

# People & Planet Report 2017



# About this report

## The scope of this report

The scope of this report is Nokia Group, including Nokia's Networks business groups, Nokia Technologies, and Group Common and Other Functions in 2017. For an explanation of how we chose what to include in this year's report, please refer to the section on materiality.

As our environmental impact and our ability to manage it originate predominately from our Networks business, which represented 89% of our total sales in 2017, the 'Protecting the environment' and 'Responsible sourcing' sections focus on explaining the sustainability matters related to our Networks business. However, the numeric data regarding our facilities energy use, waste, and water include the whole Nokia Group. Employee related data presented throughout the report covers employees included in our central HR database, coverage of which was 97% in 2017.

Unless otherwise indicated or evident from the context, we generally provide information for the year 2017, with comparisons to the year 2016.

In trend reporting we use the term "Comparable combined company" when we refer to information including combined Nokia Group and former Alcatel-Lucent data prior to acquisition of Alcatel-Lucent in January 2016.

## Reporting frameworks and assurance

In our reporting, we are committed to expanding our transparency and our coverage. To help ensure compatibility with other organizations, our report is prepared in accordance with the Global Reporting Initiative GRI Standards, Core-option. Our report is also compliant with the advanced level of the UN Global Compact. The Global Reporting Initiative index is available as a separate PDF document at [www.nokia.com/sustainability](http://www.nokia.com/sustainability) and some key sustainability data is included as a separate chapter at the end of this report.

Our selected key sustainability indicators have been assured by an independent auditor of Nokia, PricewaterhouseCoopers Oy.

## Availability of this report

This report was published in May 2018 and it is only available in digital format. We have also published supplementary information related to this report online at [www.nokia.com/sustainability](http://www.nokia.com/sustainability). We have published annual corporate responsibility reports since 1999 and the reports are available in digital format on our website from as far back as 2003 at [www.nokia.com/sustainability](http://www.nokia.com/sustainability).

Sustainability and corporate responsibility topics are also discussed in our official annual reports, including the annual report on Form 20-F that is filed with the U.S. Securities and Exchange Commission in the United States\*. The Board Review of 2017 Annual

Accounts includes non-financial information as required for the first time by the Finnish Accounting Act implementing the EU Directive on disclosure of non-financial and diversity information. The reports are available at [www.nokia.com/investors](http://www.nokia.com/investors).

In addition to our own reports, we provide detailed information through various external reports. In 2017, we again reported our climate impacts to CDP – a leading global organization working with shareholders and companies to disclose the greenhouse gas emissions of major corporations. We answered the RobecoSAM questionnaire, which is used as the basis for the Dow Jones Sustainability Indices, and we answered the EcoVadis evaluation which our customers use to evaluate our sustainability performance.

\* Financial and operational information in this report should be read in conjunction with the information provided in our interim reports and annual financial reports, as well as the risk factors and forward-looking statements included in such reports.

## Your feedback

We welcome your views and questions on our activities and our performance. If you would like to share your opinions, please contact us at [global.sustainability@nokia.com](mailto:global.sustainability@nokia.com)

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# Nokia today

We create the technology to connect the world. Powered by the research and innovation of Nokia Bell Labs, we serve communications service providers, governments, large enterprises, and consumers, with the industry's most complete, end-to-end portfolio of products, services, and licensing.

We adhere to the highest ethical business standards as we create technology with social purpose, quality and integrity. Nokia is enabling the infrastructure for 5G and the Internet of Things to transform the human experience.

# Nokia today

We are enabling the infrastructure for 5G and the Internet of Things, and shaping the future of technology to transform the human experience.

We are a leader in mobile and fixed network infrastructure with the software, services, and advanced technologies to serve customers in approximately 130 countries around the world. We are driving the transition to smart, virtual networks and connectivity by creating one single network for all services, converging mobile and fixed broadband, IP routing and optical networks, with the software

and services to manage them. Our research scientists and engineers continue to invent new technologies that will increasingly transform the way people and things communicate and connect.

## Our presence and employees in 2017

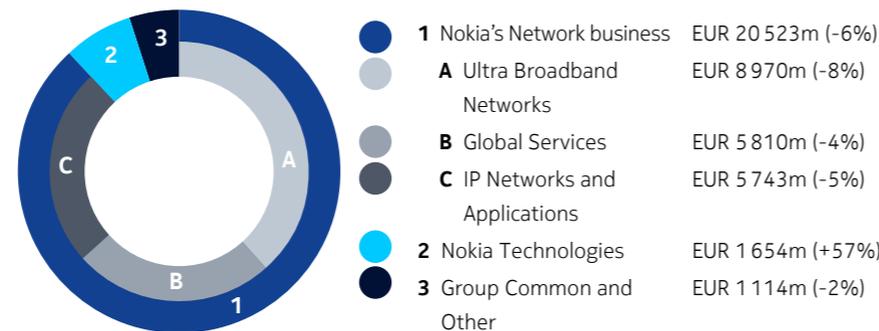
We have six business groups, with operations in Europe, the Middle East & Africa, Greater China, North America, Asia-Pacific, and Latin America. At the end of 2017, we employed approximately 103 000 people, out of which more than a third worked within our research and development (R&D) in Europe, North America, and Asia. On 31 December 2017, we had eight manufacturing facilities globally: one in Brazil, two in China, one in Finland, two in France, one in Poland, and one in India.

We closed 2017 delivering net sales of EUR 23.1 billion. We continued to make significant targeted R&D investments, a bedrock of our success in innovation, with R&D expenditures equaling EUR 4.9 billion in 2017.

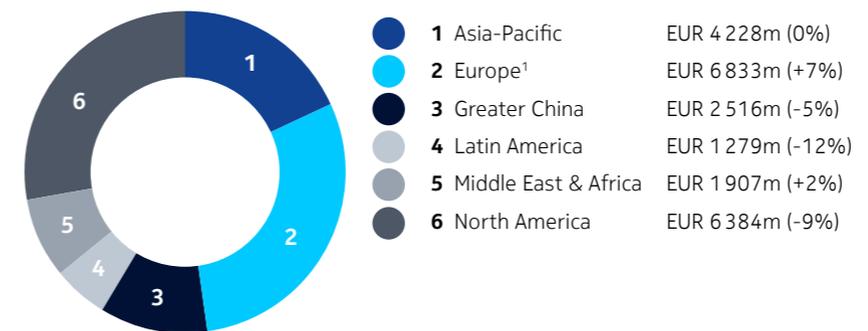
## Organizational structure and reportable segments

We have organized our networks-oriented businesses into five business groups: Mobile Networks, Fixed Networks, Global Services, IP/Optical Networks, and Nokia Software, formerly known as Applications & Analytics (together the “Networks business”); and have kept our driver of future innovation and licensing, Nokia Technologies, as a separate, sixth business group. For more information see our financial report at [www.nokia.com/investors](http://www.nokia.com/investors).

Net sales by business 2017

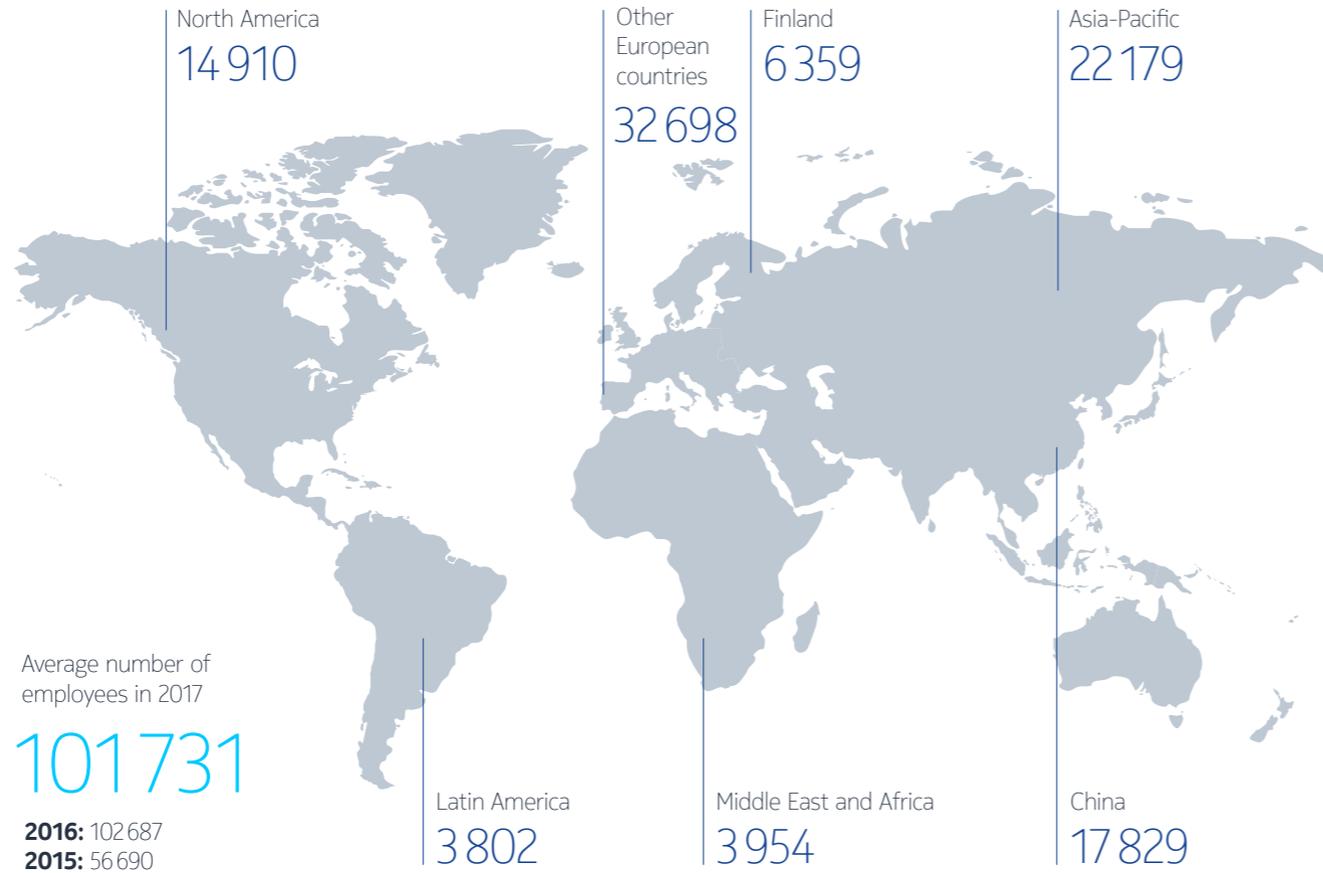


Net sales by region 2017



<sup>1</sup> All Nokia Technologies IPR and Licensing net sales are allocated to Finland.

Average number of employees by region 2017



The infographic shows the average number of employees in 2017 divided according to their geographical location.

Ten biggest Nokia countries by number of employees

Country	%employees*
China	16%
India	16%
USA	12%
Finland	6%
Poland	6%
France	5%
Germany	4%
Russia	3%
Canada	2%
Hungary	2%

\* At year-end 2017

# Our approach

Our sustainability vision remains to create the technology to connect the world, in a responsible way. Together.

## Letter from the President and CEO

We are at the dawn of a new era. Digital technologies – cloud computing, artificial intelligence, machine learning, the Internet of Things, and soon, 5G networks – are changing the way we live and work in countless ways.

Technology and solutions from Nokia will help power this digital future, and we are excited about the possibilities. We also recognize that we have the opportunity as well as responsibility to apply technology in ways that enhance people's lives and, more broadly, advance humanity.

Today, we continue to focus our social responsibility activities on four key areas: improving lives with technology; protecting the environment; conducting business with integrity; and respecting our people.

As we report our progress in these areas, we generally look to measure ourselves against globally recognized standards. In 2017 we continued to strengthen our contribution to the United Nations Sustainable Development Goals, supporting the UN Global Compact's principles and assessing our performance against its advanced level principles.

I am also proud to note that last year we became the first telecom vendor to have our science-based

emissions targets accepted by the Science Based Targets initiative. We also took a board seat on the Global Network Initiative as part of our efforts to foster discussion around the role of technology in protecting human rights, freedom of expression and privacy.

### Improving lives with technology

With the world's first commercial 5G networks expected to go live this year, the much-anticipated fourth industrial revolution is finally coming into view. With it comes the promise of tremendous productivity gains, economic growth and better quality of life – but we must be diligent about ensuring everyone has access to these opportunities.

Through our investments in communities and our collaborations with charitable organizations worldwide, we focus on using technology to make our world smarter, safer and more sustainable. We launched major collaborations last year that focused on issues such as increasing access to health care, expanding educational opportunities and inspiring women and girls to pursue careers in science, technology, engineering and mathematics (so-called STEM careers).

A great example is our partnership with UNICEF to support the rollout of an innovative mobile app in Indonesia that delivers critical information to health care providers and those who care for young children. The app has helped increase access to health care and has played a part in the success of the nation's largest immunization campaign.



Overall, our social investments grew by 36 percent from the previous year and directly reached more than 254 000 people.

### Protecting the environment

Energy efficiency is an important focus. Every year we replace or modernize a large number of base-station sites for our customers globally. On average, the upgraded base-station units used 44 percent less energy than the ones they replaced last year. With more than 400 000 sites, that amounts to significant energy savings.

