theme for developing our people. Investments in leadership development, cultural activities and supporting professional growth are paying off; employee engagement index improved by 18 %-units from 2016.

Competent and engaged employees are key to Outotec's success. For this reason, people development is one of the most material topics for the company. Our people was also defined as one of the five development areas in Outotec's strategy in 2017. The impacts of this topic reach out to Outotec's employees and premises, Outotec's operations at project sites as well as contractors working under our supervision.

Several rounds of restructuring during the past few years have dropped the employee engagement at Outotec. The market situation picked up in 2017 in our Minerals Processing business, but the situation remained challenging in our Metals, Energy & Water business. Various measures have been taken after the previous employee engagement survey, and together with improved market sentiment and work situation, these measures started to show results in 2017. In the recent survey conducted in November, the employee engagement index improved significantly to 60% (2016: 42%). Our 2020 target is to achieve 70% employee engagement. The employee turnover rate, 13%, also improved significantly from 2016.

Outotec aims to employ the best people in the industry to serve customers with leading technology, superior customer service and excellent execution. The main risk related to low employee engagement is losing talent and competences. Another risk related to employees is losing competitiveness, if Outotec is not able to develop competences as fast as peers. We mitigate employee retention risks through fair and competitive compensation, culture and leadership development programs, succession planning, internal job rotation and talent management as well as various programs to support professional growth.

HR Handbook, Competence Development Policy, and Compensation Policy are the key policies which define the principles on human resources management aiming to enhance employee engagement. Outotec treats people in an equal and fair manner and follows the principle of equal opportunities. The effectiveness of the management approach is reviewed regularly in the Executive Board meetings and in the Human Capital Committee of the Board of Directors.

PROGRAMS FOR UPGRADING EMPLOYEE SKILLS (GRI 404-2)

All our employees are in the scope of talent management, and development and succession planning are key components of manager responsibilities. We have also paid special attention to role clarity and communicating our strategy to all employees in cross-functional workshops.

Strong focus on leadership development

A global leadership program for 100 leaders was completed in 2017. The program consisted of face-to-face modules, benchmarking group work, 360° feedback, and coaching.

In addition, local leadership programs were developed in each market area, and most of Outotec managers and leaders had an opportunity to join a development program already in 2017; some programs still continue in 2018. Progress made in leadership performance is followed-up using Outotec's new leadership index, and targeted support is provided accordingly.

Our key leadership process, Performance Development Dialogue, was renewed and trained to all managers. Special focus was on driving culture of continuous dialogue and development discussions. In 2017, 99% (95%) of employees conducted regular performance reviews (GRI 404-3). The performance reviews of blue-collar workers have not been registered in the data system and not included in the percentage.

Continuous support for professional growth

In addition to leadership programs, several global competence development programs were launched and delivered in 2017. Both technical and business competences were developed, and tools supporting professional growth and career development were developed and promoted.

More than 90% of all employees, i.e. a total of 3,800 people (2016: 2,391), participated in vocational and code of conduct training activities during 2017. Our global trainings focused on our technologies, and legal and compliance issues. In addition, 6,678 persons, including both employees and contractors working under our supervision, received health and safety training.

Over 160 service people were certified in a multi-level training program designed to allow people to develop their technical skills and apply them in on-the-job situations. This License to Service program will continue in 2018.

Several groups were involved in mentoring programs in the areas of engineering and contract management. Career path model for metallurgists was further developed based on Outotec job families and piloted in Finland.

A Value Selling training program was developed to enhance our sales force's competences in customer interfaces. Through this highly interactive and role-play-based training we are striving to build, communicate, and coach value propositions that can be offered to customers based on their identified needs and values.

Depending on local resources, we provide transition assistance to support employees who have been terminated or are retiring. These may include training, counceling or severance pay.

Most of Outotec employees were invited to, and also attended, Performance Development Dialogue trainings. In addition, cross-functional strategy workshops targeted for all employees were delivered in all our market areas. Approximately 89% of employees completed cyber security training in 2017.

View full training data https://viz.tools.investis.com/outotec-csr/dct/live/index.html#training132/health-and-safety-training-employees-and-contractors-number133

PROMOTING EQUAL OPPORTUNITY AND DIVERSITY

As an international company with a glob-

al presence, Outotec values diversity at the workplace. We treat people in an equal and fair manner regardless of their ethnic origin, nationality, religion, political views, gender, sexual orientation, disability, family status or age. We follow the principle of equal opportunities.

We continuously monitor diversity and equality within Outotec. Our reporting related to equal opportunity and diversity covers Outotec's employees.

The principles on diversity of the Board of Directors are presented in Outotec Corporate Governance Statement 2017 on www.outotec.com/cg

As a company operating in a male-dominated industry, gender equality is an important topic for Outotec. We already have a relatively good representation of females in the Executive Board, 22%, compared to 19% of all Outotec employees. Our target for 2017 was to increase the share of women in senior leadership positions by 2% from 2016. Unfortunately, this target was not reached in 2017.

However, we made progress in increasing diversity among our senior leaders, as the share of non-Finn leaders increased by 11%-units in 2017.

To enhance equal opportunities, all open positions are published internally to enable all Outotec employees to apply for positions through a fully transparent recruitment process. Employees also have an opportunity to promote their career in the employee profile and let our organization know about their expertise. We encourage our employees to take an active role in their own career devel-

opment, and we aim to promote new tools to support this target.

We have put a lot of emphasis on implementing global policies and processes and clarifying roles and responsibilities to ensure smooth operations and the equal treatment of our employees in global mobility cases, for instance. To align HR practices globally and drive our One Outotec culture, a new HR Handbook was launched for the HR community.

Incidents of discrimination and corrective actions taken (GRI 406-1)

We monitor the number of filed, addressed and resolved grievances about labor practices. Outotec's compliance helpline and other feedback channels are available for all employees and external stakeholders for raising concerns. In 2017, four (2016: two) reported incidents of discrimination were filed through formal grievance mechanisms within Outotec (GRI 406-1). These incidents were reviewed locally, in cooperation with global Human Resources function and/or the Chief Compliance Officer. Remediation action plans were implemented and results reviewed through our routine management review processes. These incidents are no longer subject to action.

View full diversity data https://viz.tools. investis.com/outotec-csr/dct/live/index. html#diversity107/executive-board-members-by-age108

RELATED POLICIES:
- Code of Conduct
- HR Handbook
- Competence Development Policy
- Recruitment and Onboarding Policy
- Compensation Policy
- Global Mobility Policy
- Job Description and Job Title Policy
- Grading Policy

CASE: Future smelting is digital

Digitalization has made its way to smelting processes, increasing efficiency through stable processes and automated tasks. The use of automation in smelters has increased significantly in the last years, but humans continue to play a part in manual roles and predictive work, with digitalization improving safety. Outotec is increasing automation in smelting processes.

Digital solutions have already proven themselves highly valuable for Outotec. The stability and efficiency of processes improve recovery, decrease energy consumptions, and as a consequence, create a smaller environmental footprint.

Digitalized smelting also provides significant potential for optimizing processes and responding to customer needs. Outotec offers advanced automated solutions with automated control based on thermodynamic models that outperform even the most experienced operators in efficiency. Outotec's digital control solutions can also help optimize production rates through valuable data. Digitalizing the use of data is also crucial for analyzing processes over time and providing predictive maintenance for avoiding problems and shutdowns.

Outotec's technologies can capture and safely process over 99% of the total sulfur dioxide produced at the smelter, resulting in less than 1% leaking into the atmosphere. A more efficient process also results in less energy used per production ton, thus reducing emissions. Outotec's Fully Automated Smelter initiative seeks to reduce these fugitive emissions even further through digitalization.

FEWER RISKS AND GREATER SUSTAINABILITY

Smelters continue to have many manual tasks operated by humans. People drive cranes and tap the molten metal and slag by opening the tap hole. The skills and expertise of humans doing the manual tasks greatly affect the performance of these tasks.

Automating processes means fewer risks for humans, who often work close to hot and molten materials at smelters. Robots can do measuring work that has previously been assigned to humans and provides consistent results.

Outotec plans to automate processes at the smelter entirely by 2020, with humans still carrying out predictive and crisis maintenance but leaving dangerous work to machines.

"Digitalization and automation are strategically very important to Outotec. They are among the most important trends in the industry, and we recognize a clear customer need for digital smelting technologies," says **Mikael Jåfs**, Director, R&D – Smelting. "As the global economy improves, more and more companies have come to realize that average performance is not enough. Digital solutions provide a significant competitive edge."

CASE: Reduction of SO$_2$ emissions verified by satellite data

Outotec's sulfuric acid solutions help companies improve their sustainability by eliminating sulfur dioxide emissions into the air. Outotec sulfuric acid plants recover the sulfur dioxide gas created in the pyro-metallurgical process and convert it into sulfuric acid via an absorption process.

Sulfur dioxide emissions can be detected and analyzed with satellite technology. The satellites that are best suited for this measure sunlight scattered from the ground and atmosphere. Gases in the atmosphere absorb some of the sun's radiation, with each gas absorbing a different part of the spectrum. This allows scientists to identify them using their individual "fingerprints" when the scattered light returns to the satellite.

EMISSION TRACKING VERIFIES IMPRESSIVE RESULTS

The origin of sulfur dioxide emissions is often easier to pinpoint than that of, for example, nitrogen dioxide, which is produced by both traffic and industrial operations.

"We can measure sulfur dioxide levels through this technology from areas that are geographically or politically hard to reach, and even track the emissions of individual smelters," says **Johanna Tamminen**, Research Professor, Head of Earth Observation Research Unit, Finnish Meteorological Institute (FMI). "We have done so with two copper smelters that have invested in an Outotec sulfuric acid plant, and the results have been very clear. Sulfur dioxide emissions have decreased considerably after the implementation of the sulfuric acid plants – despite increased metal production."