More recent innovations from Nokia Bell Labs hold even greater promise. The Nokia ReefShark chipset, a powerful innovation for 5G and 5G-ready base stations that will be deployed widely later this year, is capable of reducing power consumption in our radio baseband units by more than 60 percent.

Improvements such as these are essential, both for helping our customers manage network operating costs and for mitigating the carbon impact associated with increased network capacity and traffic in the 5G era.

### Conducting business with integrity

This People & Planet Report reflects our commitment to maintaining a high degree of transparency in how our work affects the world around us, as well as our far-reaching efforts to ensure we operate in an ethically and socially responsible manner. Alongside the work we do, I believe the depth and transparency of our reporting is a key reason why we have consistently been selected for many of the highest honors in social responsibility. They include being named one of the World's Most Ethical Companies by the Ethisphere Institute, an organization that advances and measures corporate ethical standards and performance.

It is always our aim to ensure the technologies we provide are used to respect – rather than infringe upon – human rights. In addition to our own code of conduct, which guides our day-to-day business activities, we work with our suppliers, others in the telecom industry and outside organizations to help identify and address threats to, and abuses of, human rights.

As one recent example, we committed to undergo external assessments by the Global Network Initiative to confirm that we continue to make best-faith efforts to implement the GNI Principles, which support privacy

and freedom of expression online. We also released our first modern slavery report in 2017, in line with the UK's Modern Slavery Act.

### Respecting our people

We want Nokia to be a great place to work, a company that attracts the best talent around the world, and one in which the culture empowers innovation and individual growth.

As a global company, we value the diversity of our people and promote inclusion for all in the workplace. However, this is one area where we and many in our industry still have much work to do, particularly when it comes to achieving gender balance.

Our ambition is to have a gender balance that reflects the world around us, and a workplace where both men and women have an equal opportunity to succeed in every function and at every level. We are sharply focused on improvements in this area, which include a program to identify 50 women leaders and provide them with additional development opportunities. Our work here is spearheaded by our Gender Balance Steering Committee, which is covered in more detail in this report. In addition, last year I signed a letter of cooperation with UNESCO, committing Nokia to promote gender equality, women's empowerment and women's leadership.

Overall, our employees' perceptions of our strategy, work environment and culture have steadily improved over the past two years, as reflected in our internal surveys. We know that we can always do better, and

we continue in our efforts to strengthen employee engagement and communication through a variety of channels.

While on the subject of doing better, I also want to express our regret for the five Nokia subcontract workers who lost their lives last year, four in traffic accidents and one as a result of a fall. Despite consistent progress in reducing injuries and fatalities, we believe any serious injury while working for Nokia is unacceptable, and we continue to work hard to ensure those carrying out work on our behalf receive the proper training, equipment and supervision to avoid accidents.

### Connecting the world

We like to say Nokia creates the technology to connect the world. But for us, this is much more than a slogan. It is a mission statement, an expression of the intrinsic value that our work creates. It is our core belief that technology's greatest social benefits stem from its power to make life better, to give people more time and freedom to connect with each other and the things they enjoy.

We are optimistic about the future and the potential of digital technologies to ignite a new era that will not only bring greater business opportunities for our company and others in our industry, but also personal, social and economic benefits for people everywhere.

Warm regards,  
**Rajeev Suri**  
Nokia President and CEO

# Sustainability highlights in 2017

We are proud of our achievements and the positive difference our people make every day...

- ✓ In our efforts to contribute reducing the effects of climate change, we became the first telecoms vendor to set and have accepted our science based targets with the Science Based Targets Initiative. We have set the long-term target of reducing emissions from our operations by **41%** by 2030, and we target to reduce scope 3 emissions – emissions from customer use of our products, by **75%** by 2030, both targets against 2014 baseline year.
- ✓ We were proud to be honored by the Ethisphere Institute as one of 2018's World's Most Ethical Companies. We were again included in the Dow Jones Sustainability Indices (World and Europe), as Sector leader in CMT Communications Equipment sector, scoring **82/100**. In CDP climate change we achieved -A status.
- ✓ We continued to help our customers reduce their energy use and emissions, delivering zero emission products to more than **120** customers around the world and modernizing customer base-station sites which as a result used on average **44%** less energy (43% in 2016) than those where our customers did not modernize.
- ✓ As part of our engagement on human rights, we were delighted to join the board of the Global Network Initiative (GNI) as a full member and as the first and only telecommunications equipment provider in March 2017.
- ✓ We continued to work hard on transparency in our supply chain, increasing our work with suppliers, while also promoting broader dialog on the role of digital technology in combatting modern slavery in the supply chain. We had **71%** of suppliers on EcoVadis with a satisfactory performance score. In environmental issues, **153** of our suppliers also had emission reduction targets in place.
- ✓ In 2017, around **254 100** lives were improved through our corporate community investment programs, and cumulatively between 2016–2017, around **1 122 400** people have already benefitted from our programs.
- ✓ In our own operations, we reduced our total energy consumption by **3%** and water consumption by more than **14%**. We also utilized **80%** of waste from our buildings. Additionally, **20%** of our electricity came from renewable sources, which contributed to reducing our total facility related carbon emissions by **4%**.

# Sustainability challenges in 2017

We need to work harder on the challenges we face...

- ✓ In 2017 there were 4 fatal incidents in our subcontractor work, resulting in 5 fatalities. 4 were related to traffic accidents and 1 was related to work at height. We must continue to ensure that those carrying out work on behalf of our company receive the training, equipment and supervision necessary to avoid such incidents. Any such serious incidents while working for Nokia are unacceptable.
- ✓ We have zero tolerance for the use of forced or child labor, or any form of modern slavery. In 2018 we will be re-doubling our efforts to work even more closely with our customers and our supply chain to increase transparency, training and collaboration so that deviations, such as the 3 labor-related cases in our supply chain explained in this report, are not repeated.
- ✓ As part of our environmental management system, we transferred to the new standards version ISO 14001:2015, and the current coverage of sites under certification is 52%. The percentage of all employees covered by the certification is higher, as many of the non-certified sites are small ones with low employee numbers.
- ✓ Although we have put in place a strong 5-year plan of action to enable improvements in gender balance both in our company and in the industry, we still need to do more to achieve a workplace that reflects the gender balance of the outside world.

## Our sustainability priorities and impacts

We aim to create a more sustainable world through our core business of connectivity and related activities, and we do this in a responsible way. We invent, design, and deploy sustainable technologies that make a real difference to people's lives, and take responsibility for the impact we can make in the world.

We can have the greatest impact on sustainable development and help to achieve the UN Sustainable Development Goals through the technology solutions and innovations we produce, that connect people and things. Technology opens up a world of greater efficiency and opportunity, access to better health care and education, and more efficient use of natural resources for a more sustainable, safer planet. Technology connects the unconnected.

Sustainability is a journey which we know we cannot make alone and we continue to drive for multi-stakeholder collaboration and cooperation to achieve a healthier, more ethical world providing opportunity for all.

### Global macro trends impacting our sustainability approach

Based on our analysis, the key trends impacting our sustainability approach remained the same: the human

potential of technology, the increased importance of privacy and data security, the demand for high ethics and transparency, climate change and sustainable use of natural resources, and the importance of attracting and retaining talent. However, certain new developments have increased the impact of these.

#### The human potential of technology

Our strategy reveals the following global technology related megatrends: Network, compute, and storage, Internet of Things, augmented intelligence, human and machine interaction, social and trust economics, and digitalization and ecosystems.

We are well positioned to support efforts to address many of the global challenges on the UN Sustainable Development agenda through our technology expertise, and by connecting things as well as people.

Our networks customers serve billions of subscriptions worldwide. This connectivity provides tremendous opportunities as it enables greater both productivity and economic growth. It will also play a key part in reducing carbon emissions. The programmable world will bring further benefits, including better use of scarce resources, greater human wellbeing, improved health and wellness, reduced environmental damage, new business opportunities and greater efficiency.

As we move into the Fourth Industrial Revolution and the digital transformation of life as we know it, the risks of this new era are also in ongoing discussion. The social issue related to technology will start to heat up: automation and jobs, role of AI and smart phones impact on interaction and society.

#### Privacy and data security

While connectivity brings many benefits, we can see growing concerns around the issue of privacy as more and more sensitive and personal data is transmitted over networks. Concerns about data security increase with the billions of new devices that will be connected in IoT. As a leading digital company, getting privacy right is critical for us.

#### High ethics and transparency

Corruption, unethical behavior, and a lack of respect for human rights and fair labor conditions are major obstacles to development in many countries. Calls for greater transparency and increased integrity are growing in step with increased regulation. Regional and country regulation on non-financial sustainability related disclosure is also increasing. By upholding high standards of ethics and human rights in our own activities and throughout our value chain, we can be part of a positive solution. Neglecting these issues would present a major risk for our reputation and our business. We believe our technology can help drive greater transparency and efficiency for other institutions.

#### Climate change and sustainable use of natural resources

Climate change and its effects are perhaps one of the biggest global challenges we face, and much is debated regarding decoupling economic growth from global emissions. Climate change and sustainable management of resources have a medium and long-term impact on our business as their effects are wide-ranging, from inhibiting global economic development and increasing the risk of natural disasters, to

contributing to rising energy prices and leading to changes in regulations. There is also opportunity for technology companies. While minimizing impacts from our own operations, we also have the opportunity to help our customers meet the growing demand for communications in an environmentally sustainable way. We do this by designing and delivering products and services that are more energy efficient, encouraging the use of renewable energy, and helping our customers support the circular economy.

**Attracting and retaining talent**

Successful companies are able to attract, keep, and motivate the best talent. Skilled, engaged employees have a direct impact on our business success, which is why we want to create a great place to work for all our employees. The role of sustainability has increased in importance amongst employees, especially the younger generation who are keen to work for companies with a higher purpose.

**Our priorities**

Based on the results of our materiality assessment (see [page 14](#)) of the key issues related to sustainability, we have grouped our sustainability activities under the following priorities:

- Improving people’s lives with technology
- Protecting the environment
- Conducting our business with integrity
- Respecting our people in everything we do

We enable these activities by making change happen together through multi-stakeholder cooperation. These continued priorities have been reviewed by our Chief Executive Officer and the Leadership Team.

**Improve people’s lives**

Create and deliver technology solutions and products that connect people and things. Our sustainability related products and services will help people thrive and live better and healthier lives on a cleaner planet.



**Protect the environment**



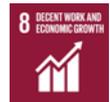
- Help customers reduce energy use and emissions
- Increase product energy efficiency, Develop product eco-design, and manage materials
- Reduce environmental impact of our operations (emissions, waste, resources)

**Conduct our business with integrity**



- Uphold the highest principles of business ethics and corporate governance
- Tackle issues related to privacy, data security, and potential technology misuse
- Ensure suppliers meet our high ethical, labor, and environmental standards

**Respect our people**



- Provide fair and just labor conditions in own operations
- Maintain health & safety as a priority
- Foster employee satisfaction, engagement, and development
- Strive for greater diversity, inclusion, and anti-discrimination

**Make change happen together**

Engage actively with our stakeholders to contribute to global efforts towards a more sustainable, socially responsible world



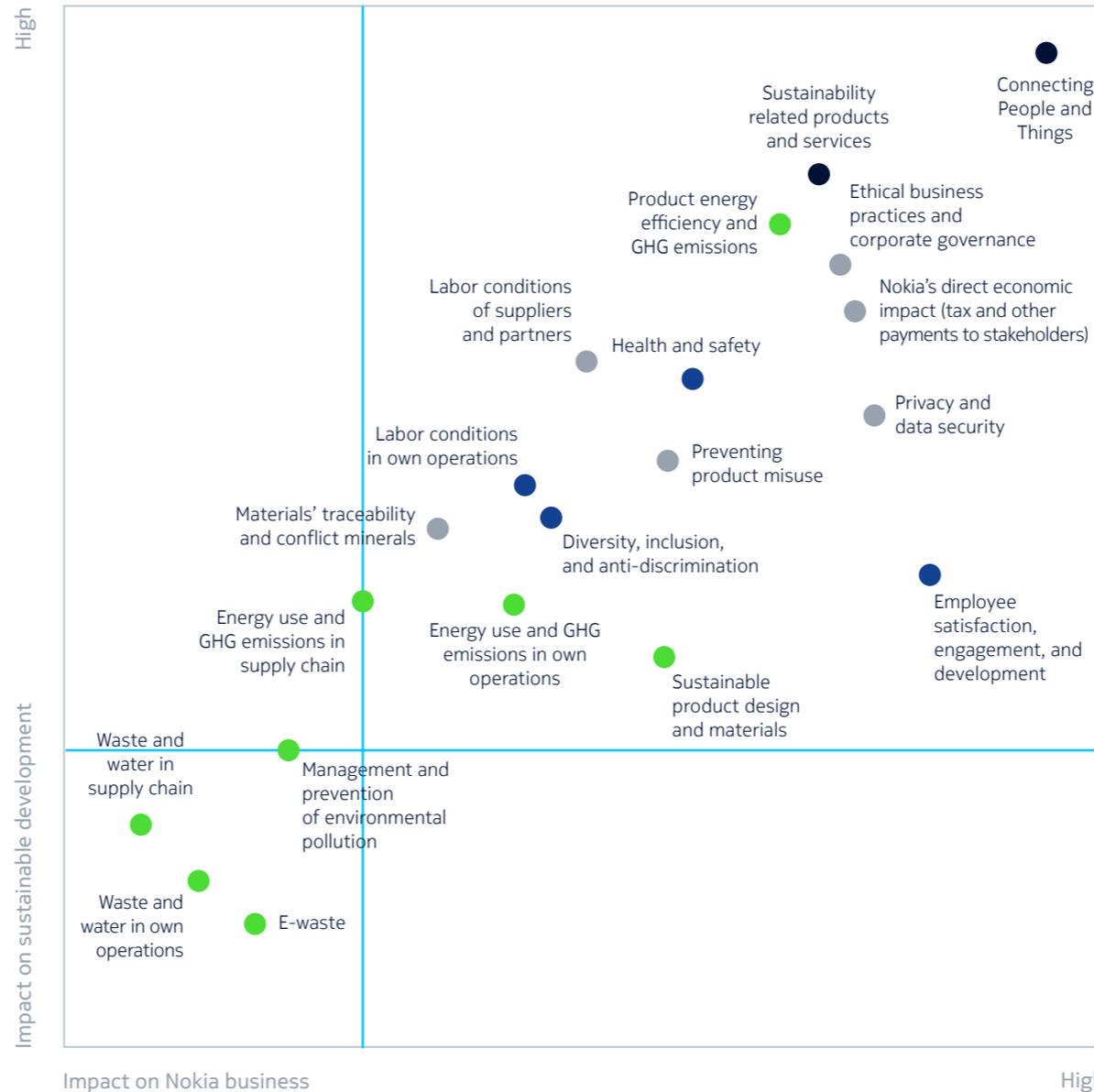
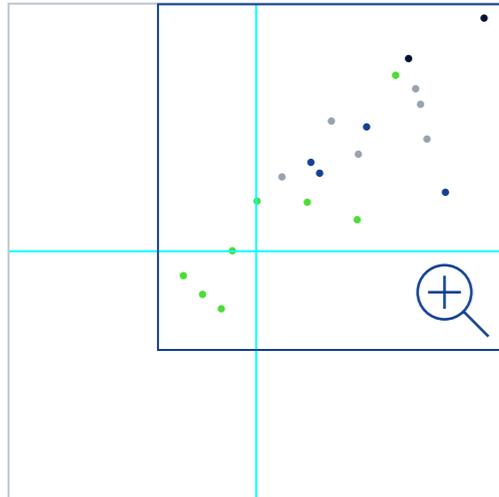
To demonstrate our strong commitment to sustainable business, we published 46 sustainability targets in 2017. All new targets are fully aligned with both the UN Sustainable Development Goals and our most material issues. Our targets and their current status are reported on [pages 16–27](#).

**Materiality**

We continue to focus our corporate responsibility activities on the most material topics in relation to our

business and the impact on sustainable development. We identify our material topics based on a combination of the factors which include our strategy and vision, risks and opportunities, feedback from stakeholder interaction, customer requirements, both macro and market trends, international sustainability frameworks, and the UN Sustainable Development Goals. In 2017, we also analyzed the shared value of our activities in terms of people, planet and our company.

# Our sustainability: Impact on business success & sustainable development



- Improving lives with technology
- Protecting the environment
- Respecting our people
- Conducting our business with integrity

All the topics shown in this diagram are important in our responsibility work. Those in the top right corner of the diagram are most important to our business and sustainable development.

At the beginning of 2017, we finalized the review and update of our materiality analysis, completing interviews with a broad range of stakeholders, both internal and external. The analysis was reviewed in Nokia Responsibility Council, Board of Directors, and by external sustainability experts.

Based on the outcomes of the assessment and review, we concentrated our efforts on the benefits of connectivity and sustainable products, environmental impact and climate change challenges. We work hard to ensure ethical business practices and support the increasing need for data privacy and freedom of expression, supply chain responsibility and transparency, health & safety, and employee engagement as well as increased diversity.

During the second half of 2017 we also further analyzed our economic, social and environmental value creation, enhancing our key material topics (see next page). The materiality map shows the 20 most material topics, and their relevance to sustainable development and our business success.

For more details on aspects of our materiality, as well as key business and sustainability drivers, visit [www.nokia.com/en\\_int/about-us/sustainability/our-approach/materiality-and-value-creation](http://www.nokia.com/en_int/about-us/sustainability/our-approach/materiality-and-value-creation)

# Our impact and influence on sustainable development throughout the value chain

○ Positive impact   
 ○ Negative impact   
 ○ Areas where we believe we have the largest opportunity to influence



## Value creation

In recent years, a variety of stakeholders have become increasingly interested in understanding the overall quantified positive and negative impacts of companies on the environment, the economy, and society.

We have been one of the forerunners in this value creation thinking. For example, we participated in Aalto University CEMS program in Finland, which carried out an extensive analysis of Nokia’s positive and negative social, environmental, and economic impacts throughout the value chain in terms of monetary value, to the extent possible. We also presented some of our value chain impact analysis in our previous People & Planet reports. Moreover, the conclusions of our materiality analysis and sustainability related risks and opportunities in our enterprise risk management system are also to some extent based on the analysis of our positive and negative impacts in terms of monetary value.

In 2017, we joined The Upright Project which develops value creation analyses and related methodology in cooperation with several companies and organizations.

In the Upright model, the negative and positive value creations with monetary values are analyzed and shown in 5 main dimensions: economic, environmental, health, social and knowledge. Each of these dimensions are divided into several impact areas. To learn more about this project go to [www.nokia.com/en\\_int/about-us/sustainability/our-approach/materiality-and-value-creation](http://www.nokia.com/en_int/about-us/sustainability/our-approach/materiality-and-value-creation)

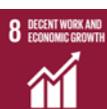
## Our sustainability targets and performance

In May 2017, we published our achievements against 25 targets in our 2016 People & Planet sustainability report online and also shared our 46 sustainability targets, including for the first time 22 long-term targets covering the period 2017 through to 2030. The below table provides the status of those 46 targets, including a short description on the related performance and achievements for each. We also specifically set and received acceptance of our science based targets on carbon emissions both for our products in use and for our operations. We were the first major telecoms vendor to set these targets, showing our true commitment to take action in the fight against climate change.

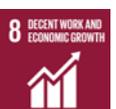
By the end of 2017, of the 46 long term and short term targets:

- 10 targets for 2017 were achieved and 3 were not achieved. 1 target for 2018 was achieved ahead of schedule in 2017.
- 28 of the 32 longer term targets were ongoing/on track, while 4 were ongoing/not on track.
- We also set 10 new targets for 2018 and beyond.

# Our commitments, targets, and performance

Priority area	Material topic	Targets	Achievements 2017	Status
<b>Improving people's lives with technology</b>                 	Connecting People and Things	<b>2022</b> Helping our customers to connect the next billion measured by number of subscriptions in Nokia radio customers' networks and by number of fixed network lines shipped to our customers.	At the end of 2017, the radio networks we delivered to our customers served around 5.7 billion subscriptions worldwide, compared to around 5.5 billion at the end of 2016. <b>✓ Assured</b>	 On-going – on track
	Sustainability related products and services	<b>2018</b> 3-4 Nokia Saving Lives solution kits provided and supported by Nokia and used by selected partner organizations in the humanitarian field proving that Nokia technology save lives.	By the end 2017, Nokia Saving Lives approach and solution is being showcased and receiving strong interest from humanitarian actors and from authorities in charge of disaster preparedness and support. The technical solution is progressing and first deployment is planned now for Summer 2018. Given the innovative use of technology introduced by Nokia Saving Lives and the need of collaborating with humanitarian actors, local operators and volunteers from Nokia the target number of deployed systems has been adjusted to 2-3 solutions deployed for 2018.	 On-going – not on track
	<b>NEW target 2018:</b> 2-3 Nokia Saving Lives solution kits provided and supported by Nokia and used by selected partner organizations in the humanitarian field proving that Nokia technology save lives.	<b>2025</b> Improve the life of 2 000 000 persons through our corporate and key regional community investment programs (baseline 2016) focusing our action on gender balance, education and health and on how Nokia products and services improve people's lives.	In 2017, around 254 100 lives were improved through our corporate and key regional community investment programs. Since baseline, already around 1 122 400 people have benefitted from our programs. <b>✓ Assured</b>	 On-going – on track

# Our commitments, targets, and performance

Priority area	Material topic	Targets	Achievements 2017	Status
<b>Improving people's lives with technology</b>                 	Sustainability related products and services	<b>2018</b> Ensure participation of all Nokia employees in corporate health programs to reduce the incidence of Cardio Vascular Disease.	We organized three wellness challenges this year. Program was made available to all employees. 15 000 smart health devices were ordered to track their health. Over 5 000 people participated in our programs.	 On-going - on track
		<b>2020</b> Support the extension of remote patient monitoring of chronic diseases, by rolling out patient care solutions using Nokia devices to over 100 000 patients.	Nokia released a HIPAA compliant remote monitoring platform this year (2017) for chronic diseases. The B2B Nokia Care unit sold 50 000 devices this year (2017), with half used for patient remote monitoring (by third party platforms today mostly).	 On-going - on track
		<b>2020</b> Reduce the rate of uncontrolled hypertension from an average 50% of hypertensive adults to less than 10% among the Nokia wireless blood pressure user community.	25% of our users have high blood pressure in the U.S. (that is uncontrolled blood pressure), against 50% on average according to CDC statistics (As can be seen at <a href="#">Nokia Health Observatory</a> .)	 On-going - on track
		<b>2020</b> Ensure integration of data from smart health devices into all major electronic health records accessible to doctors.	Our devices are integrated with major EHRs (Electronic Health Records) including EPIC, Ocshner, Allscripts (companies mostly in the U.S.).	 On-going - on track

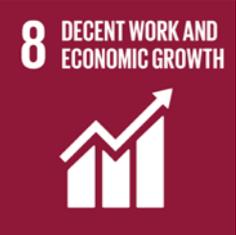
# Our commitments, targets, and performance

Priority area	Material topic	Targets	Achievements 2017	Status
<b>Protecting the environment</b>     	Product energy efficiency and GHG emissions	<b>2030</b> GHG reduction 75% compared to 2014 (scope 3, use of sold products) (This target is accepted by Science Based Target initiative)	Scope 3 emissions included in SBT are on target <b>✓ Assured</b>	 On-going - on track
	Energy efficiency and GHG emissions in own operations	<b>2017</b> Achieve at least 20% utilization of renewable electricity, as compared to total purchased electricity.	20% of our total purchased electricity was from renewable sources <b>✓ Assured</b>	Achieved
		<b>NEW target 2018:</b> Achieve at least 25% utilization of renewable electricity, compared to total purchased electricity		
		<b>2017</b> Achieve a total facility energy usage reduction of 1.8%, as compared to 2016 levels (Scopes 1+2)	Our total energy consumption across our facilities decreased by 3% as compared to 2016 <b>✓ Assured</b>	Achieved
		<b>NEW target 2018:</b> Achieve a facility electricity usage reduction of 3%, compared to 2017 level		
		<b>2030</b> GHG emission reduction of 41%, as compared to the 2014 baseline level (Scopes 1+2). (This target is accepted by Science Based Target initiative)	Scope 1&2 emissions included in SBT are on target <b>✓ Assured</b>	 On-going - on track
<b>NEW target 2018:</b> GHG emission reduction of 1.8% from facilities, compared to 2017 level (Scopes 1+2)				

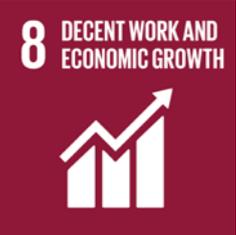
# Our commitments, targets, and performance

Priority area	Material topic	Targets	Achievements 2017	Status
<b>Protecting the environment</b>     	Energy use and GHG emissions in supply chain	<b>2018</b> 150 suppliers setting emission reduction targets  <b>NEW target 2020:</b> 180 suppliers setting emission reduction targets	This was already achieved in 2017. 153 of our suppliers had emission reduction targets in place. ✓ <b>Assured</b>	 Achieved
		<b>2018</b> 90 dedicated one-to-one reviews with suppliers, collaborative emission reduction projects.	The one-to-one reviews of suppliers emissions data is done in collaboration with CDP. By the time of issuing of this report 51 of our suppliers have registered for the feedback session.	 On-going – on track
	Waste and water in own operations	<b>2017</b> Reduce the water use in our facilities by 2% compared to 2016 level  <b>NEW target 2018:</b> Reduce the water use in our facilities by 2% compared to 2017.	Water use decreased by 14% compared to 2016 ✓ <b>Assured</b>	 Achieved
		<b>2017</b> Establish a new baseline and related targets for waste reporting on account of changed waste reporting scope.	New Facilities Waste Management Guidelines were published and measurement accuracy was improved.	 Achieved
	Waste and water in supply chain	<b>2018</b> Deployment of non-carbon related projects with suppliers	In 2017 we shared awareness on waste reduction practices. In 2018 we will initiate a pilot program on water consumption in collaboration with CDP.	 On-going – on track
	Sustainable product design & materials	<b>2017</b> Eliminate PVC from Nokia products, where technically, economically, and environmentally feasible.	PVC was eliminated in Nokia products where suitable alternatives were available. Remaining PVC used predominantly in mature/older products where either flammability or price is a key issue.	 Achieved