One smelter in Tsumeb, Namibia, invested in a sulfuric acid plant that was completed in 2015. It is easy to see the impact of the plant by comparing satellite data from 2014 with that from 2016. Emissions have been reduced as much as 80%. Another smelter, in Serbia, has produced similar results. Sulfur dioxide emissions have been reduced drastically by the introduction of a new Flash Smelting line.

COMPUTATIONAL COMPARISON HELPS DEVELOP THE METHODOLOGY

The scientists at the FMI also compare the results from the satellite data analyses with val-

Iolanda Ialongo, Finnish Meteorological Institute
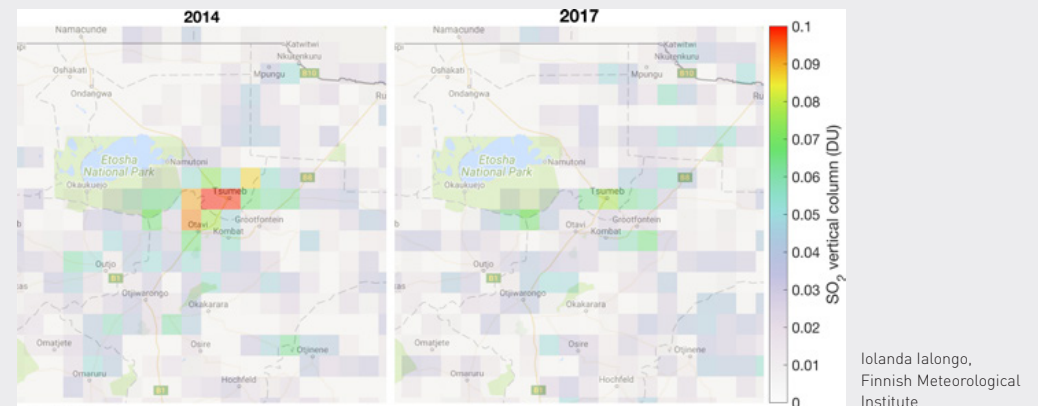
Satellite images clearly show that sulfur dioxide emissions of the Tsumeb smelter remarkably decreased after the acid plant delivered by Outotec started its operations.

ues based on the operating parameters provided by the Wood Mackenzie Copper Smelter database for Outotec.

"The computational figures and the satellite data give similar results and follow the same curves, showing that the measuring methodology is sound. When changes occur in, for example, production volume or the ratio of sulfur and copper in the ore, we see similar changes reflected in the reported values and the satellite data. This point of comparison allows us to further develop the analytic process and our own calculations," Tamminen says.

A new advanced satellite that can measure sulfur dioxide emissions was deployed in the fall of 2017, allowing for even more accurate measurements in the future.

CASE: Improved fault detection and energy efficiency through a virtual plant

Digital advances and new technologies signify new solutions for process optimization. Virtual models for process optimization and fault detection are becoming more widespread, and Outotec's simulation systems modelling actual plants' processes may one day lead to full plant simulations.

Outotec seeks to improve overall performance energy efficiency with a virtual plant, which simulates an actual plant's behavior, providing valuable insights into running plants in today's digital environment. The virtual plant provides a model for identifying potential issues, detecting malfunctions and checking whether the equipment is performing as planned with, for example, stored parameters such as maximum and minimum load and air flow emulating a real plant.

According to Senior R&D Engineer **Steffen Haus**, the goal with the virtual plant is to improve overall equipment effectiveness as well as four areas that are being measured: energy efficiency, raw material utilization efficiency, utility efficiency and environmental footprint of the plant. Information on, for example, emissions can be utilized for reducing energy use, while simulation technology allows for efficient and better product development tied closely together with customer needs.

"Simulation technology is also a means of quality control and product quality improvement. We can monitor the performance of equipment over time and detect potential for further development. This is an important part of our offering – we do not only provide machinery and leave our customers to deal with it to their best abilities. We want to ensure that the equipment serves its purpose and delivers the intended results every day, month and year. Optimization and maintenance complement the technology," says Steffen Haus.

While the virtual plant still remains a thing of the future for now, simulation models are already being used in some of Outotec's digital products for certain processes, with development constantly taking place.

CASE: Hacking for sustainability

Europe's largest hackathon, Junction 2017, took place in Espoo in November, with 1,500 young developers, designers, and entrepreneurs showcasing their sustainability innovation skills in 48-hour challenges. Outotec worked as a partner in the event.

Outotec had two challenges for participants: sustainability and service challenges, with education and innovation at the core. A total of 13 teams chose these challenges. The end result by the winning team sustainUp was a gamified learning application. The purpose of the application was to guide consumers in making more sustainable choices by presenting different products' life-cycles and potential social and environmental issues.

The first runner-up, Outotec edge, created a know-how management application platform for service engineers, while the second runner-up Eco-mpere provided a tool to measure and compare products' ecological footprints.

The event was a great success, and Outotec found all 13 teams' demos to be useful. With experts coming together and hacking new innovations, Outotec gathered concrete ideas and solutions for the future. "Our expectations towards teams' submitted demos, meeting young talents and making Outotec known in the hacking community were all met. We gained new ideas and insights about hacking methods, data analytics, machine learning, AI, and gamification," says **Tuuli Somma**, Lead UX designer and Outotec's coordinator for the event. To read more about the Outotec challenges, visit the Junction website. https://hackjunction.com.

Data collection

ECONOMIC DATA

The financial data in this report is based on data collected through our enterprise resource planning and management reporting systems. The figures used in Outotec's consolidated Financial Statements 2017 have been prepared according to the International Financial Reporting Standard. In addition, some data has been collected manually from Microsoft Excel spreadsheets.

Our approach to economic responsibility and impacts are described in:
- Value creation and our impacts, p. 8
- Long-term financial targets, p. 16
- Risks and opportunities due to climate change, p. 11
- Responsible business practices, p. 28
- Sustainable supply chain, p. 31
- Engaging with stakeholders, p. 21

Our economic performance in 2017 is described in:
- Financial Statements 2017
- Value creation and our impacts, p. 8

Our procurement practices are described in:
- Value creation and our impacts, p. 8
- Building a sustainable supplier base, p. 31

ENVIRONMENTAL DATA

Environmental data has been collected through our health and safety reporting system. Each location's data is compiled on Microsoft Excel spreadsheets and fed into a SAP BO database. The data is then analyzed and combined into a single file to facilitate calculations.

Performance data on environmental aspects has been collected from our major business units for electricity use, heating, owned or leased company cars, flight emissions, water use, paper use, recycled waste, and landfill waste. In 2017, Outotec purchased a new database for industrial data, according to which the baseline for some of our environmental targets had changed. For this reason, we recalculated some environmental indicators for 2015, because there were significant changes in the general validity of the data.

The report also includes information on the combustion of fuels in company-owned combustion sources (scope 1 emissions), and figures on hazardous wastes, which were mainly generated in our research centers, manufacturing workshops, and ceramic plate production plant. The environmental data was compiled on location-specific data sheets in a database and it was readily available for Outotec's largest business units. Our smallest offices with typically fewer than 10 persons were not able to report environmental data, because they are located in large office premises together with other companies. They pay a monthly lump sum to office space providers, and therefore it is not possible to determine their specific electricity, heat, or water consumption.

Our principle in collecting the environmental data is operational control, and leased assets are included in the reported figures.

Environmental data from Outotec's project site operations was excluded from the data collection. All the local subsidiaries from which the data was collected are fully owned by Outotec, and for this reason, no allocations to subsidiaries regarding the environmental indicators were made.
- Environmental data, p. 38

SOCIAL DATA

Data on our employees was collected applying a global master data system based on SAP Human Capital Management. The system includes accurate data on Outotec employees globally, covering all business units and providing basic information on all employees. Data on performance development dialogues (PDD) is compiled from the PDD tool based on Success Factor system.

Our Learning Management System provides information on Outotec's own global training programs and e-learning modules concerning vocational training and Code of Conduct training. The System was renewed in 2016, which has improved the coverage and quality of our training data as of 2017. However, it is not possible to categorize training hours by gender, region or employment category in the current system. Local training data is collected with Microsoft Excel sheets from HR personnel in the market area offices. The training of blue-collar workers normally takes place in classroom and those hours are not reported in the Learning Management System.

Training hours on health and safety are compiled from the health and safety reporting system and they cover both Outotec employees and contractors working under our direct supervision on project sites.

Outotec's global health and safety reporting system is used for data collection and to map out and monitor progress towards common health and safety targets in all Outotec operations. Data about employees traveling in high-risk countries was collected from the Travel Tracker system used as part of our Global ISOS service.

Supply chain data is collected using the Global Supplier Database and from the SIEVO spend management software. The calculations are based on Outotec's spending and carried out using the Scope 3 screening tool developed by Quantis and GHG Protocol (www.quantis-suite.com/Scope-3-Evaluator/). The methodology was changed in 2017 due to the discontinuation of the UK Department for Environment, Food and Rural Affairs (DEFRA). The supply chain's emissions were recalculated for years 2015 and 2016 according to the new methodology to guarantee comparability over the years.

To collect data on human rights and compliance, a questionnaire in the form of Microsoft Excel sheets was sent to the persons responsible for human resources in each location.
- Social data, p. 43

Environmental data

In line with our strong focus on resource efficiency, we strive to operate with minimum inputs of energy and materials, and to closely monitor our consumption of electricity, heating and water.