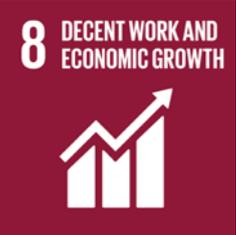
# Our commitments, targets, and performance

Priority area	Material topic	Targets	Achievements 2017	Status	
<b>Conducting business with integrity</b>  	Ethical Business Practices and Corporate Governance	<b>2017</b> Set the baseline based on new Culture Cohesion question “Does your line manager periodically talk with you and your team members about the importance of ethics and compliance?”	In 2017, the average score for this question, across the two rounds, was 72% favorable.	 Achieved	
		<b>2020</b> Employee/Line Manager engagement on importance of ethics and compliance. 75% favorable answers targeted.		 On-going – on track	
		<b>2030</b> Employee/Line Manager engagement on importance of ethics and compliance. 85% favorable answers targeted.			
		<b>2017</b> Ethical Business training (EBT) completion: 95%		In 2017 the result for EBT completion stood at 86% of our employees. ✓ <b>Assured</b> This was below the target. We will continue to work hard to improve this.	 Not achieved
		<b>New target 2018:</b> EBT completion: 95%			
<b>2020</b> EBT completion: 98%			 On-going – on track		
<b>2030</b> EBT completion: 100%					

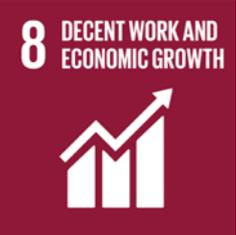
# Our commitments, targets, and performance

Priority area	Material topic	Targets	Achievements 2017	Status
<b>Conducting business with integrity</b>  	Privacy and Data Security	<b>2017</b> Nokia has approved company-wide security baseline requirements. Plans for the deployment of both security and privacy requirements to all businesses and product programs will be in place and underway.	We achieved this target providing ourselves with a solid foundation to fulfil our 2020 target to be recognized as an industry leader in security and privacy.	 Achieved
		<b>2020</b> Our aim for 2020 is that Nokia be recognized as an industry leader in security and privacy. This will be assessed through external benchmarking.	Our activities in 2017 provide us with the foundation to achieve this target.	 On-going – on track
	Preventing product misuse	<b>2017</b> Conduct a formal Human Rights Impact Assessment for the new Nokia product portfolio with an externally verified expert.	The Human Rights Impact Assessment project was moved to 2018 to align it with GNI self-assessment. Work is currently ongoing.	 Not achieved
		<b>NEW target 2018:</b> Conduct a formal Human Rights Impact Assessment for the new Nokia product portfolio with an externally verified expert.		
		<b>2018</b> Successful completion of the first GNI assessment	Target reset. We will complete the GNI Assessment in 1Q/2019 as per decision made by the GNI Board in 10/2017.	 On-going, -not on track
		<b>NEW target 2019:</b> Successful completion of the first GNI assessment		
<b>2020</b> Nokia as externally recognized leader in vendor related issues in freedom of expression & right to privacy according to external benchmarking e.g. Ranking Digital Rights.	During 2017, with an aim to further increase transparency and dialog, we published more HRDD cases around the issue of dual use. We also began internal work on impact assessment as we work towards this 2020 target.	 On-going – on track		

# Our commitments, targets, and performance

Priority area	Material topic	Targets	Achievements 2017	Status
<b>Conducting business with integrity</b>  	Nokia's direct economic impact – Tax & other payments to the stakeholders	<b>2017</b> We will disclose country specific information to the tax authorities regarding 2016 according to the new reporting requirements (so-called country by country reporting within the framework of OECD BEPS action 13).	Large multinationals are obliged to disclose country-specific information to the tax authorities (so called country by country reporting within the framework of OECD BEPS action 13). We are compliant with the new reporting requirements.	 Achieved
	Labor conditions / suppliers & partners	<b>2020</b> Comprehensive supplier sustainability risk mitigation (90% of Suppliers assessed with Satisfactory Sustainability Score and 100 on-site audits conducted per year).	71% achieved a satisfactory EcoVadis score in 2017 and we conducted 72 audits. <b>✓ Assured</b>	 On-going – on track
		<b>2020</b> Establish supplier worker empowerment program (enabling trainings on NokiaEDU and Worker Tollfree Helpline).	Ongoing: no major progress in 2017, increased actions planned for 2018.	 On-going – on track
	Materials traceability and conflict minerals	<b>2018</b> Achieve full traceability to the smelters in our supply chain and their conflict-free status (Mobile Networks).	90% of our suppliers have achieved full visibility to the smelters in our supply chain.  83% of smelters identified as part of Nokia Corporation's supply chain were validated as conflict-free or are active in the validation process.* <b>✓ Assured</b>	 On-going – not on track
		<b>2020</b> Achieve full traceability to the smelters in our supply chain and their conflict-free status (Nokia Corporation).		 On-going – on track
				* The same traceability percentage is valid also for Mobile Networks

# Our commitments, targets, and performance

Priority area	Material topic	Targets	Achievements 2017	Status
<b>Conducting business with integrity</b>  	Health, Safety, and Wellbeing	<b>2017</b> 80% of all suppliers delivering high risk activity to be requalified using Nokia H&S Supplier Maturity Assessment Process.	975 suppliers delivering high-risk activity were assessed by our H&S Maturity Assessment Process and 81% of assessed suppliers met “H&S compliant supplier”-status. (Compliant=3/5 scores) <b>✓ Assured</b> Over 90% of suppliers delivering high risk activities were covered by H&S Maturity Assessments	 Achieved
		<b>2018</b> 100% of all suppliers delivering high risk activity to be assessed using Nokia H&S Supplier Maturity Assessment Process .	By end of 2017, over 90% of suppliers delivering high risk activities were covered by H&S Maturity Assessment.	 On-going – on track
		<b>2020</b> 50% of suppliers delivering high risk activity to meet or exceed “H&S preferred supplier” status.	We have an active program on-going, please see comments on 2030 and 2017 targets.	 On-going – on track
		<b>2030</b> 100% of supplier delivering high risk activity to meet or exceed “H&S preferred supplier” status.	We are first focusing on getting 100% of suppliers to “compliant”-level (score 3/5; 81% of covered suppliers in 2017) and concentrating then gradually to “preferred”-level (score 4/5)).	 On-going – on track

# Our commitments, targets, and performance

Priority area	Material topic	Targets	Achievements 2017	Status
<b>Respecting our people in everything we do</b> 	Employee satisfaction, Engagement, and Development	<b>2020</b> 90% employee engagement  Due to changed measurement of employee engagement, we discontinue to track progress against the % employee engagement.	In 2017, we continued to measure the favorability of employee perceptions across a wide variety of topics about company and culture with an anonymous employee survey (CCT). The result rose from 76% to 80% favorability towards the company. CCT has following two target questions: <ul style="list-style-type: none"> <li>• “Overall, as a company, Nokia is heading in the right direction.” (83% favorability)</li> <li>• “Overall, Nokia’s culture is heading in the right direction.” (80% favorability) Arithmetic average for % favorability for these two CCT Target Questions was 81%.</li> </ul> <b>✓ Assured</b>	 On-going - on track
		<b>NEW target 2020:</b> Sustained focus on CEO-sponsored Nokia Culture Principles		
		<b>2020</b> Nokia to be the “employer of choice” (in our size) for all of our major hubs in locations around the world and become the best regarded employer in our industry globally.	Through implementation of our global Location Development program, all of our major Nokia sites continue to roll out programs and initiatives to create a best-in-class talent acquisition ecosystem. These ecosystems leverage connections with local communities and universities to improve our reputation as a best-in-class employer and foster robust and diverse local talent pipelines.	 On-going - on track
		<b>2020</b> Foster the spirit of employee volunteerism across the company and increase their engagement.	New volunteering guidelines introduced in 2017 .	 On-going - on track

# Our commitments, targets, and performance

Priority area	Material topic	Targets	Achievements 2017	Status
<b>Respecting our people in everything we do</b> 	Employee satisfaction, Engagement, and Development	<b>2018</b> Introduction of the renewed Employee Engagement model with increased frequency and depth.	Project was kicked off and phase one business case ongoing. Review of external market offering and internal development projects ongoing. A no-go or go decision regarding business case to be taken in Q2. In 2017, employee perceptions regarding Nokia and the experience of working here was measured using the Culture Cohesion Tracker. See Employee satisfaction target status above.	 On-going - on track
	Diversity inclusion and anti-discrimination	<b>2017</b> 2000 Nokia leaders, managers, and employees to participate in Gender Balance training.	We trained 2300 leaders and employees on Gender Balance. <b>✓ Assured</b>	 Achieved
		<b>2020</b> Increasing the % of women in leadership by 25% (baseline 2016)	In 2017, we had 15.2% women in leadership positions, meaning a slight drop compared to 2016 baseline of 15.5%. We continue working, within our five-year gender balance action plan, towards the 2020 target.	 On-going - not on track
	Health, Safety, and Wellbeing	<b>2017</b> H&S Awareness – 100% of employees to undertake mandatory training on health and safety behaviours and values. Nokia internal training “Making tomorrow safer”	94% employees completed the training. We will continue to drive for for 100% awareness.	 Not achieved

# Our commitments, targets, and performance

Priority area	Material topic	Targets	Achievements 2017	Status
<p><b>Making change happen together</b></p>  	<p>Corporate community investment</p>	<p><b>2018</b> 100% of corporate community investment activities aligned with our group-wide strategy, business drivers and SDGs.</p> <p><b>2018</b> 100% of corporate community investment programs to be measured against a monitoring and evaluating system.</p>	<p>99.5% of our global and key regional programs were aligned with the three thematic priority areas. Across all contributions, 96% were aligned to the three thematic priorities.</p> <p>All identified global and key regional programs were measured against a monitoring and evaluation system by Corporate Citizenship methodology.</p>	<p> On-going - on track</p> <p> On-going - on track</p>

# Managing sustainability

Sustainability and corporate responsibility issues are reviewed regularly at all levels within our company. We have strong governance structures and practices in place to manage ethical business practices and corporate responsibility. Our Code of Conduct sets out our expectations for employees across the company. The code is supported by policies and management systems related to responsibility issues. Our aim is to ensure that social and environmental matters are taken into account in everything we do. Our key corporate responsibility policies are available online at [www.nokia.com/en\\_int/investors/corporate-governance/policies](http://www.nokia.com/en_int/investors/corporate-governance/policies).

## Our sustainability governance

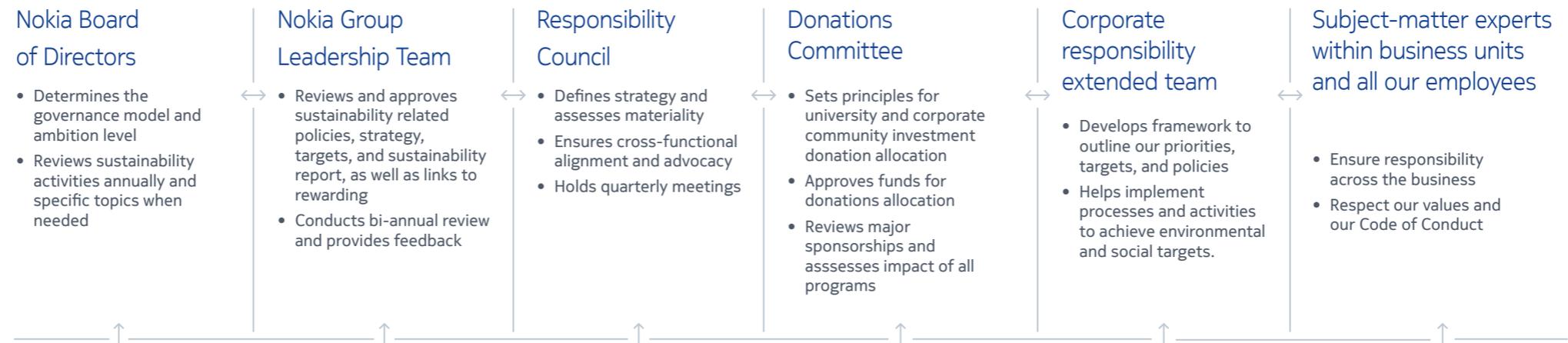
The highest decision-making body in our company after the General Meeting of shareholders is the Board of Directors, which reviews the company's overall sustainability activities annually, and specific topics when needed.

In 2017, the Board reviewed our corporate sustainability status including targets, performance, achievements, and challenges. The review also covered our focus areas, priorities, their alignment with the UN SDGs, materiality analysis with key sustainability

topics, and their impact on both business success and sustainable development. The Board also approved the Corporate Community Investment and University donations budgets for the year 2018, and had a cybersecurity/information security update. The Board Review of Nokia 2017 Annual Accounts includes also non-financial information and the board's Audit Committee had an annual update on conflict minerals.

The Nokia Group Leadership Team, chaired by the President and CEO, is responsible for managing our operations. This includes reviewing and approving our policies and main responsibility initiatives. They also

### Our sustainability governance



### Ethics and compliance office

Provides training and supports employees in making decisions that are ethical, legal, and consistent with our values. Investigates any concerns about potential breaches of our Code of Conduct

approve the corporate sustainability strategy, long-term and annual targets, the annual sustainability report, as well as how we link sustainability performance into our rewarding system.

The GLT has at least two review and feedback sessions a year. In 2017, our Executive Vice President for Marketing and Corporate Affairs was responsible for corporate responsibility at the executive management level.

Our Corporate Responsibility Council, which consists of senior representatives – typically leadership team members from our business units and support functions – meets quarterly and ensures alignment across the business on responsibility strategy, priorities, and the implementation of responsibility activities.

Our Corporate Responsibility team works with business representatives to develop the responsibility framework that outlines our priorities, targets, and policies. The team drives and advises on responsibility initiatives throughout the business, and works together with representatives and subject-matter experts from our business units to develop and implement processes and activities to achieve our environmental and social targets and supports in related stakeholder communications. They also work with sales interface representatives to support them in customer related sustainability requirements.

We had scheduled quarterly Donations Committee meetings in 2017, to decide on the donation allocation principles, major sponsorships, approve fund allocation, and review impact assessment. The scope of the committee covers both university donations and Corporate Community Investment (CCI) projects. The committee is comprised of the CMO, the CFO, the CTO and Bell Labs President, the Chief Ethics & Compliance Officer, the VP Corporate Affairs and the Head of Ecosystems Research.

Our Ethics and Compliance Office supports employees in making decisions that are ethical, legal, and consistent with our values. The team also investigates any concerns about potential breaches of our Code of Conduct.

More information about our corporate governance practices is available in our annual reports and on our [website](#).

### Risk and opportunity management

We have a systematic and structured approach to risk management. Key risks and opportunities are primarily identified against business targets either in business operations or as an integral part of strategy and financial planning. Risk management covers strategic, operational, financial and hazard risks. Key risks and opportunities are analyzed, managed and monitored as part of business performance management with the support of risk management

personnel and the centralized Enterprise Risk Management function.

The principles documented in the Nokia Enterprise Risk Management Policy, which is approved by the Audit Committee of the Board, require risk management and its elements to be integrated into key processes. One of the core principles is that the business or function head is also the risk owner, although all employees are responsible for identifying, analyzing and managing risks, as appropriate, given their roles and duties. Our overall risk management concept is based on managing the key risks that would prevent us from meeting our objectives, rather than solely focusing on eliminating risks. In addition to the principles defined in the Nokia Enterprise Risk Management Policy, other key policies reflect implementation of specific aspects of risk management.

Key risks and opportunities are reviewed by the Group Leadership Team and the Board in order to create visibility on business risks as well as to enable prioritization of risk management activities. Overseeing risk is an integral part of the Board's deliberations. The Board's Audit Committee is responsible for, among other matters, risk management relating to the financial reporting process and assisting the Board's oversight of the risk management function. The Board's role in overseeing risk includes risk analysis and assessment related to financial, strategy and business reviews, updates, and decision-making proposals.

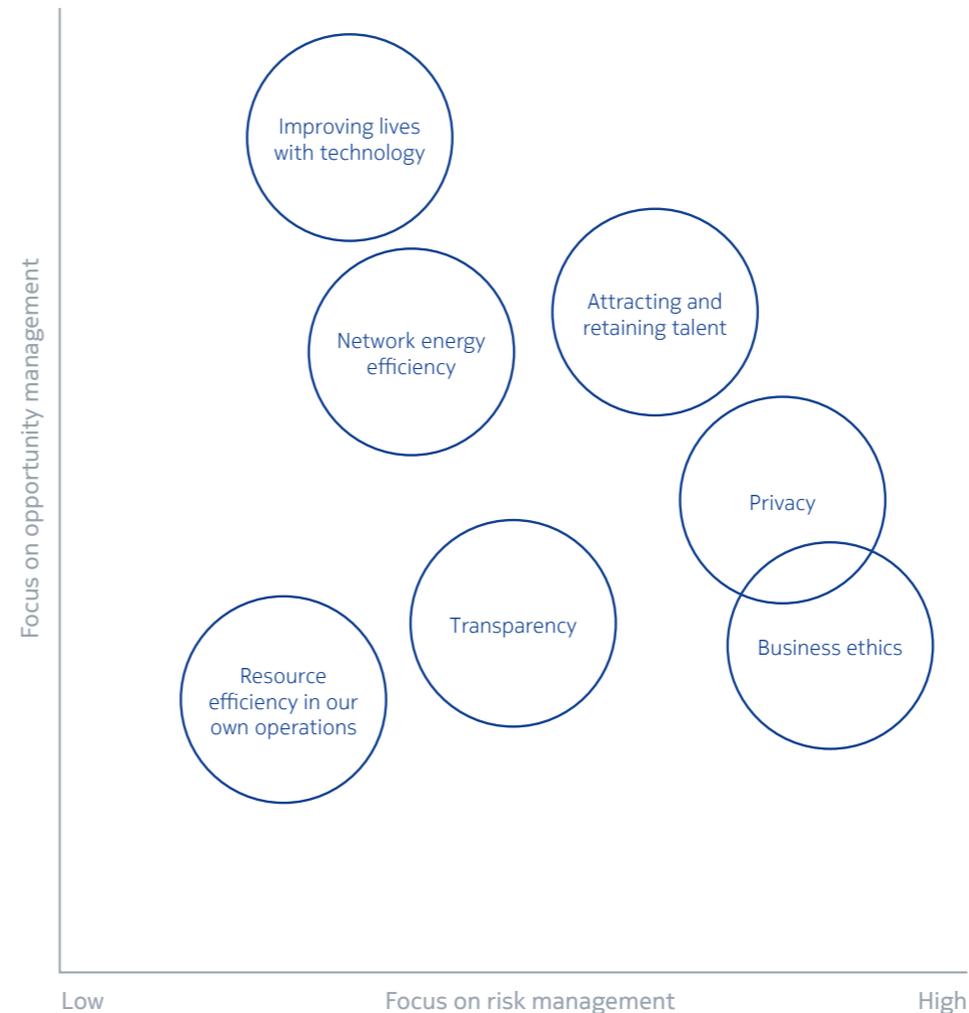
The most important risk factors together with the principal factors and trends affecting our operations are discussed in our 2017 annual report, our Form 20-F.

These include sustainability-related risks such as:

- Risks related to product safety, product misuse, health, privacy and security, including cybersecurity issues, as well as risks related to the environment, including also the adverse effects resulting from climate change.
- Risk of non-compliance with regulations or our supplier and customer requirements
- Violation of ethical standards, including our Code of Conduct
- Labor unrest and strikes
- Inability to retain, motivate, develop and recruit appropriately skilled employees
- Purchasing boycotts and public harm to our brand
- Risks related to issues with taxation, including tax disputes
- Disruptions in our manufacturing, service creation, delivery, logistics or supply chain caused by natural disaster.

We systematically analyze sustainability-related opportunities. Our innovations hold the potential for changing the way we live, from technologies that improve people's lives to helping reduce our environmental impact. In 2017, we further reviewed and aligned the risks and opportunities in our Enterprise Risk Management system with our most material sustainability topics.

#### Illustrative examples of responsibility related opportunities and risks



#### Improving lives with technology, and network energy efficiency

There are revenue and, to some extent, also brand opportunities in creating technologies that improve people's lives and in developing more energy efficient networks.

#### Attracting and retaining talent

The ability to attract, motivate and keep talent has an impact on how well we are able to manage our revenue and cost-related opportunities and risks.

#### Privacy and business ethics

Privacy and ethics are brand, reputation and regulatory driven risk areas but there are also opportunities in these areas. Ethics also covers how we work with suppliers and partners.

#### Transparency

Transparency has an impact on brand related risks and opportunities.

#### Resource efficiency in our own operations

Eco-efficiency in our own operations and logistics includes cost savings opportunities and also have an impact on Nokia's brand perception.

## Our recognitions and awards



We were this year ranked at leadership level in the CDP and CDP for supply chain rankings for our work on and disclosure of climate change data.



RobecoSAM - as one of the top-scoring companies in our industry, we qualified for inclusion in the 2018 Sustainability Yearbook and received the Gold Class distinction for our sustainability performance.



We won an award in the category Best IoT Innovation for Mobile Networks at the 22nd GSMA Global Mobile Awards. This award recognizes Nokia for its innovative IoT (Internet of Things) end to end solution that includes IMPACT which is a standards based platform that securely manages any device across any protocol and application, and can scale to meet the growing IoT needs of our customers.



In 2017, we were in the top 1% of suppliers assessed by EcoVadis, achieving excellent scores in environment, sustainable procurement, and labor practices. EcoVadis is one of the platforms through which we provide annual sustainability information for evaluation, which is then shared with customers as requested.



We were honored by Ethisphere Institute as one of 2018's World's Most Ethical Companies owing to our past achievements, present strong program, and bold vision for the future.

"World's Most Ethical Companies" and "Ethisphere" names and marks are registered trademarks of Ethisphere LLC.



We were proud to receive the QuEST Forum 2017 Global Sustainability Award in the Network Equipment Category.



In November 2017, Nokia Shanghai Bell (NSB) was named a China ICT CSR Pilot Enterprise for its efforts to practice the China ICT CSR Management System. NSB is one of the pioneers to implement the system in China.



We retained for a second consecutive year our listing as Industry leader in the Communications Equipment (CMT) sector of the Dow Jones Sustainability Indices (DJSI). We are listed in both the World and European DJSI indices. Our success in one of the leading sustainability ratings has been a great recognition for our work. However, the workload related to answering is very high and for this reason we have decided not to answer the DJSI questionnaire in 2018. The decision related to participation in DJSI in 2019 will be made by the end of 2018. Naturally we continue to push forward our sustainability work and activities, and report transparently on our performance.

For more information on all our sustainability awards and recognitions visit [www.nokia.com/en\\_int/about-us/sustainability/our-approach](http://www.nokia.com/en_int/about-us/sustainability/our-approach).

### The UN Sustainable Development Goals and our business

In 2017, we increased our work and commitment towards contributing to the 17 ambitious Sustainable Development Goals (SDGs) adopted by the United Nations Assembly in 2015. We further evaluated the relationship between the SDGs and our business, sustainability focus areas, materiality analysis, targets and the support we can provide in reaching these goals. This relationship was also presented during 2017 to our Board of Directors and the leadership team.

The technology and the solutions we invent, create, and deliver can potentially contribute to every goal. The illustration highlights our strategic sustainability priority areas and how they correlate to the SDGs. We aim to further integrate the SDGs into our sustainability strategy, programs, and activities.

In 2017 we also made a commitment in Finland as part of the Commitment2050 (Sitoumus2050) program through our target to connect the next billion. Read more about the program at <https://commitment2050.fi>.

The four goals on the next page are the most material for our business and emphasize the areas in which we can have the greatest impact. Beyond these, we believe the technology we produce can positively contribute to all 17 UN SDGs.

#### Improving people's lives with technology



#### Protecting the environment



#### Conducting our business with integrity



#### Respecting our people in everything we do



#### Making change happen together





## Improving people's lives with technology

**Goal 9:** Build resilient infrastructure, promote sustainable industrialization and foster innovation. This is the most material SDG for us. In the area of improving people's lives with our technology. It is directly linked to our core business of delivering technology innovation and network infrastructure and services that improve lives. Our core business also allows us to contribute to all other goals. People, devices, sensors, vehicles, objects – all connected, opening up a world of opportunity for all. According to a recent GSMA report, the number of Internet of Things (IoT) connections (cellular and non-cellular) will increase more than threefold worldwide between 2017 and 2025, reaching 25 billion. The technology we provide can help make our planet safer, healthier, more sustainable, more efficient, and more productive. It can positively influence every aspect of the human experience.

In 2017 we delivered products and services that brought secure innovations and connectivity for public safety, mission-critical communications, and health care and wellbeing, as well as automation solutions to enterprises driving efficiencies in operations; we also connected the unconnected with our customers through our network solutions: improving access to education, economic opportunity and health care. Read more on [pages 38–49](#).

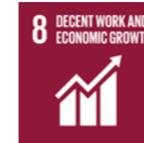


## Protecting the environment

**Goal 13:** Take urgent action to combat climate change and its impacts. This is the most material goal from an environmental perspective for us. Our environmental activities clearly support this goal. We do our utmost to help combat climate change. The equipment and technologies we create have a positive impact on the world through the innate benefits of connectivity and digitalization, but our products in use in our customers' networks create the majority of our carbon footprint. It is imperative we continuously find ways to improve the energy efficiency and power consumption of our products, and work to drive up the use of renewable energy sources in our solutions.

Our operations are a small part of our total carbon footprint, but we drive many internal environmental programs, as well as initiatives as part of the product life cycle process. We also work on decreasing the energy, waste, water and other resources used in our operations, and offer refurbishment and recycling services for old telecom equipment.

In 2017, we continued to achieve some excellent environmental performance results in our own operations. We also launched new products that help our customers decrease energy use, emissions, and space requirements, while increasing material efficiency. Read more about our environmental activities on [pages 50–70](#).