Outotec continuously measures and monitors its own environmental performance and aims to reduce its impacts related to, for example, CO_2 emissions from flights and energy consumption. The bulk of Outotec's operations involve engineering and business management in offices located in 36 countries. Only a few of them require an environmental permit, and the risks related to these operations are managed by certified environmental management systems.

Our operations include research centers in Finland and Germany; a Dewatering Technology Center, two manufacturing workshops and a ceramic plate production plant in Finland; assembly shops in Brazil, Canada, China, and the USA; spare parts and service workshops in Qatar, United Arab Emirates, Mozambique and South Africa; and several warehouses. None of these sites are in or adjacent to protected areas or areas of high biodiversity value (GRI 304-1).

Approximately 90% of Outotec's manufacturing is outsourced. Outotec did not make any acquisitions or divestments in 2017.

Sustainability, pollution prevention and sound environmental management are required in all of our operations. We strive to operate with minimum inputs of energy and materials, and we record our consumption of electricity, heating and water. Our reporting of environmental data covers Outotec's premises and employees, as well as contractors working under our supervision at project sites.

Our management's commitment to the continuous improvement of our environmental performance is reflected in both ambitious target setting and results. We evaluate the environmental aspects of our offices, research centers and manufacturing workshops, and set annual targets based on this evaluation. Outotec operates according to globally harmonized business processes. The company is globally certified to ISO 9001 (quality), ISO 14001 (environment) and OHSAS 18001 (safety) standards. In addition, the locations in Finland and Germany are certified to ISO 50001 (energy). Our performance is followed-up regularly through internal and external audits.

Environmental criteria are taken into account whenever we select new office premises. Outotec's two largest offices, in Espoo, Finland, and Oberursel, Germany, fulfill LEED® Gold requirements. Leadership in Energy and Environmental Design (LEED) is a globally recognized green building certification program.

At our research centers, we record monthly our consumption of electricity and natural gas and other fuels used for test purposes. We also have local or unit-specific targets for the energy efficiency of other operations in Finland and Germany and we are going to establish local energy efficiency and environmental targets for all of our locations in 2018.

Our waste management system provides for the collection, sorting, storage and disposal of waste on our own premises. Outotec employees are instructed to separate different types of waste for sorted collection. Where hazardous wastes such as radioactive, flammable, explosive, toxic, corrosive or bio-hazardous materials need to be handled, specialized contractors are commissioned to dispose of these materials safely and in line with local legal requirements and customers' requirements at construction sites.

Materials used (GRI 301-1)

The materials used globally by Outotec operations, excluding the materials used by our equipment suppliers and construction site operations, are:

Materials used, tonnes	2017	2016	2015
Paper	41	50	70
Steel	3,624	2,097	5,600
Ceramics	49	31	109
Cardboard packaging	17	18	13
Plastic packaging	3	3	1
Wood packaging	186	239	211
Renewable materials	245	307	294
Non-renewable materials	3,676	2,131	5,710

Steel consumption has increased due to the increase in equipment deliveries from our own manufacturing plants. We manufacture high-tech ceramics in Turku, Finland, for use in Outotec ceramic filters. Steel is the most important non-renewable material used in our products. The use of renewable materials in our products is limited to the use of wood, paper and cardboards as packaging materials. Our paper use declined due to increased digitalization.

Outotec's Finnish workshops in Lappeenranta, Turula and Turku report the amount of packaging they use annually to Finnish Packaging Recycling Ltd (RINKI). Data from other locations is reported and consolidated on annual basis.

Energy consumption within the organization (GRI 302-1)

Figures for our total global electricity and fuel consumption from non-renewable sources are shown in the table below. We did not directly consume any renewable fuels, or sell any electricity, heating, cooling or steam in 2017. However, we purchased 8,290 MWh electricity based on renewable hydropower in Finland and Germany. This corresponds to 47% of our electricity consumption and 19% of total energy consumption. Figures for energy consumption are collected globally from our operations based on the energy-related invoicing in each location. The conversion factors between energy units are taken from Statistics Finland (www.stat.fi/tup/khkinv/khkaasut_polttoaineluokitus.html).

Energy consumption, TJ	2017	2016	2015
Direct energy consumption:	**50.4**	47.8	48.5
Propane gas	**11.4**	10.5	11.2
Light fuel oil and gasoline	**24.2**	21.2	13.6
Coal, coke, semi coke	**0.03**	0.1	0.4
Natural gas	**14.8**	15.9	23.5
Indirect energy consumption:	**109.4**	117.6	116.0
Electricity (incl. cooling)*	**62.9**	71.4	73.7
District heating	**45.4**	45.2	40.8
Steam	**1.0**	1.0	1.5
Total energy consumption	**159.8**	165.5	164.5

*) Converted to TJ from 17,478 MWh

Energy intensity (GRI 302-3)
Our energy intensity calculations include fuel, electricity, heating, cooling and steam consumed within Outotec.

Energy, TJ/EUR 1 million sales	2017	2016	2015
Energy intensity	**0.14**	0.16	0.14

The denominator for the energy intensity calculations is our annual sales:

Denominator	2017	2016	2015
Sales, EUR million	**1,139**	1,059	1,201

Reduction of energy consumption (GRI 302-4)
Our target for 2017 was to implement a new Energy Management System based on ISO 50001 in five locations in Finland. This target embedding the aim to reduce our primary energy consumption was reached and the Finnish location were certified by TÜV Rheinland Cert GmbH in 2017. The same system was implemented in four locations in Germany in 2016. In Finland, we renewed our official energy saving agreement, adding new short-term (4% savings until 2020) and long-term (7.5% savings until 2025) targets. The agreement is organized by Motiva, a 100% state-owned agency, and sets year 2015 as the new base year. These principles will be enlarged globally to other Outotec locations in the coming years, and a full certification will be considered case-by-case.

The consumption figures include different types of fuels, purchased electricity, and district heating. The conversion factors between energy units were taken from Statistics Finland (www.stat.fi/tup/khkinv/ khkaasut_polttoaineluokitus.html).

In 2017, we defined energy targets for the second time in Germany: 2% reduction in electricity use and 1-2% reduction in gas consumption by the end of 2019. 70% of the reduction targets were already met in the first year, e.g. through lowering of compressed air levels, replacement of blowers, and new lighting concepts. Based on the good results we are reconsidering the targets for electricity consumption.

Energy consumption in Finnish units, TJ	2017	2016	2015
Pori research center and Turula works			
Energy consumption	**35.7**	38.3	33.4
Energy saved due to efficiency improvements, TJ compared to base year	**-2.3**	-4.9	base year
Lappeenranta works			
Energy consumption	**17.2**	18.8	18.0
Energy saved due to efficiency improvements, TJ compared to base year	**0.8**	-0.8	base year
Turku works			
Energy consumption	**11.3**	13.2	13.0
Energy saved due to efficiency improvements, TJ compared to base year	**1.7**	-0.2	base year
Total			
Energy consumption	**64.2**	70.3	64.4
Saving compared to 2015, %	**0.3**	-9	base year

Water withdrawal (GRI 303-1)

We purchase water locally from municipal water suppliers, and channel wastewater into municipal waste water systems. The water volumes are calculated mostly based on invoices, except for certain locations in Africa that use water from drill wells. Because our workshops are mainly assembly shops, no process water is discharged. Our research center in Pori uses measured amounts of river water for cooling purposes in test facilities. After use, this water is channeled back to the river. Outotec stores no rainwater; neither do we use wastewater from other organizations.

Water consumption, m³/year	2017	2016	2015
Municipal water	**48,556**	65,138	61,348
Surface water	**5,521**	4,186	2,628
Ground water	**23**		
Total water consumption	**54,100**	69,324	63,976

The municipal water consumption has reduced mostly due to water savings in the Australian locations (Cairns, Sydney, Melbourne) and our Espoo headquarters.

Direct GHG emissions (Scope 1) (GRI 305-1)

Scope 1 greenhouse gas (GHG) emissions are calculated based on the consumption of non-renewable fuels in our locations globally, plus the carbon dioxide equivalent (CO_2e) emissions released by company cars, excluding vehicles used in site operations at customers' plants. The conversion factors for the fuel specific CO_2e emissions are taken from

Statistics Finland (www.stat.fi/tup/khkinv/khkaasut_polttoaineluokitus.html). For the company cars, the CO_2e emissions are calculated based on the reports of the leasing companies in Finland (annual kilometers, CO_2 emissions/km/car type). For other locations, the CO_2e emissions were calculated by using the reported kilometers and average CO_2e emissions. However, to avoid double counting, for those locations who had reported the gasoline consumption separately, the kilometer-based emissions were eliminated from the calculation. The GHG emission calculations only relate to CO_2, as we do not release emissions of other greenhouse gases. The gas included in the calculations is CO_2 from fossil fuel sources, excluding bio-based CO_2 emissions.

Direct GHG emissions, tonnes of CO_2e	2017	2016	2015
Scope 1 emissions (own fuel combustion, company cars)	**4,287**	3,910	4,431
Company car emissions in Finland, g CO_2e/km	**110**	119	121

Energy indirect GHG emissions (Scope 2) (G4-EN16)

Indirect GHG emissions, tonnes of CO_2e	2017	2016	2015
Scope 2 emissions (purchased electricity, district heating and steam)	**7,883**	9,458*	10,046*

*) restated figures

In line with the Greenhouse Gas Protocol, we used a Corporate Accounting and Reporting Standard to calculate Scope 1 and Scope 2 emissions. The emissions are indicated in CO_2 equivalents, which also cover other greenhouse gases. The country specific emission factors were retrieved from RE_DISS for the European countries (www.aib-net.org/documents/103816/176792/AIB_2016_Residual_Mix_Results.pdf/6b49295b-ad99-a189-579e-877449778f62), for the other countries from GaBi databases (www.gabi-software.com/international/databases/gabi-databases/) or for those not found in these, we used the Protocol's calculation tool 'GHG emissions from purchased electricity'. In calculations for Finland and Germany we used market based and 'Residual mix CO_2e emission' factors (www.aib-net.org/documents/103816/176792/AIB_2016_Residual_Mix_Results.pdf/6b49295b-ad99-a189-579e-877449778f62). In terms of consolidation, the figures include operations in which Outotec has full financial control, i.e. our own operations and offices, with site operations at customers' premises excluded. Because the change of the source of the country specific emission factors caused more than 10% change on the results, Scope 2 emissions were recalculated for years 2015 and 2016 with the new emission factors.

In 2017, Outotec purchased 8,290 MWh of CO_2-free electricity from renewable energy sources in Finland and Germany, equaling 47% of our electricity consumption and 19% of total energy consumption. We are gradually moving to renewable energy in our major locations in Germany and Finland, excluding the Pori research center.

Market-based Scope 2 emissions decreased by 17%, mainly due to the increased share of renewable energy, but also due to reduced electricity consumption. The base year is 2015.

Other indirect GHG emissions (Scope 3) (GRI 305-3)

For Scope 3 GHG emissions, we include air travelling, train journeys and commuting. The two first ones are received from our globally centralized travel agency that covers all major locations. According to our Travel Policy the preferred travel agency is to be used for all travel purchases, and no purchases from local travel agencies are allowed. Thus, we have estimated that the coverage of the travel agency report is higher than 98% but no extrapolation was made to cover the unknown share. The commuting related emissions are estimated based on average numbers realized in Espoo and extrapolated to cover the all employees.

Scope 3 GHG emissions, tonnes of CO_2e	2017	2016	2015
Air transactions	**13,542**	13,498	19,846
Rail transactions	**71**	48	57
Commuting	**1,420**	1,406	1,859
Total Scope 3 emissions	**15,033**	14,952	21,762

We report the carbon footprint of our supply chain separately, and it amounted in 2017 to 508,400 (2016: 516,470) tonnes of CO_2e. The largest source of CO_2e emissions was the category of basic metals and fabricated metals, representing 43% (53%) of the total. The calculations are based on Outotec's spending and carried out using the Scope 3 screening tool developed by Quantis and GHG Protocol (https://quantis-suite.com/Scope-3-Evaluator/). We changed the methodology in 2017 due to the discontinuation of the UK Department for Environment, Food and Rural Affairs (DEFRA) method. Because of the large influence of the calculation method change on
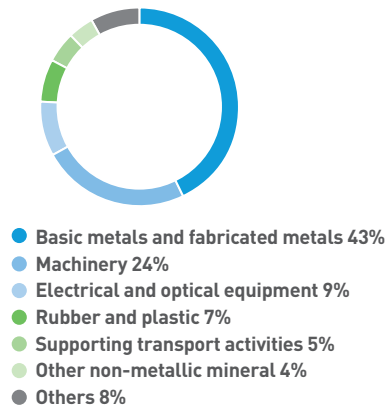
our supply chain's emissions, we recalculated year 2015 and 2016 emissions

Supply chain	2017	2016	2015
GHG emissions, tonnes of CO_2e	**508,400**	516,470*	559,853*

*) restated figures

CO_2 EMISSIONS BY SUPPLY CATEGORY

- ● Basic metals and fabricated metals 43%
- ● Machinery 24%
- ● Electrical and optical equipment 9%
- ● Rubber and plastic 7%
- ● Supporting transport activities 5%
- ● Other non-metallic mineral 4%
- ● Others 8%

Our travel-related emissions remained approximately the same as in 2016. Due to increased business activities in 2017, the traveled kilometers increased slightly. However, the related emissions remained nearly unchanged because our personnel increasingly traveled in economy class on long-haul flights. The CO_2e emissions for flight and rail travel are reported directly by our travel agent Carlson Wagonlit Travel.

We use teleconferences and Skype for Business for internal meetings. Video conferencing systems are also available in our major locations. After the Office365 collaboration and information sharing tools were taken into use in 2015, traveling to internal meetings has reduced.

Outotec strives to use responsible air carriers and hotels. Lufthansa and Finnair, for instance, use relatively new fleets, which generally produce lower emissions. In agreements with hotels, Outotec prefers hotels with favorable social responsibility policies.

Total GHG emissions, tonnes of CO_2e	2017	2016	2015
Total GHG emissions	**27,202**	28,320*	36,239*

*) restated figure

GHG emissions intensity (GRI 305-4)

Tonnes of CO_2e/ EUR 1 million sales	2017	2016	2015
Scope 1+2	**10.7**	12.6*	12.1*
Relative total GHG emissions	**23.9**	26.7*	30.2*
Relative flight emissions	**11.9**	12.7	16.5

*) restated figure

Our relative flight emissions per one million euro sales decreased by 7% from 2016.

The overall positive impact of Outotec's business travel can be best illustrated by comparing our total annual GHG emissions in 2017, which were 27,202 (2016: 28,320) tonnes CO_2e, with the emissions avoided by using seven of our key technologies, which amounted to 6,218,000 (5,870,000) tonnes of CO_2e.

Nitrogen oxides, sulfur oxides, and other significant air emissions (GRI 305-7)

Volatile organic compounds (VOCs), tonnes	2017	2016	2015
VOC emissions from paint shops	**8.8**	8.9	8.8

We report only VOC emissions, as nitrogen and sulfur oxides as well as other air emissions are not relevant in our operations. We estimate the VOCs based on the paint consumption in our manufacturing, assembly and service operations. The VOC emissions have been relative steady during the years. We have used 300 g VOCs per one liter paint as the emission factor in our calculations.

SIGNIFICANT IMPACTS OF ACTIVITIES, PRODUCTS, AND SERVICES ON BIODIVERSITY (GRI 304-2)

We have included information on our impacts on biodiversity in this report due to increased stakeholder interest in companies' role. By describing our role and impacts we can better meet the information needs of investors, customers and local communities.

In metallurgical industry, emissions and eco-toxic substances can cause negative environmental impacts. If not appropriately manufactured, used, or maintained, Outotec's products also have the potential to harm the biodiversity surrounding our customers' plants.

Outotec's direct impacts on biodiversity could be traced to the manufacturing sites for equipment/part manufacture and five assembly and service workshops globally. However, these workshops are located in industrial parks (zoned for industrial use), in which the environmental permitting takes into consideration biodiversity impacts and endangered species already in the planning phase.

In case Outotec is opening new sites, all new locations are built with tight control over their environmental impacts and it is checked whether the construction requires an environmental permit. In case the construction can have an impact on biodiversity, the environmental impact assessment will be carried out (impacts on flora, fauna, endangered species, water management, pollution or habitat conversion). However, the impact to biodiversity is

materialized mainly through the value chain impact.

Our customers' industrial sites, to which Outotec products and technologies are being delivered to, can be located in vulnerable areas, or otherwise potentially have a heavy impact on biodiversity due to the nature of activities. In cooperation with customers, we design the processes in such a way, that they have minimal effluents to water and emissions to the atmosphere, and ultimately require less raw materials to be mined. Outotec's technological know-how in this regard is mainly based on closed water loops, nutrient cycling, raw material efficiency, tailings management and emissions management systems. These have a positive impact on conserving natural habitats, reducing land use impacts, preventing pollution and reducing groundwater consumption.

Impact valuation

By selling advanced technologies Outotec reduces the global carbon dioxide emissions through its customers' industrial processes. We measure this positive impact to combat climate change, our handprint, by the emissions avoided by the metallurgical industry through use of seven Outotec technologies.

In 2017, Outotec's customers generated 6.2 (2016: 5.9) million tonnes less of CO_2e, representing 22% reduction. Outotec continuously works to reduce the negative environmental impacts of its technologies through R&D and product development.

Emissions avoided, tonnes of CO_2e	2017	2016	2015
GHG emissions avoided through the use of seven Outotec technologies	**6,218,000**	5,870,000	6,600,000

DATA

In early 2017, Outotec purchased a new database for industrial data, according to which the baseline had changed, and we consequently recalculated the figures for 2015.

The CO_2 European Emission Allowances Commodity Price [http://markets.businessinsider.com/commodities/historical-prices/co2-emissionsrechte/euro/1.1.2017_31.12.2017] (Dec 31, 2017) was EUR 5.76 per tonne CO_2. By using this price, the negative influence of our Scope1+2+3 emissions and the emissions generated in our supply chain can be valuated as follows: Scope 1-3 EUR –0.16 million and Supply chain EUR –2.9 million. On the other hand, the value of the emissions avoided would be approximately EUR 36 million in 2017 estimated by using the same approach.

EMISSIONS AVOIDED BY TECHNOLOGY, TONNES OF CO_2e
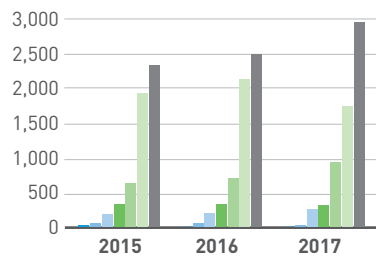
- ● Co-generation
- ● Coated titanium anodes
- ● TankCell 300
- ● Ceramic filters
- ● Alumina calcination
- ● Copper flash smelting
- ● Ferrochrome process

Total weight of waste by type and disposal method (GRI 306-2)

Waste, tonnes	2017	2016	2015
Waste recycled	599	766	1,013
Landfill waste and incinerated waste	609	597	1,484
Hazardous waste	41	42	261*
Total waste	1,249	1,405	2,758
Paper recycled	83	97	120

*) A large amount of hazardous waste was removed from a workshop acquired in Mozambique.