## Conducting our business with integrity and Respecting our people in everything we do

**Goal 8:** Promote inclusive and sustainable economic growth, employment and decent work for all is the most material development goal for both conducting our business with integrity & respecting our people in everything we do. At the end of 2017, we had around 103 000 people globally, while through our supply chain of some 12 000 suppliers, we continued to create greater business and employment opportunities beyond our own employee numbers.

We conduct our business in accordance with internationally recognized ethical and responsible business practices. We require the same high standards of our suppliers. Health and safety remained a key priority for our own employees and our supply chain, and we are committed to a diverse workforce that reflects the gender and diversity balance of the real world. An employee mix of women and men from different age groups enriches our company and is one reason we invest in encouraging women and girls into STEM education. We foster programs that develop and nurture talent. Read more on [pages 109–134](#) under the Respecting our people section.

In 2017 we emphasized key areas in human rights, ranging from freedom of expression, through to increased dialog on combatting modern slavery, increasing our work with our supply chain, to working harder on conflict minerals issues. Read more on our achievements and challenges on [pages 71–108](#) under the Conducting business with integrity section.



## Making change happen together

**Goal 17:** Revitalize the global partnership for sustainable development. In our collaboration with stakeholders, our activity is directly aligned with goal 17. We understand we cannot achieve a more sustainable world on our own. We collaborate with a broad range of stakeholders on the key challenges and opportunities of building a responsible business. Our collaborations reflect both our business need and our desire to do the right thing. We work with our customers, suppliers, other industries, enterprises, organizations, authorities, and NGOs.

In 2017, we engaged with stakeholders to enhance the use of technology for the good of people and the planet. We worked with NGOs and other organizations to provide access to education, improve connectivity for rural communities, increase public safety, and to empower girls and women. Additionally, our collaborative activities promote inclusive and sustainable economic growth, employment and decent work for all, and they reduce inequality within and among countries. For more information on some of our programs and projects with different stakeholders in 2017, see the Making change happen together section on [pages 135–153](#).

To see more examples of how we can support all 17 SDGs visit [www.nokia.com/en\\_int/about-us/sustainability/our-approach/nokia-and-the-united-nations-sustainable-development-goals](http://www.nokia.com/en_int/about-us/sustainability/our-approach/nokia-and-the-united-nations-sustainable-development-goals).

## Our economic impact

We are a global company and have significant direct and indirect economic impact on our stakeholders. Direct economic impact includes our purchasing of goods from suppliers, dividends paid to shareholders, wages and benefits paid to our employees, as well as financial expenses paid to creditors, income taxes paid to the public sector, and community

investments. The related key performance indicators are listed below. We contribute indirectly to the economy in a variety of ways, though our greatest indirect impact comes as a result of the benefits of technology. Connectivity and access to the Internet has created enormous economic and social advantages for billions of people globally, enabling

people to live better lives. As we move into the 4th industrial revolution, new technologies such as 5G, Internet of Things (IoT), Artificial Intelligence (AI) and Virtual/Augmented Reality (VR/AR) will touch every aspect of our lives and planet, and drive significant change for the better. Read more in Improving Lives on [pages 38–49](#).

### Economic impact (Nokia Group)

	Stakeholder	Impact (EUR million)	2014		2015		2016		2017	
			Continuing operations	Continuing and Discontinued operations <sup>1</sup>	Continuing operations	Continuing and Discontinued operations <sup>1</sup>	Continuing operations	Continuing and Discontinued operations <sup>1</sup>	Continuing operations	Continuing and Discontinued operations <sup>1</sup>
Direct economic value generated	Customers	Net sales	11 762	15 189	12 499	13 574	23 614	23 614	23 147	23 147
Economic value distributed	Suppliers	Total purchases of goods and services	6 281	-	6 810	-	13 544	-	12 752	-
	Shareholders	Dividends paid	-	1 392	-	512	-	1 501	-	963
	Employees	Wages and benefits <sup>2</sup>	2 797	-	3 075	-	6 275	-	6 236	-
	Creditors	Net financial expenses	403	393	186	195	287	273	537	531
	Public sector	Income taxes paid, net	313	636	262	290	502	503	554	555
	Communities	Community investments <sup>3</sup>	-	-	-	-	5	5	7	7

<sup>1</sup> Discontinued operations refer to the sale of the Devices and Services business in 2014 and the sale of the HERE business in 2015.

<sup>2</sup> Includes termination benefits and excludes social security expenses

<sup>3</sup> Reporting with current methodology started in 2016. 2016 values are including corporate and key regional contributions, 2017 also some local contributions.

## Our tax payments

In recent years, one of the key subjects in global corporate responsibility discussions has been the transparency and sustainability of a company's tax planning, and the allocation of tax payments between the countries in which they operate. In 2017, Nokia paid a total of EUR 555 million in direct income taxes (EUR 503 million in 2016), of which approximately 20% was paid in Asia Pacific, 19% in the Americas, and the remaining 61% in Europe, the Middle East, and Africa. Of this total, approximately EUR 1.6 million was related to discontinued operations (our former Devices and Services business and HERE). Following the acquisition of Alcatel-Lucent, our 2017 figures include both former Nokia and former Alcatel-Lucent entities.

In addition to paying direct income tax, we contribute to society in the form of pension contributions, social security contributions, payroll taxes, value-

added taxes, sales taxes, customs duties, excise taxes, environmental taxes, and other similar duties and fees. Nokia is a major taxpayer and collector of indirect taxes and payroll-related taxes, and pays and collects these taxes in accordance with the applicable rules and regulations.

### Our tax policy

The foundation of our tax policy is to pay the right amount of tax that is legally due in the correct jurisdiction. Furthermore, we strive to observe all applicable rules and regulations in every country where we operate, and we follow the rules set by the relevant authorities.

We also follow a global transfer pricing policy that is based on the Transfer Pricing Guidelines for Multinational Enterprises and Tax Administrations issued by the Organisation for Economic Co-operation and Development (OECD). The guidelines

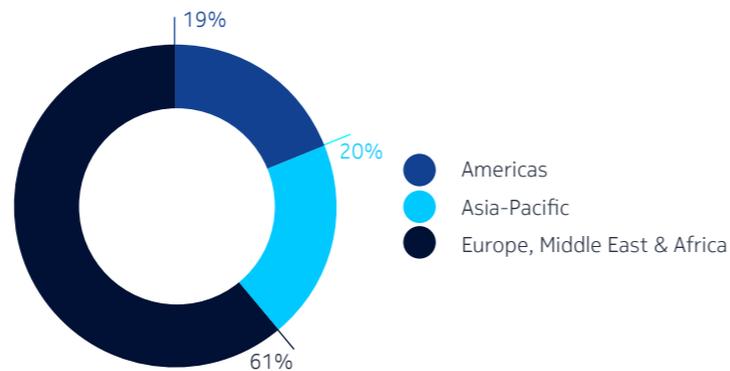
outline the arm's length principle as an internationally accepted valuation standard for intercompany dealings. Based on the policy and the guidance given by the OECD, we comply with the arm's length principle in all our intercompany dealings. We also follow the development of local transfer pricing rules and regulations in all territories and adopt localized transfer pricing policies if necessary. Large multinationals are obliged to disclose country-specific information to the tax authorities (so called country by country reporting within the framework of OECD BEPS action 13). We are compliant with the new reporting requirements.

We may also seek advance pricing agreements, i.e. agreements between taxpayers and tax authorities, to the extent feasible in order to gain mutual understanding and acceptance on the tax treatment of intercompany arrangements. The benefit of such agreements is to remove uncertainty regarding tax treatment, especially in complex business arrangements.

Nokia does business in many countries, and in every one of these countries our policy is to operate in an open and cooperative relationship with the tax authorities. Our tax planning is aligned with our business models, and taxes are considered in business decision-making – but only as one of many elements. Our business and location planning is driven by sound commercial needs.

We are subject to income taxes in multiple jurisdictions. Our businesses and investments globally, particularly in emerging markets, are

### Direct income taxes paid by region



subject to uncertainties, including unfavorable or unpredictable changes in tax laws, taxation treatment, and regulatory proceedings, including tax audits. In 2017 we achieved our tax related target to disclose country specific information to tax authorities according to the new country by country reporting requirement. In 2018 we target to remain compliant with these new reporting requirements. We will also actively monitor and comply with other regulations in this area.

### Indirect economic impact

We also indirectly impact economic development in several other ways. We create business opportunities and jobs through our supply chain, and competence development for our employees. In addition, the technology products and services we create and deliver drive positive change on a broader scale.

Connectivity increases productivity and economic growth, improves access to knowledge, information, education, and a healthier life, and plays a key part in reducing carbon emissions. Connectivity is also a basic human right in line with the United Nations' stance, as it facilitates the realization of a range of other human rights. Connecting the unconnected opens up opportunities in life in many other areas.

We will see even greater economic and social benefits as countries gain improved productivity and efficiency enabled by greater use of mobile and IoT services. Technology will continue to also make major contributions to the funding of the public sector. We believe our technology, the advent of 5G and the

potential of AR, VR, AI and IoT to connect people and things with each other in new and faster ways, could positively contribute to all 17 of the UN Sustainable Development Goals.

Connectivity helps to bring market and other relevant information to underserved communities, as well as financial and commercial services to remote areas. It enables new ways of doing business such as e-commerce, transforms public service delivery, and brings innovation to a wider audience. Our industry also has a major role to play in technology transfer and human capital development globally.

We also implement a variety of mitigation processes and procedures to deal with any day-to-day potential environmental, social and ethical risks in our daily business. Potential external global environmental, social, and ethical risks are discussed under the relevant topic in this report.

In 2017 we had sales in approximately 130 countries, delivering technology that improved network capacity and coverage in many emerging markets and announced new cooperation in countries such as Nigeria, Rwanda, Cambodia, Bangladesh, Nepal, Indonesia, India, Vietnam and Jordan and in early 2018 in Egypt, Ivory Coast, Cameroon, Senegal, Mali, Guinea-Bissau, Niger and Lebanon. Examples of customer projects can be found at [www.nokia.com/sustainability](http://www.nokia.com/sustainability).

According to the GSMA, having surpassed 5 billion people connected to mobile services in 2017, the global mobile industry will reach further milestones

over the next eight years. The number of unique mobile subscribers will reach 5.9 billion by 2025, equivalent to 71% of the world's population. There still remains a challenge in bringing affordable broadband to many rural communities. Innovation will be critical in bringing universal access to the underserved.

In 2017, mobile technologies and services generated 4.5% of GDP globally, a contribution that amounted to \$3.6 trillion of economic value added. By 2022, this contribution will reach \$4.6 trillion, or 5% of GDP, as countries around the globe increasingly benefit from the improvements in productivity and efficiency brought about by increased take-up of mobile services and M2M/IoT solutions. In 2017, the wider mobile ecosystem also supported a total of 29 million jobs (directly and indirectly) and made a substantial contribution to the funding of the public sector, with almost \$500 billion raised through general taxation and \$25 billion through mobile spectrum auctions.

Source: GSMA "The Mobile Economy 2018"

## Innovation and sustainability

Bell Labs is our world-renowned industrial research arm. Over its 90 year history, Bell Labs has invented many of the fundamental technologies that provide the foundation for information and communications networks and all digital devices and systems. This research has resulted in 8 Nobel Prizes, two Turing Awards, three Japan Prizes, a plethora of National Medals of Science and Engineering, as well as an Oscar, two Grammys and an Emmy award for technical innovation. Bell Labs continues to conduct disruptive research focused on solving the challenges of the new digital era, defined by the contextual connection and interaction of everything and everyone. For more information see [www.bell-labs.com](http://www.bell-labs.com).

Innovation drives change and will bring solutions to many of the sustainable development challenges we face today, from energy challenges to more efficient management and use of natural resources; from connecting the unconnected to delivering capacity and quality in a world where everything and everyone is connected; making the world safer, more secure, and more efficient, where all people can thrive.

In 2017, we again held our Bell Labs prize attracting more than 330 proposals from 35 countries. These proposals were whittled down to about 20 semifinal applications that were shortlisted for collaboration with Bell Labs researchers over a 2-month period. These refined semifinal proposals were then reviewed by the Bell Labs leadership team and the nine finalists selected, with each finalist having the chance to extend their collaboration with leading researchers at Bell Labs. The nine final applications covered

topics ranging from new approaches to machine learning, new materials synthesis, new human sensory technologies, new distributed computing paradigms, new battery technologies and new programmable radio and antenna technologies. The final event took place on December 8th in Murray Hill, NJ, with a group of seven luminary judges in the STEM field. Read more at [www.bell-labs.com/prize/2017-bell-labs-prize-winners](http://www.bell-labs.com/prize/2017-bell-labs-prize-winners). The Nokia Quality Awards also this year included a sustainability category.

The Nokia Garage is an employee-centric innovation playground. It is a place for employees and external partners to share ideas and foster grassroots innovation, helping innovators fueled with passion to team up across organizational silos. A Garage helps bring ideas to reality, inviting employees to prototype their ideas and test them in the real world. In 2017 we had Garages in Finland, France and Belgium, with more planned in other countries.

We seek to connect and catalyze innovative projects which do not fit the mainstream product lines. We offer the space for people to work on “Different” projects – either alone or in groups – and to share their results, both good and bad, for greater insight into “Why”.

The ng Connect ecosystem brings innovative companies together to collaborate on solution concepts, business models and market trials. The program has built an ecosystem that enables member companies to develop new products and services faster, and with a higher profile to customers. ng Connect was developed to create

the next generation of ultra broadband end user experiences that no single company can rapidly achieve alone. Working together, members ideate, develop, validate, showcase and trial market new solution concepts and develop business models that create paths to new revenue and new solutions for the entire value chain. Read more at <http://ngconnect.org>.



In early 2018 we announced two key chipset innovations. Firstly, in January 2018 we launched the new ReefShark chipsets, which leverage in-house silicon expertise to dramatically reduce the size, cost and power consumption of operators’ networks and meet the massive compute and radio requirements of 5G. Read more in Protecting the environment. We followed this up with the announcement of the Photonic Service Engine 3 chipset which enables maximum capacity over any distance and on any fiber - from metro to subsea - increasing capacity up to 65% over currently deployed networks while reducing power by 60%. Power savings support the challenge of reducing carbon footprint.

# Improving people's lives with technology

We believe we can achieve our greatest impact on the world's sustainability challenges by developing and enhancing solutions and technology that improve lives and provide greater opportunities for people. The continued development and rollout of 5G and IoT has the potential to socially and economically empower any individual.

# Highlights in 2017

# 5.7

billion subscriptions  
on our customers' networks

# +40

customers testing and  
trialing 5G

ViTrust – expanded portfolio  
for first responders

# +200

power utilities' customers  
using our mission-critical  
networks

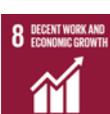
# 15 000

smart health devices  
ordered by employees to track their health

# 1.1 million

people have benefited  
from our corporate community investments since 2016

# Our commitments, targets, and performance

Priority area	Material topic	Targets	Achievements 2017	Status
<b>Improving people's lives with technology</b>                 	Connecting People and Things	<b>2022</b> Helping our customers to connect the next billion measured by number of subscriptions in Nokia radio customers' networks and by number of fixed network lines shipped to our customers.	At the end of 2017, the radio networks we delivered to our customers served around 5.7 billion subscriptions worldwide, compared to around 5.5 billion at the end of 2016. ✓ <b>Assured</b>	 On-going – on track
	Sustainability related products and services	<b>2018</b> 3-4 Nokia Saving Lives solution kits provided and supported by Nokia and used by selected partner organizations in the humanitarian field proving that Nokia technology save lives.	By the end 2017, Nokia Saving Lives approach and solution is being showcased and receiving strong interest from humanitarian actors and from authorities in charge of disaster preparedness and support. The technical solution is progressing and first deployment is planned now for Summer 2018. Given the innovative use of technology introduced by Nokia Saving Lives and the need of collaborating with humanitarian actors, local operators and volunteers from Nokia the target number of deployed systems has been adjusted to 2-3 solutions deployed for 2018.	 On-going – not on track
	<b>NEW target 2018:</b> 2-3 Nokia Saving Lives solution kits provided and supported by Nokia and used by selected partner organizations in the humanitarian field proving that Nokia technology save lives.	<b>2025</b> Improve the life of 2 000 000 persons through our corporate and key regional community investment programs (baseline 2016) focusing our action on gender balance, education and health and on how Nokia products and services improve people's lives.	In 2017, around 254 100 lives were improved through our corporate and key regional community investment programs. Since baseline, already around 1 122 400 people have benefitted from our programs. ✓ <b>Assured</b>	 On-going – on track

# Our commitments, targets, and performance

Priority area	Material topic	Targets	Achievements 2017	Status
<b>Improving people's lives with technology</b>                 	Sustainability related products and services	<b>2018</b> Ensure participation of all Nokia employees in corporate health programs to reduce the incidence of Cardio Vascular Disease.	We organized three wellness challenges this year. Program was made available to all employees. 15 000 smart health devices were ordered to track their health. Over 5 000 people participated in our programs.	 On-going - on track
		<b>2020</b> Support the extension of remote patient monitoring of chronic diseases, by rolling out patient care solutions using Nokia devices to over 100 000 patients.	Nokia released a HIPAA compliant remote monitoring platform this year (2017) for chronic diseases. The B2B Nokia Care unit sold 50 000 devices this year (2017), with half used for patient remote monitoring (by third party platforms today mostly).	 On-going - on track
		<b>2020</b> Reduce the rate of uncontrolled hypertension from an average 50% of hypertensive adults to less than 10% among the Nokia wireless blood pressure user community.	25% of our users have high blood pressure in the U.S. (that is uncontrolled blood pressure), against 50% on average according to CDC statistics (As can be seen at <a href="#">Nokia Health Observatory</a> .)	 On-going - on track
		<b>2020</b> Ensure integration of data from smart health devices into all major electronic health records accessible to doctors.	Our devices are integrated with major EHRs (Electronic Health Records) including EPIC, Ocshner, Allscripts (companies mostly in the U.S.).	 On-going - on track

## Connecting People and Things

The Fourth Industrial Revolution will bring a massive productivity boom. Technology has the greatest positive impact when it gives us the time to do things that we enjoy, and enables us to be more creative and more productive. Technology can help achieve greater productivity, efficiency, and economic growth for individuals, countries, cities, and society as a whole. There are potential benefits and potential risks. We believe the benefits outweigh the risks but we need to understand, prepare, and mitigate the risks and take full advantage of the benefits.

Digitalization will touch every corner of the world and everything we do. We see the future digital world that will enable a more sustainable planet and more opportunities for society and individuals. More people and more things will be connected to each other and the world around them. It is happening now and is underpinned by five key fundamental change agents that will bring massive beneficial change:



**Digital energy:** combining smart power grids and smart meters into platforms that dynamically match energy generation and demand from both new and traditional sources.



**Digital transport:** moving people and goods across oceans, skies, and land autonomously.



**Digital health:** remotely enabling connected health care from anywhere.



**Digital communication:** connecting billions of people and things, allowing them to interact in new ways.



**Digital production:** will drive a major shift from mass production to distributed, localized production, enabling the creation of goods in near real time by combining edge cloud computing and 3D printing.

Nokia Bell Labs has projected a significant productivity jump, as much as 30% to 35% in the U.S., starting at some point between 2028 and 2033. This is a similar leap to the 1950s. Similar gains are anticipated in India, China, and other nations.

The widespread deployment of 5G networks will bring high capacity and low latency (low delay) which will provide the foundation for the digital infrastructure of the future. We already see service providers around the world trialing 5G which could mean full commercial 5G deployments as early as 2019. 5G, Artificial Intelligence, and cloud technologies will underpin and accelerate the digitalization of industries. This digitalization of industries will create opportunities across nearly every segment of the economy, from health care to transport, energy, and beyond.

But as the UN Broadband Commission reported, a framework across different sectors of the economy will be needed to provide inter-government and country-internal policies to deal with the expected new requirements of a changing workforce and the need for new skills. The digitalization of the global economy will not only bring greater economic opportunity, but also personal and social opportunities, improving lives, protecting the planet and its resources, and giving people more time and freedom. Read more at [www.nokia.com/en\\_int/blog/partnering-win-4th-industrial-revolution](http://www.nokia.com/en_int/blog/partnering-win-4th-industrial-revolution).

# Connectivity

G.fast

AI

5G

M2M

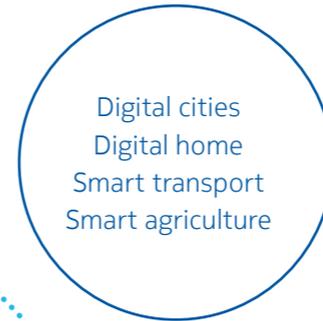
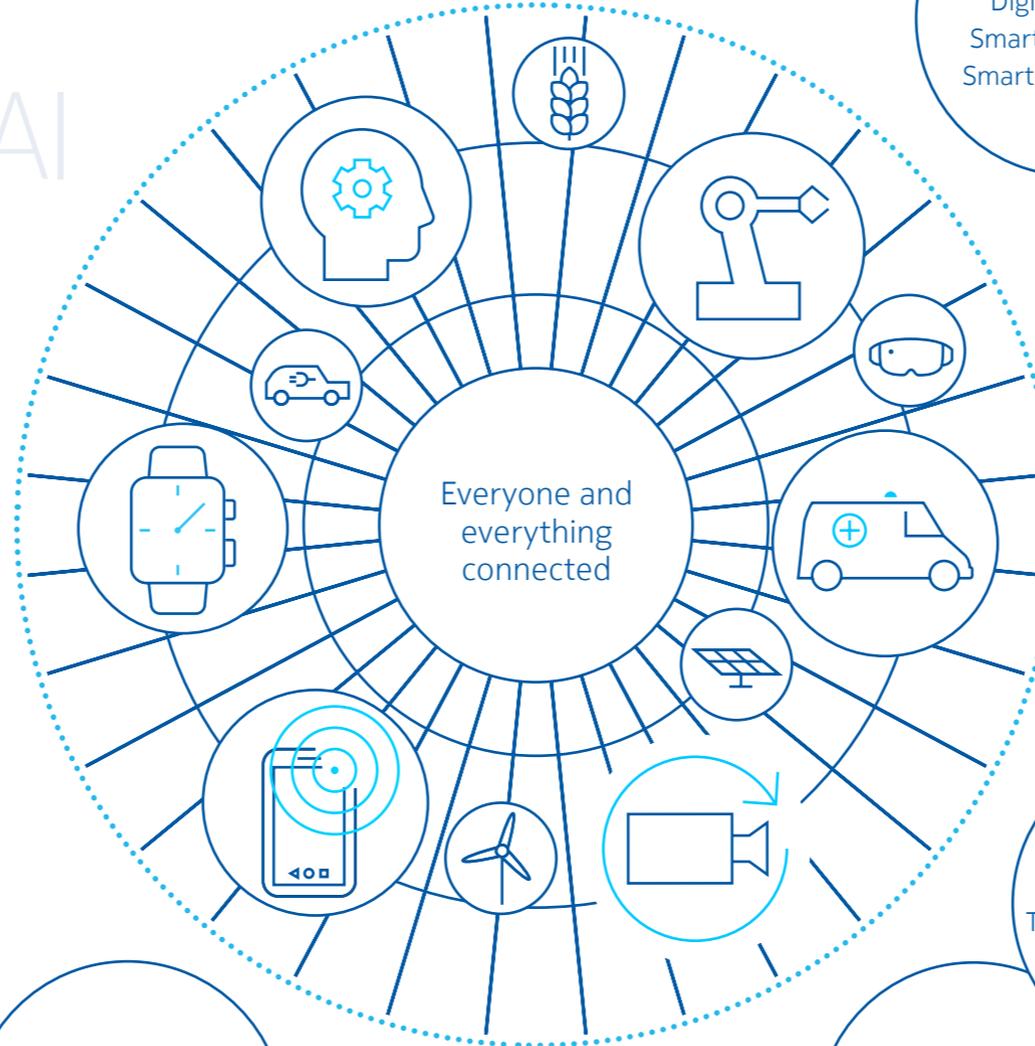
Cloud

IoT

Optical

AR

VR



## Technology and sustainable development

5G and ultra broadband will be the key requirements to enable imperceptible speed, without any noticeable delay and reach more subscribers. The technology performance we will see with 5G is critical for use cases such as virtual and augmented reality, e-education and e-health, industrial applications, machine-to-machine (M2M) communications as well as mission-critical communications. 5G will be key in enabling smart cities and smarter living. We continue to work with the European Commission to drive the 2020 5G trial plan activity across member states, as well as having over 40 engagements globally, testing and trialing the different facets of 5G.

For example, in 2017, we launched 5G-ready Nokia AirScale, an innovative next-generation radio access solution which will enable operators to satisfy future demands. China Mobile, was first to announce it will deploy our AirScale Base Station. We signed an agreement with NTT DOCOMO, Japan's largest mobile operator, to supply 5G products and they aim to deploy a 5G mobile network planned to be in commercial service by 2020. Read more about 5G at <https://networks.nokia.com/5g>.

Our fiber access solutions will provide the technology and network backbone needed to support bandwidth-hungry consumer and enterprise services to homes and businesses. In 2017 for example, WorldLink, the largest operator in Nepal, agreed to deploy our fiber access solutions. The solutions will

expand beyond the metropolitan area of Kathmandu, and enable WorldLink to more effectively address underserved areas across Nepal and further increase broadband penetration.

## IoT

Internet of Things will be pivotal in enabling a future where everything and everyone are connected. The Nokia founded IoT community brings together leading innovators in the development of products, solutions, and services for a variety of IoT markets, including smart cities, utilities, agriculture, automotive, public safety, and health care.

IoT Community members span a wide range of industries and markets, with the common goal of working with customers to quickly and efficiently deliver largescale and successful deployments of new high value services. Members include innovators in infrastructure, devices, applications, and content. Read more at <http://iotcommunity.com>.

## Digital lives

Cities are increasingly going digital, taking advantage of new, faster communications to transform the lives of their citizens as well as the economics of the city itself. But taking advantage of the benefits means some complex integration of networks and technologies. The Internet of Things (IoT), collaboration within the community and businesses, as well as mission-critical

communication all need coordinating, and all require better service access.