Waste handling is not centrally managed at Outotec. We have instructed our locations to sort waste according to local regulations and the guidelines provided by facility owners. Waste amounts declined significantly because of lower sales volumes and the reduced number of employees.

SIGNIFICANT SPILLS (GRI 306-3)

No significant spills were reported in Outotec operations and project sites in 2017.

A small amount of hazardous waste is produced in the final surface treatment of filter presses in our Lappeenranta works. In addition, oily waste from lubricants used in the Turula works is classified as hazardous. In addition, our research centers produce small amounts of different kinds of hazardous chemicals. These hazardous wastes are sent to local hazardous waste treatment facilities.

Read also:
- Initiatives to mitigate the environmental impacts of our products and services, in Offering, p. 26
- Grievances and non-compliance with environmental laws and regulations, in Responsible business practices, p. 28

RELATED POLICIES:
- QEHS Policy
- Travel Policy

Social data

Our commitment to the United Nations' Global Compact's principles on human rights, environment, labor, and anti-corruption, and our recognition of the UN's Guiding Principles on Business and Human Rights demonstrate our desire to further advance social responsibility in our business.

EMPLOYEES (GRI 102-8)

Outotec had 4,146 (2016: 4,192) employees at year end 2017, which was 46 employees fewer than the previous year-end. Temporary personnel accounts for about five percent of the total payroll. Some of the temporary employees are self-employed, typically retired Outotec experts who work shorter periods in our customer projects. During annual vacation seasons, we hire students as trainees.

In addition to employees, Outotec had 302 (330) full-time equivalent contracted persons working under our supervision in project execution and services. These contractors are not reported in the employee data.

Employees by employment contract and gender		2017	2016	2015
Male	permanent	**3,176**	3,243	3,719
	temporary	**175**	165	247
	Male all	**3,351**	3,408	3,966
Female	permanent	**745**	735	815
	temporary	**50**	49	78
	Female all	**795**	784	893
All employees	permanent	**3,921**	3,978	4,534
	temporary	**225**	214	324
Total number of employees at year end		**4,146**	4,192	4,859
Employees on average		**4,149**	4,340	4,855

n = 4,146, coverage 100%

Employees by region		2017	2016	2015
EMEA	permanent	**2,662**		
	temporary	**151**		
	EMEA all	**2,813**	2,824	3,159
Americas	permanent	**723**		
	temporary	**35**		
	Americas all	**758**	801	1,012
APAC	permanent	**536**		
	temporary	**39**		
	APAC all	**575**	577	688

n = 4,146, coverage 100%

EMPLOYEES BY CATEGORY
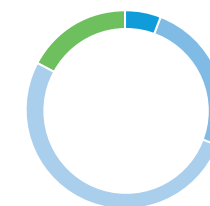
- ● Senior management 6%
- ● Middle management 25%
- ● Specialists 52%
- ● Blue-collar workers 17%

Average age of employees, years	2017	2016	2015
	42.0	42.0	41.3

View historical employee data
https://viz.tools.investis.com/outotec-csr/dct/live/index.html#employee-data60/employees-by-employment-type61

NEW EMPLOYEE HIRES AND EMPLOYEE TURNOVER (GRI 401-1)

New employee hires	2017	2017	2016	2016	2015	2015
	#	%	#	%	#	%
by gender						
Female	**123**	**3**	101	2	169	4
Male	**599**	**13**	545	13	783	16
by age group						
<30	**227**	**5**	279	7	324	7
31-50	**392**	**9**	306	7	524	11
>51	**63**	**2**	61	1	104	2
by region						
EMEA	**401**	**9**	295	7	N/A	N/A
Americas	**200**	**5**	292	7	N/A	N/A
APAC	**81**	**2**	59	1	N/A	N/A
Total	**682**	**16**	646	15	952	20

Employee turnover rate	2017	2017	2016	2016	2015	2015
	#	%	#	%	#	%
by gender						
Female	**96**	**2**	164	4	147	3
Male	**439**	**11**	815	19	651	13
by age group						
<30	**92**	**2**	207	5	169	3
31-50	**311**	**8**	540	13	456	9
>51	**131**	**3**	232	5	173	4
by region						
EMEA	**312**	**8**	456	11	N/A	N/A
Americas	**162**	**4**	371	9	N/A	N/A
APAC	**61**	**1**	152	4	N/A	N/A
Total turnover rate	**535**	**13**	979	23	798	16

Compensation (GRI 102-38)

The total compensation paid out to employees by Outotec in 2017 amounted to EUR 326 million (2016: 329). Outotec's compensation policy is described on www.outotec.com/cg.

Compensation	2017	2016	2015
Wages and salaries paid, EUR million	**326**	329	353
Ratio of annual total compensation of CEO to mean compensation of employees	**8.7**	7.9*	10.3
Percentage increase in annual total compensation ratio, %	**10**	-23	N/A
Change in annual total compensation of CEO, %	**14.5**	-20.2*	-2.9
Change in annual mean compensation of employees, %	**0.2**	4.2	-2.9

n = 4,146, coverage 100 %

*) In 2016, Outotec's CEO changed and the compensation covered three different CEOs, one of them acting. CEO's compensation does not include severance payment, compensation for unused vacation, salary for notice period or relocation costs due to the change of CEO.

The ratio of annual total compensation of CEO to mean compensation of employees was 8.7 (2016: 7.9), which was 10% higher than in 2016. The annual total compensation ratio is calculated for all employees globally. Country-specific information was not available in the master data system. The calculation included the mean base salary.

94 (142) key employees were part of the company's share-based incentive program in 2017. In addition, 795 (933) employees equaling 20% (22%) of eligible personnel participated in our employee share savings plan. This plan was not offered to employees in Mozambique, Morocco, Qatar and Saudi Arabia due to legal restrictions. In May 2017, Outotec paid out a total of 126,445 (233,160) shares and cash payments to cover estimated taxes to 1,222 (1,417) employees who participated in the employee share savings plan in 2014.

Outotec runs several pension plans in various countries. These plans are mainly classified as legally defined contribution pension plans. Other post-employment benefits include medical arrangements for retired employees in Germany.

Collective bargaining agreements (GRI 102-41)

60% of our employees are covered by collective bargaining agreements. This information was collected with a separate questionnaire sent out to all our locations. Binding collective agreements are followed in each country where they are applicable to Outotec employees.

Coverage by collective bargaining agreements by region, %	
EMEA	**78**
Americas	**37**
APAC	**0**
Total	**60**

n = 4,146

Benefits provided to full-time employees (GRI 401-2)

Benefits by region, % P = permanent, TEMP = temporary	EMEA		Americas		APAC		Total	
	P	TEMP	P	TEMP	P	TEMP	P	TEMP
Life insurance	71	45	100	63	0	0	66	38
Health care	80	59	100	63	36	2	77	48
Disability/invalidity coverage	92	59	100	77	96	2	94	50
Parental leave	98	94	100	77	96	2	98	73
Retirement provision	88	45	100	51	95	79	91	53
Stock ownership	94	0	100	0	60	0	90	0
n=	2,650	150	723	35	553	48	3,926	233
Coverage	100	100	100	100	96	84	99	96

https://viz.tools.investis.com/outotec-csr/dct/
live/index.html#compensation-data-06/wag-
es-salaries-0105

Minimum notice periods for significant operational changes (GRI 402-1)
The provisions for consultation and negotiations with employees are included in the collective bargaining agreements in some of the countries where Outotec has operations. In Finland, the collective bargaining agreements include provisions for consultation and negotiations lasting from two to six weeks; in Australia four weeks, in Sweden four weeks, in Chile 30 days, and in Brazil 12 weeks. The minimum notice periods that must be observed in advance of significant operational changes depend on locations and national legislation, and therefore differ significantly. In Finland, the notice periods range from two weeks to six months, and in other countries, the notice periods range from two weeks to one year.

Workers representation in formal joint management-worker health and safety committees (GRI 403-1)
Outotec has a QEHS responsible person in each location with more than 10 employees. The entire workforce (100%) is represented in formal joint management-worker health and safety committees that help to monitor and provide advice on occupational health and safety programs. Units that have less than 10 people are represented in the health and safety committees of the closest larger units.

OCCUPATIONAL HEALTH AND SAFETY
The lost-time injury rate per 1 million work hours, including employees and contractors, improved to 1.7 in 2017 (2016: 1.8).

The lost day rate was higher in 2017 because there were a couple of long lost-time cases.

Lost-time injury rate (per 1 million work hours)	2017	2016	2015
	1.7*	1.8	2.8

*) n = 6,556, including employees and contractors

Injury rates and types, occupational diseases, lost days, absenteeism, and work-related fatalities (GRI 403-2)

Injury rates and types by gender, Employees	2017			2016	2015
	Female	Male	All employees		
Non-fatal injuries	7	12	19	23	41
Fatal injuries	0	0	0	0	0
Lost-time injury rate (per 1 million work hours)	4.7	1.9	2.4	1.8	2.8
Occupational diseases	0	4	4	1	0
Occupational disease rate (per 1 million work hours)	0.0	0.6	0.5	0.1	0.0
Lost days because of accidents or disease	188	323	511	304	524
Lost day rate (per 1 million work hours)	126	51	65	24	36
Absentee rate, %	1.2	1.1	1.1	1.3	1.3

Injury rates and types by gender, Contractors	2017		2016	2015
	Female	Male		
Non-fatal injuries	0	4	2	3
Fatal injuries	0	0	0	0
Lost-time injury rate (per 1 million work hours)	0	0.9	0.6	0.6
Occupational diseases	0	0	0	0
Occupational disease rate (per 1 million work hours)	0.0	0.0	0.0	0.0
Lost days because of accidents or disease	0	108	26	38
Lost day rate (per 1 million work hours)	0.0	24.3	7.8	8.2
Absentee rate, %	1.1	1.1	1.3	1.2

n = 2,410 contractors working under our control on project sites

There are cultural differences and variation in the categorization between lost time injuries and total recordable injuries in certain countries, for this reason we started reporting both LTIR and TRIR.

Injury rates by region, Employees	LTIR	TRIR
EMEA	1.7	2.7
Americas	0.4	3.1
APAC	2.0	6.2
Employees total	**1.4**	**3.2**

Injury rates by region, Contractors	LTIR	TRIR
EMEA	0.2	0.4
Americas	0.4	0.7
APAC	0.6	1.2
Contractors total	**0.3**	**0.6**

Health and safety topics covered in formal agreements with trade unions (GRI 403-4)
Health and safety topics are not covered in formal agreements with trade unions, because they are duly addressed by statutory regulations and laws that Outotec complies with.

View historical health and safety data
https://viz.tools.investis.com/outotec-csr/dct/live/index.html#health-and-safety148/lost-time-injury-rate-emp-contracor

TRAINING
Average hours of training (GRI 404-1)
Our reporting of vocational and Code of Conduct training hours covers Outotec's employees. The health and safety training hours cover employees and contractors working under our supervision on project sites. Only the training provided by Outotec is included in this report. Data on training pursued by individual Outotec employees externally is not reported as data is not stored into our systems.

Our learning management system including vocational and Code of Conduct training does not provide information of the training hours by gender and employee category. It collects the information on Outotec's own global training programs and e-learning modules. Local training data is reported by HR persons in the market area offices.

Training hours on health and safety are compiled from the health and safety reporting system.

Health and safety training	2017	2016	2015
Number of employees and contractors	6,678	6,450	7,279
Hours	108,997	92,600	87,388
Average hours of health and safety training per person	16	9	8

We have significantly increased the health and safety training for both employees and contractors in 2017. In 2017, the training on cyber security was mandatory for all employees and 89% of the personnel participated in it.

Vocational and Code of Conduct training	2017	2016	2015
Vocational training and instruction			
Number of employees	**3,800**	2,391	2,444
Hours	**61,036**	12,612	31,788
Training on Code of Conduct*			
Number of employees	**655**	1,223	954
Hours	**811**	673	1,431
Total training hours	**61,847**	16,135	39,513
Number of employees	**4,146**	4,192	4,859
Vocational and Code of Conduct training hours per employee	**15**	4	8

*) Human rights issues were covered in Code of Conduct e-learning and classroom trainings.

View historical training data
https://viz.tools.investis.com/outotec-csr/dct/live/index.html#training132/health-and-safety-training-employees-and-contractors-number133

Percentage of employees receiving regular performance reviews (GRI 404-3)

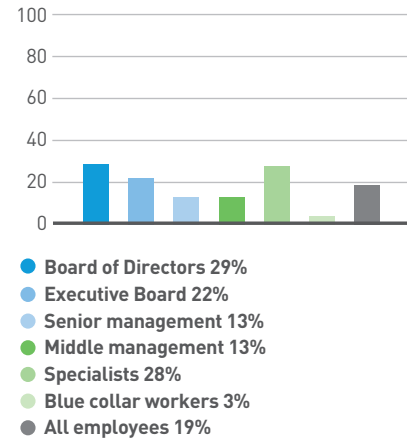| Performance reviews, %	
by gender	
Female	99
Male	99
by employee category	
Senior management	100
Middle management	100
Specialists	100
Blue-collar workers	N/A*

n = 3,290 *) Performance reviews of blue-collar workers have not been registered in the data system, and they are not included in the above numbers.

DIVERSITY AND EQUAL OPPORTUNITY (GRI 405-1)

Employees by age group, %	2017	2016	2015
Executive Board			
< 30 years	**0**	0	0
31-50 years	**44**	25	31
> 51 years	**56**	75	69
Senior management			
< 30 years	**0**	0	0
31-50 years	**55**	56	59
> 51 years	**45**	44	41
Middle management			
< 30 years	**1**	1	3
31-50 years	**65**	66	64
> 51 years	**34**	33	33
Specialists			
< 30 years	**13**	20	22
31-50 years	**67**	62	59
> 51 years	**19**	18	19
Blue-collar workers			
< 30 years	**20**	28	30
31-50 years	**65**	54	54
> 51 years	**15**	19	16
Board of Directors			
< 30 years	**0**	0	0
31-50 years	**0**	25	0
> 51 years	**100**	75	100

n = 4,146, coverage 100%

SHARE OF WOMEN BY EMPLOYEE CATEGORY, %

- Board of Directors 29%
- Executive Board 22%
- Senior management 13%
- Middle management 13%
- Specialists 28%
- Blue collar workers 3%
- All employees 19%

The share of men in the mining and metallurgical industry has traditionally been high, which partly explains the current low share of women.

We have not identified any minority or vulnerable groups amongst our employees.

Proportion of senior management hired from the local community (GRI 202-2)

When Outotec starts a new operation in a new country, an expatriate employee is typically assigned to integrate the new operation into Outotec. Our goal is nevertheless that senior management should be hired locally. In 2017, 60% (2016: 50%) of our market areas had local leaders.

Ratio of basic salary and remuneration of women to men (GRI 405-2)

Ratio of basic salary of women to men by employee category	Male	Female
Senior management	1	0.77
Middle management	1	0.82
Specialists	1	0.80
Blue-collar workers	1	N/A

The ratio of basic salary and remuneration of women to men could not be fully reported, as data was not available by significant locations of operations and about blue-collar workers.

View historical diversity data
https://viz.tools.investis.com/outotec-csr/dct/live/index.html#diversity107/executive-board-members-by-age108

About this report

Our reporting covers the key areas of economic, social and environmental responsibility and corresponds to the GRI Standards: Core option. We also describe our progress in addressing the UN Global Compact principles, as well as the UN Sustainable Development Goals.

Outotec reports its performance on economic, environmental and social sustainability annually in accordance with the Global Reporting Initiative (GRI). The GRI report for the calendar year 2017 is prepared in accordance with GRI Standards: Core option. The General Disclosures as specified in the GRI Standards are presented in a wider scope than required by the Core option. Topic-specific Standards are reported with respect to the material topics for Outotec. Some information relating to developments from January to March 2018 has also been included in the report. A comparison of the contents of the report and the GRI Standards is given in the GRI and Global Compact index.

The report is published in English language at www.outotec.com.

Outotec has reported its sustainability performance annually since 2010. The previous report for 2016 was published in March 2017.

Global Compact and UN Sustainable Development Goals reporting
This report describes how Outotec has progressed on the ten principles of the UN Global Compact initiative regarding human rights, labor rights, environment principles and anti-corruption principles, and the UN Sustainable Development Goals. The GRI index also shows the indicators used by Outotec to evaluate the progress in these areas.

Applying reporting principles (GRI 102-46)
Outotec's business is based on the company mission, 'sustainable use of Earth's natural resources', which drives us to work towards overcoming the world's environmental challenges and provides the wider context for our sustainability work. We have also defined our approach to global and local social and economic objectives and committed ourselves to the relevant UN Sustainable Development Goals.

We have taken the feedback from our key stakeholders, employees, customers, suppliers, investors and academic community, into account when defining the material topics and report content and tried to meet their expectations.

Material topics and their boundaries (GRI 102-47)
The material topics identified as most relevant to Outotec and our stakeholders by a materiality assessment conducted in 2014 continue to form the basis for our sustainability management and reporting. In 2017, the Sustainability Working Group reviewed the list of material aspects and aspect boundaries reported in 2016 in accordance with the GRI G4 guidelines, and revised it to comply with the GRI Standards. The topic boundaries were reviewed and some adjustments made. In this report, we focus on the five most material topics for Outotec and present them in the order of significance.

Report coverage (GRI 102-45)
We report on our global operations including Outotec's premises and employees in full, and partly include information on our contractors working under our supervision on project sites, our products and services, the use of Outotec's technologies by customers, and our supply chain.

There have been no changes in 2017 in the reporting scope. The information compiled for the report is collected from our local offices, and some local environmental impacts are described in addition to global data.

We continuously aim to improve our internal processes as well as the completeness of data disclosure through developing our data collection systems and more accurate explanation of omissions when the data is not available. We also aim to describe both positive and negative aspects of our performance.

In the online report, we have increased the use of graphics to show trends in our performance and increase clarity. We have also included the data from all the previous reports in the tables and graphs to improve comparability.

Stakeholders
As part of the materiality assessment, we identified our customers, employees, suppliers, investors and financiers, the media, NGOs and local communities as the main users of this report. In a review of key stakeholders conducted during 2016, the academic community was added as a key stakeholder group.

Restatements (GRI 102-48)
Our policy for restatements in case of significant changes in our company structure, or changes in the general validity of the data, is that the data is recalculated for previous years, if the changes have led to discrepancies of more than 10% (GRI 102-48).

In 2017, Outotec purchased a new database for industrial data, according to which the baseline for some of our environmental targets had changed. For this reason, we recalculated some environmental indicators for 2015, because there were significant changes in the general validity of the data. Another restatement was made in the calculation of supply chain emissions for years 2016 and 2015 due to discontinuation of the supply chain emission factors used previously and change of methodology in 2017. The categories of the supply spend were changed to match with the categories of supply chain emissions.

Assurance (GRI 102-56)
This report has been verified by an independent third-party assurance provider selected by the Sustainability Working Group. The scope, conclusions, observations and recommendations are presented in the assurance report. A member of Outotec's Executive Board has commissioned the assurance, and the Executive Board has approved the report.

GRI, GLOBAL COMPACT, AND SDG CONTENT INDEX

Based on our own assessment, Outotec has self-declared this report to be prepared in accordance with the GRI Standards: Core option. Compliance has additionally been checked by a third party, Ecobio Ltd.

In this table, we have applied General Disclosures, Management Approach and topic specific GRI Standards and Disclosures published in 2016. Indicators in General Disclosures and Management Approach comply with the European Directive on non-financial and diversity reporting. The table also indicates our progress on the United Nations' Global Compact principles and Sustainable Development Goals.

GRI Standard	Description	Related page	Omissions	Global Compact principle	SDG
101	Foundation				
102	**GENERAL DISCLOSURES**				
	Organizational profile				
102-1	Name of the organization	This is Outotec, p. 5			
102-2	Activities, brands, products, and services	This is Outotec, p. 5			
102-3	Location of headquarters	This is Outotec, p. 5			
102-4	Location of operations	This is Outotec, p. 5			
102-5	Ownership and legal form	This is Outotec, p. 5			
102-6	Markets served	This is Outotec, p. 5			
102-7	Scale of the organization	This is Outotec, p. 5 Value creation and our impact, p. 8 Financial Statements 2017			
102-8	Information on employees and other workers	Social data, p. 43	Share of part-time employees not reported due to lacking data in some countries.	6	
102-9	Supply chain	Building a sustainable supplier base, p. 31			
102-10	Significant changes to the organization and its supply chain	This is Outotec, p. 5			
102-11	Precautionary principle of approach	Responsible business practices, p. 28			
102-12	External initiatives	www.outotec.com/sustainability			
102-13	Memberships of associations	www.outotec.com/sustainability			
	Strategy				
102-14	Statement from senior decision-maker	CEO's message, p. 3			
102-15	Key impacts, risks, and opportunities	Risks and opportunities due to climate change, p. 11			
	Ethics and integrity				
102-16	Values, principles, standards, and norms of behavior	Responsible business practices, p. 28, 29		10	
102-17	Mechanisms for advice and concerns about ethics	Responsible business practices, p. 29			
	Governance				
102-18	Governance structure	Responsible business practices, p. 28			
102-19	Delegating authority	Corporate Governance Statement 2017 (www.outotec.com/cg)			
102-22	Composition of the highest governance body and its committees	Corporate Governance Statement 2017 (www.outotec.com/cg)			
102-23	Chair of the highest governance body	Corporate Governance Statement 2017 (www.outotec.com/cg)			
102-24	Nominating and selecting the highest governance body	Corporate Governance Statement 2017 (www.outotec.com/cg)			

GRI Standard	Description	Related page	Omissions	Global Compact principle	SDG
102-32	Highest governance body's role in sustainability reporting	Responsible business practices, p. 29			
102-35	Remuneration policies	Corporate Governance Statement 2017 (www.outotec.com/cg)			
102-38	Annual total compensation ratio	Social data, p. 44	Country-specific information not reported as it was not available in the master data system.		
102-39	Percentage increase in annual total compensation ratio	Social data, p. 44	Country-specific information not reported as it was not available in the master data system.		
	Stakeholder engagement				
102-40	List of stakeholder groups	Engaging with stakeholders, p. 21			
102-41	Collective bargaining agreements	Social data, p. 44		3	
102-42	Identifying and selecting stakeholders	Engaging with stakeholders, p. 21			
102-43	Approach to stakeholder engagement	Engaging with stakeholders, p. 22			
102-44	Key topics and concerns raised	Engaging with stakeholders, p. 24			17
	Reporting practice				
102-45	Entities included in the consolidated financial statements	Financial Statements 2017, p. 63 (www.outotec.com/investors)			
102-46	Defining report content and topic boundaries	About this report, p. 48			
102-47	List of material topics	Most significant topics, p. 14			
102-48	Restatements of information	About this report, p. 48			
102-49	Changes in reporting	About this report, p. 48			
102-50	Reporting period	About this report, p. 48			
102-51	Date of most recent report	About this report, p. 48			
102-52	Reporting cycle	About this report, p. 48			
102-53	Contact point for questions regarding the report	Contacts, p. 58			
102-54	Claims of reporting in accordance with the GRI Standards	About this report, p. 48			
102-55	GRI content index	GRI, Global Compact, and SDG content index, p. 49			
102-56	External assurance	External assurance, p. 56			
MATERIAL TOPICS					
1. Safety					
	Management approach				
103-1	Explanation of the material topic and its boundary	Safety, p. 25			
103-2	The management approach and its components	Safety, p. 25			
103-3	Evaluation of the management approach	Safety, p. 25			
	Topic-specific disclosures				
	Occupational health and safety				
403-1	Workers representation in formal joint management–worker health and safety committees	Safety, p. 25			

GRI Standard	Description	Related page	Omissions	Global Compact principle	SDG
403-2	Types of injury and rates of injury, occupational diseases, lost days, and absenteeism, and number of work-related fatalities	Safety, p. 25 Social data, p. 45			3
403-3	Workers with high incidence or high risk of diseases related to their occupation	Safety, p. 25			
403-4	Health and safety topics covered in formal agreements with trade unions	Safety, p. 25		1	
Customer health and safety					
416-2	Incidents of non-compliance concerning the health and safety impacts of products and services	Our offering, p. 26			
2. Sustainable offering					
	Management approach				
103-1	Explanation of the material topic and its boundary	Our offering, p. 26			
103-2	The management approach and its components	Our offering, p. 26			
103-3	Evaluation of the management approach	Our offering, p. 26			
	Topic-specific disclosures				
	Energy				
302-4	Reduction of energy consumption	Environmental data, p. 39 Our offering, p. 26		8, 9	13
	Emissions				
305-5	Reduction of GHG emissions	Environmental data, p. 41 Our offering, p. 26			
OWN	Environmental Goods and Services in order intake	Our offering, p. 26			9
OWN	CO_2 emissions avoided through the use of Outotec's metals-related technologies	Environmental data, p. 41 Our offering, p. 26			13
OWN	Percentage of reduction of fresh water/tonne of ore by non-ferrous metals concentrators using Outotec technology	Our offering, p. 26			6
OWN	Increase of energy produced using Outotec waste-to-energy solutions	Our offering, p. 26			7
3. Responsible business practices					
	Management approach				
103-1	Explanation of the material topic and its boundary	Responsible business practices, p. 28			
103-2	The management approach and its components	Responsible business practices, p. 28			
103-3	Evaluation of the management approach	Responsible business practices, p. 28			
	Topic-specific disclosures				
	Economic performance				
201-1	Direct economic value generated and distributed	Value creation and our impact, p. 8	Country-specific tax information not fully reported as it would not give a comprehensive picture of the fairness of the tax distribution.		
201-2	Financial implications and other risks and opportunities due to climate change	Risks and opportunities due to climate change, p. 11		7	

GRI Standard	Description	Related page	Omissions	Global Compact principle	SDG
	Indirect economic impacts				
203-2	Significant indirect economic impacts	Value creation and our impact, p. 8			
	Anti-corruption				
205-1	Operations assessed for risks related to corruption	Responsible business practices, p. 28	Number and percentage of operations not reported because we assess projects only.	10	
205-2	Communication and training about anti-corruption policies and procedures	Responsible business practices, p. 29	Anti-corruption communication not separately reported, it's part of Code of Conduct trainings.	10	8
205-3	Confirmed incidents of corruption and actions taken	Responsible business practices, p. 29		10	
	Anti-competitive behavior				
206-1	Legal actions for anti-competitive behavior, anti-trust, and monopoly practices	Responsible business practices, p. 28			
	Environmental compliance				
307-1	Non-compliance with environmental laws and regulations	Responsible business practices, p. 28			
	Non-discrimination				
406-1	Incidents of discrimination and corrective actions taken	Driving employee engagement, p. 34 Responsible business practices, p. 29		6	
	Freedom of association and collective bargaining				
407-1	Operations and suppliers in which the right to freedom of association and collective bargaining may be at risk	Building a sustainable supplier base, p. 32		3	
	Socio-economic compliance				
419-1	Non-compliance with laws and regulations in the social and economic area	Responsible business practices, p. 29		8	
4. Sustainable supply chain					
	Management approach				
103-1	Explanation of the material topic and its boundary	Building a sustainable supplier base, p. 31			
103-2	The management approach and its components	Building a sustainable supplier base, p. 31			
103-3	Evaluation of the management approach	Building a sustainable supplier base, p. 31			
	Topic-specific disclosures				
204-1	Proportion of spending on local suppliers	Building a sustainable supplier base, p. 26			12
	Supplier environmental assessment				
308-1	New suppliers that were screened using environmental criteria	Building a sustainable supplier base, p. 31		8	
308-2	Negative environmental impacts in the supply chain and actions taken	Building a sustainable supplier base, p. 32		8	

GRI Standard	Description	Related page	Omissions	Global Compact principle	SDG
Child labor					
408-1	Operations and suppliers at significant risk for incidents of child labor	Building a sustainable supplier base, p. 32		5	
Forced or compulsory labor					
409-1	Operations and suppliers at significant risk for incidents of forced or compulsory labor	Building a sustainable supplier base, p. 32		4	
Supplier social assessment					
414-1	New suppliers that were screened using social criteria	Building a sustainable supplier base, p. 32		2	12
414-2	Negative social impacts in the supply chain and actions taken	Building a sustainable supplier base, p. 32		2	
5. Development of our people					
	Management approach				
103-1	Explanation of the material topic and its boundary	Driving employee engagement, p. 33			
103-2	The management approach and its components	Driving employee engagement, p. 33			
103-3	Evaluation of the management approach	Driving employee engagement, p. 33			
	Topic-specific disclosures				
	Training and education				
404-1	Average hours of training per year per employee	Social data, p. 46	Vocational training by gender and employee category as well as training of blue-collar workers missing due to lacking data in the systems.	6	
404-3	Percentage of employees receiving regular performance and career development reviews	Social data, p. 46		6	
402-4	Programs for upgrading employee skills and transition assistance programs	Driving employee engagement, p. 33		1	
OWN	Employee engagement index	Driving employee engagement, p. 33			4
6. Equal opportunities and diversity					
	Management approach				
103-1	Explanation of the material topic and its boundary	Driving employee engagement, p. 34			
103-2	The management approach and its components	Driving employee engagement, p. 34			
103-3	Evaluation of the management approach	Driving employee engagement, p. 34			
	Topic-specific disclosures				
	Employment				
401-1	New employee hires and employee turnover	Social data, p. 44			
401-2	Benefits provided to full-time employees that are not provided to temporary or part-time employees	Social data, p. 45			
	Labor/management relations				
402-1	Minimum notice periods regarding operational changes	Social data, p. 44		3	

GRI Standard	Description	Related page	Omissions	Global Compact principle	SDG
	Diversity and equal opportunity				
405-1	Diversity of governance bodies and employees	Social data, p. 47			5
405-2	Ratio of basic salary and remuneration of women to men	Social data, p. 47	Data was not available by significant locations and about blue-collar workers		
7. Community involvement					
	Management approach				
103-1	Explanation of the material topic and its boundary	Responsible business practices, p. 28			
103-2	The management approach and its components	Responsible business practices, p. 28 Engaging with stakeholders, p. 28			
103-3	Evaluation of the management approach	Responsible business practices, p. 28			
	Topic-specific disclosures				
	Local communities				
413-1	Operations with local community engagement, impact assessments, and development programs	Responsible business practices, p. 29	Impact assessments and development programs not conducted. Regarding project sites, these are normally done by our customers.	1	11
413-2	Operations with significant actual and potential negative impacts on local communities	Responsible business practices, p. 29		1	
8. Stakeholder dialogue					
	Management approach				
103-1	Explanation of the material topic and its boundary	Engaging with stakeholders, p. 21			
103-2	The management approach and its components	Engaging with stakeholders, p. 21			
103-3	Evaluation of the management approach	Engaging with stakeholders, p. 21			
	Topic-specific disclosures				
102-43	Approach to stakeholder engagement	Engaging with stakeholders, p. 22			
102-44	Key topics and concerns raised	Engaging with stakeholders, p. 24			
9. Minimize our own environmental impact					
	Management approach				
103-1	Explanation of the material topic and its boundary	Environmental data, p. 38			
103-2	The management approach and its components	Environmental data, p. 38			
103-3	Evaluation of the management approach	Environmental data, p. 38			
	Topic-specific disclosures				
	Materials				
301-1	Materials used by weight or volume	Environmental data, p. 38		7, 8	

GRI Standard	Description	Related page	Omissions	Global Compact principle	SDG
	Energy				
302-1	Energy consumption within the organization	Environmental data, p. 38		7, 8	
302-3	Energy intensity	Environmental data, p. 39		8	
	Water				
303-1	Water withdrawal by source	Environmental data, p. 40		7, 8	
	Biodiversity				
304-1	Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas	Environmental data, p. 41			
304-2	Significant impacts of activities, products, and services on biodiversity	Environmental data, p. 41		13	
	Emissions				
305-1	Direct (Scope 1) GHG emissions	Environmental data, p. 40		7, 8	
305-2	Energy indirect (Scope 2) GHG emissions	Environmental data, p. 40		7, 8	
305-3	Other indirect (Scope 3) GHG emissions	Environmental data, p. 40		7, 8	
305-4	GHG emissions intensity	Environmental data, p. 41		8	
305-7	Nitrogen oxides, sulfur oxides, and other significant air emissions	Environmental data, p. 41	Only VOCs are reported as the other emissions are not relevant in our operations.	8	
	Effluents and waste				
306-2	Waste by type and disposal method	Environmental data, p. 42		8	
306-3	Significant spills	Environmental data, p. 42		8	

Independent Assurance Report – Outotec Sustainability Report 2017

TO THE MANAGEMENT OF OUTOTEC OYJ
Insinööritoimisto Ecobio Oy (hereafter Ecobio) has been commissioned by Outotec Oyj (hereafter Outotec) to perform a limited third party assurance engagement regarding the content of Outotec's Sustainability Report for 2017.

OUTOTEC'S RESPONSIBILITY
Outotec was responsible for the collection, preparation and presentation of the information in the Sustainability Report (hereafter Sustainability Information) according to GRI Sustainability Reporting Standards (GRI Standards) set up by the Global Reporting Initiative (GRI). Ecobio, as an independent assuror was not involved in the data gathering and preparation of the Sustainability Information, apart from the Independent Assurance. The Management of Outotec has approved the information provided in the Sustainability Report.

PRACTITIONER'S RESPONSIBILITY
Ecobio's responsibility was to present a conclusion on the Sustainability Information subject to the assurance performed by Ecobio.

The scope of work included assurance of completeness and correctness of information presented by Outotec in the Sustainability Report 2017. The assurance engagement was limited to the non-financial performance data disclosed in the Sustainability Report for the reporting period of January 1st 2017 to December 31st 2017.

The Sustainability Information assured covered the Standard Disclosures in accordance with the core level option, including the reported Environmental and Social Performance Indicators. In addition, the level of the consistency of the Economic Performance Indicators reported was checked against the GRI Standards.

Ecobio disclaims any liability or responsibility for any third party decision based upon this assurance report.

METHODOLOGY
Ecobio based the assurance process on the following guidelines and standards: the GRI Sustainability Reporting Standards, the International Standard on Assurance Engagements (ISAE) 3000 (Revised) Assurance Engagements Other than Audits or Reviews of Historical Financial Information and Outotec's internal reporting guidelines. The assurance process was performed utilizing Ecobio's internally developed GRI assurance tool, covering the principles, standard disclosures and indicators of the GRI Standards. The Standard Disclosures were assessed based on a sampling plan composed by Ecobio.

Concerning limited assurance engagement the evidence-gathering procedures are more limited than for a reasonable assurance engagement, and therefore less assurance is obtained. This assurance engagement was conducted from January 2018 to March 2018. The assurance process included:

- Interviewing employees responsible for data collection and reporting at Outotec's group level.
- Evaluating procedures for gathering, analyzing, and aggregating quantitative data for the Sustainability Report 2017 as well as performing cross-checks on a sample basis concerning the reported sustainability data.
- Checking the internal guidelines of the data collection.
- Checking the sufficiency of the documentation of the data gathering process.
- Checking the consistency of the Sustainability Report 2017 compared to the GRI Sustainability Reporting Standards.

CONCLUSIONS
Based on the work described in this report, nothing has come to our attention that would cause us to believe that the information presented in Outotec's Sustainability Report 2017 is not fairly stated, in all material respects, or that it would not comply with the Reporting Criteria stated before.

OBSERVATIONS AND RECOMMENDATIONS
Based on our limited assurance engagement we provide the following observations and recommendations related to GRI Sustainability Reporting principles. These observations and recommendations do not affect the conclusions presented earlier.

- In general, the report is comprehensive, well-structured and claims are reported in a clear and reasonable fashion.
- Outotec presents a good understanding of sustainable development conditions and the reported strategy and performance relate to the understanding of these conditions.
- The materiality assessment is comprehensive taking into account different dimensions of sustainability. The process for defining the report content could though be described more in detail.
- All relevant topics are covered in the report and a shift to a more focused content has been made during previous years. However, attention should be paid that if omissions are made they are clearly stated in the GRI content index.
- For upcoming years, it is recommended to further elaborate on the magnitude of Outotec's impact on specific phenomenon, which would improve the readers' understanding of Outotec's performance in the broader context of sustainability.
- Stakeholder dialogue is active and relevant topics are well identified. We recommend keeping an active dialogue with stakeholders to maintain a high level on inclusivity in future reporting periods and to ensure that also future reports responds to stakeholder expectations and interests.

- Outotec has made further progress on including the whole value chain within the reporting boundary, which is consistent with the work done during previous reporting periods. This could still be enhanced to even more comprehensively cover impacts outside the organization, as most of the impacts are identified to happen there. This would improve the completeness of the report.
- The documentation of the work processes and the internal guidelines for data gathering have been significantly improved over time. It is recommended for further development to continue with the implementation of the guidelines in the organization. It is important that the organization is aware of exiting internal guidelines to achieve a robust and consistent reporting procedure.

PRACTITIONER'S INDEPENDENCE AND QUALIFICATIONS

Ecobio is an independent consulting company that specializes in environmental, health and safety management with over 25 years of history. Ecobio provides corporate sustainability and environmental consultancy services, combined with training, modelling, research and planning, for companies in the infrastructure, industry and service sectors. Ecobio's assurers are skilled and experienced within non-financial assurance and have good knowledge of industry related sustainability issues.

As an independent consultancy, Ecobio has no financial dependencies on Outotec beyond the scope of this engagement. Ecobio has conducted this assurance independently, and there has been no conflict of interest.

Helsinki, 20th of March 2018
Insinööritoimisto Ecobio Oy

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Outotec

Outotec provides leading technologies and services for the sustainable use of Earth's natural resources. As the global leader in minerals and metals processing technology, we have developed many breakthrough technologies over the decades for our customers in metals and mining industry. We also provide innovative solutions for industrial water treatment, the utilization of alternative energy sources and the chemical industry. Outotec shares are listed on NASDAQ Helsinki. www.outotec.com