For example, our innovations for public safety also include rapid verification of mission-critical network coverage levels along major roads and railway tracks by mining crowd-sourced performance data using the Nokia AVA platform. Read more at <https://nokia.ly/2rPKg7p>.

Cities are looking to telecommunications service providers to deliver an easy to use, complete answer to their needs. Service providers in turn look to vendors like us to provide a packaged suite of solutions and services they can offer to their markets.

Our vision is to help build smart cities that enhance how people live, work and play. We aim to help cities stimulate business and innovation, help communities thrive, enriching the lives of both visitors and residents. Through our solutions and services, we can help digital cities become safer, smarter and more sustainable.

We offer a range of products and services as part of our aim to deliver smart city services. IoT for Smart Cities is a fully integrated, modular and scalable framework for smart city services like video surveillance, lighting, parking, waste management, and environmental sensing. IoT for Smart Cities is aimed at city corporations, governments, smart city consortia, master systems integrators (MSI), and communications service providers. Our Sensing as a

Service capabilities developed with an aim to provide intelligent analytics on environmental data that communications service providers could sell to cities and other authorities. Service providers can use their existing base station sites, and we can deploy sensors and integrate all available site equipment into an IoT real-time monitoring platform.

With rapid time-to-launch and trouble-free management, IoT for Smart Cities makes it easy to deploy and operate a multitude of services to enhance efficiency, safety, economic growth, and

sustainability across the smart city environment. In 2017, we signed several agreements with cities across the globe. Here are just a few examples of agreements to enhance capacity, bandwidth, and connectivity to support future smart cities.

In Japan, we signed a memorandum of understanding (MoU) with the city of Sendai to deliver technology solutions for local businesses as they still recover from the 2011 earthquake and tsunami, while contributing to improvements in the quality of life for citizens. The agreement covers public safety management,

including disaster recovery, activities to improve the safety and security of local citizens, and the testing and development of Multi-access Edge Computing (MEC) and 5G applications within the city.

In China, we will supply Shanghai Oriental Pearl Group with advanced wireless networking technology for smart city services. In the Kingdom of Jordan, we agreed to deliver a fiber-to-the-home network to support new ultra-broadband services. As demand for e-services, e-commerce, e-health, and e-education services grows across the Kingdom, the

**Smart City Infrastructure**

Shared + Secure + Scalable



Jordanian government is focused on enhancing its fixed access infrastructure to ensure higher speed internet access is more broadly available.

In May 2017, we also joined the ‘Smart Tampere’ initiative that aims to bring smart city services to one of the biggest municipalities in Finland. The collaboration will turn the city of Tampere into a test-bed for a range of smart services in areas such as smart lighting, smart energy, smart user experience at large venues, data management, e-health, and smart mobility. The project brings together government agencies and local companies, NGOs, and citizens to make Tampere more socially, economically, and environmentally sustainable.

And in Singapore, we have done some pioneering work with StarHub on mobility analytics. Mobility analytics looks at these patterns and provides insightful anonymized reports on customer movements, behavior, and habits. City planners, transportation authorities, and the travel industry can use these insights to plan infrastructure and services.

In India, spanning 90 000km in one of the biggest 100G deployments in the world, our transport network allows Jio to offer innovative, high-capacity services to underserved regions. For more use case examples visit [www.nokia.com/en\\_int/about-us/sustainability/improving-peoples-lives-with-technology/digital-life](http://www.nokia.com/en_int/about-us/sustainability/improving-peoples-lives-with-technology/digital-life).

### Digital utilities

The utilities sector will underpin the future of a digital society and our smart grid solutions will help drive greater energy efficiency, water resource management, reliability, and safety while supporting existing operational traffic. For many years, utilities have successfully delivered the energy and other utilities people and businesses have come to expect, but are now facing the increasing demand for energy, the need to incorporate renewable energy sources, the need to better manage resources and aging grids. These factors are driving many utilities to transform their businesses. ICT will play a key role in this transformation through control devices, applications, and the communications networks that connects them all.

For example, in 2017 we provided an advanced communications network to the Placer County Water Agency (PCWA) in Northern California to support its hydro-electric power generation and water distribution services. This network supports a range of critical utility applications, enabling them to more effectively utilize and manage their power generation, water resources, and water supply.

In India, we provided Tata Power-DDL with advanced communications to build a next-generation smart grid communications network for an intelligent power delivery grid serving a population of seven million. It provides an always on, modern, reliable service for homes and businesses.

We continue to build on our track-record of providing mission-critical networks to power utilities, having served more than 200 such customers worldwide. For more information on how we are helping cities and communities go digital, visit [www.nokia.com/sustainability](http://www.nokia.com/sustainability).

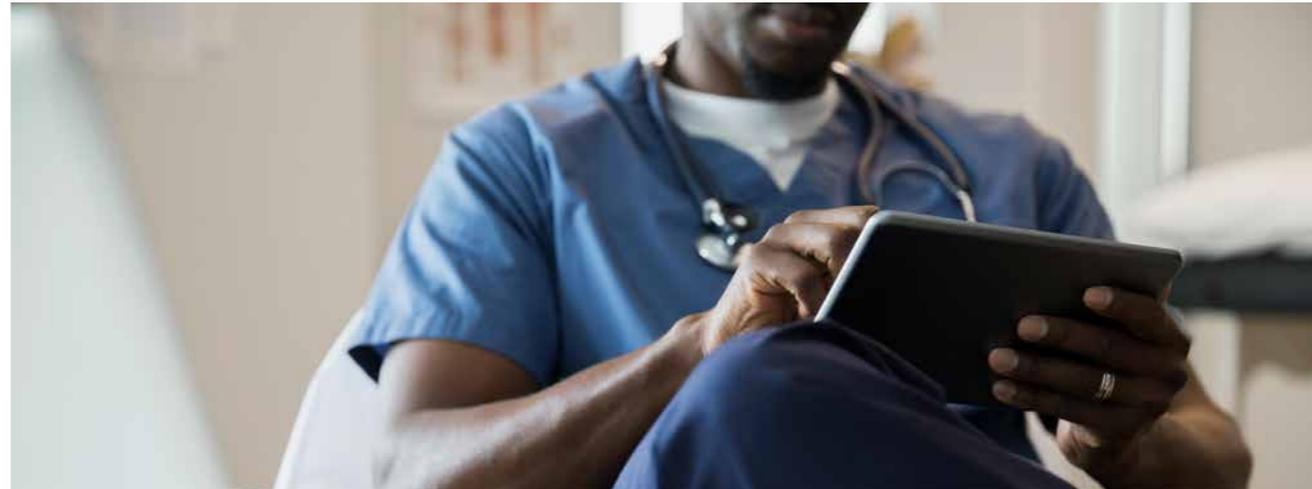
## Technology that makes a difference

### Digital health

Emerging technologies like 5G, artificial intelligence, and new consumer devices are also set to enable the digitalization of health care. These and other new technologies and devices will have a key role in the shift towards prevention and smart care, rather than today's diagnosis and treatment.

We are focusing on improving health outcomes from corporate wellness programs to elderly and remote patient care. Again, connectivity makes all the difference. The power of low latency technology, edge cloud, virtual reality, and augmented reality has been demonstrated in this space. As one example, on 7 June 2017, we announced the world's first 'mixed reality' neurosurgical livestream, conducted at Helsinki University Hospital in Finland. The procedure was livestreamed to approximately 100 neurosurgeons using Nokia's OZO Live to provide a more immersive view of the surgery and operating room coordination.

In 2017, digital health was one of the selected IoT verticals where connectivity plays a key role. Our vision is to make the world a healthier place – via personal, family, community, and societal health. We believe the answers to health care's biggest challenges center on connecting people with data, data with insights, and insights with the clinicians and researchers that can effect societal health improvements. Usability, design, user experience, data, and analytics aspects are paramount. In 2017, we brought innovative solutions to how people can take control of their own health through personal



digital health devices. We follow all applicable laws and regulations in every market where we operate and are committed to upholding the highest standards of privacy and security.

### Remote patient care

Chronic conditions do not disappear when patients leave the doctor's office. That is why we empowered care teams to support patients at all times in the effective management of hypertension, congestive heart failure, stroke, and other chronic conditions, guiding their way to a healthier life. We delivered patient care solutions that provided medical professionals with the tools to help patients take better control of their own health (preventive care) and reduce the costs of care for example by reducing the days spent in hospital.

We worked with global partners to aggregate heterogeneous data, both medical and consumer generated data with insights and analytics, which are key to success. We also participated in ecosystem and research collaboration to drive our belief that the responsible integration of connected health devices into the health care system, including through corporate wellness programs, has the potential to significantly improve the health and wellbeing of society. We actively work with hospitals, research institutions and health care providers to explore this promising field e.g. CleverHealth Network, Private and University Hospitals and medical associations. Nokia follows internationally recognized rules and guidelines on research including Good Laboratory Practices (GLP), WMA International Code of Medical Ethics (Helsinki Declaration). Nokia internal ethical body, established in 2015, reviews all research

projects involving human subjects. The Ethics Committee gives its reasoned view on whether or not the research is ethically acceptable in terms of safeguarding the rights, safety, and wellbeing of all trial subjects.

### Health care in action

In 2017, we implemented a number of key activities and projects related to health care. We rolled out the Eldercare pilot during 2017 in Tennessee with our Smart Home group. Motion sensor and digital health wearables were used to track the activity of elderly people at home. Sleep information and steps were shared through the Healthmate app with family and loved ones. The pilot was a collaboration with IBM and the Electric Power Board (EPB) of Chattanooga, Tennessee. The pilot will continue in 2018.

We worked with the CleverHealth Network, an ecosystem coordinated by the Helsinki University Hospital (HUU) and funded by the Finnish Funding Agency for Innovation, Tekes. The ecosystem brings together companies and leading health care experts to develop better health care solutions for Finland and successful health technology products for companies to export based on the use of health data.

We donated an OZO camera and Creator with training to the Aalto University International Design Business Management in Virtual Reality. The multi-disciplinary International Design Business Management (IDBM) program produces drivers of change and innovation to lead initiatives and undertake new business

ventures within global environments. The program embraces design broadly as a method, mind-set, and competitive advantage by focusing on product, service and business design, technology, and innovation management.

As the population in many countries ages, with more than 1 000 000 000 people over 55 years old globally, care of the elderly becomes ever more critical and challenging. The Digital Silver Forum creates a dynamic opportunity where attendees, speakers, sponsors, and startups can build connections and exchange ideas. For more information visit [Tekes website](#).

### Saving Lives

Nokia Saving Lives is one of our innovations and not for profit initiatives which aims to bring advanced technologies into the field of humanitarian help. We created a solution based on a portable LTE network, LTE connected drones, a portable datacenter, analysis functionality, and our experts to operate the solution in close cooperation with rescue organizations and telecom service providers. Read more at <https://networks.nokia.com/innovation/nokia-saving-lives>. We progressed our Saving Lives Innovation initiative where we combine the capabilities of the ultra-compact LTE network with drones and drone video applications for search and rescue missions. We applied for GSMA Disaster Innovation Funding in early 2018 and were invited by the GSMA to participate at the GSMA stand in Mobile World Congress (MWC) 2018 with our own demo. We will continue such cooperation and will partner with operators and

NGOs on this initiative to help rescue operations, providing a limited number of our Saving Lives solutions on a not-for-profit basis. The initiative is currently being tested with operators and NGOs.

During 2017, we also performed a rehearsal with a local Rescue Department in Finland and Stora Enso Factory in Kotka. Our plans are to bring the solution into the field with partner organizations in the rescue and emergency field.

Nokia Saving Lives was also honored with the UAE Drones for Good Award in the international category in early 2017. The Award competition, which had over 1 000 submissions from 160+ countries, is dedicated to transforming the technologies behind civilian drones into practical solutions for improving people's lives. We also now included a humanitarian aid category into our Open Innovation Challenge 2017. Read more about [Saving Lives](#).

In 2017, we also began to expand our ViTrust critical communications portfolio with new services to help first responders take advantage of reliable and secure high-performance applications on their public safety devices. The services provide trouble-free continuity of operations for public safety agencies across a multi-vendor, multi-technology mission critical communications environment. For example, we agreed to supply a mission-critical communications network to the County of Fresno, California, to strengthen emergency response capabilities and enhance public safety.

### Corporate community investments

Technology can be used in many ways for the benefit of society. We have operations in around 120 countries and wherever we operate we engage as much as possible in supporting the local communities through corporate community investment, volunteering, disaster relief and/or employment/talent engagement. In 2017, we rolled out 17 corporate programs at the global level. These programs included new Unicef programs on digital learning in Kenya and mHealth in Indonesia, a continuation of the Myanmar early education program with Save the Children, and preselection of more greenlight for girls events for 2018. Read more about our corporate level programs in the [Making Change Happen section](#).

We also have regional and country based NGO cooperation. For example, besides the ongoing Save the Children cooperation to build resilience of children and their communities in India, our strong presence in India is reflected in our ongoing local community investment programs which link closely to our three global corporate community investment themes: connecting the unconnected, empowering women, and saving lives.

Our CSR and community work in India is broad and varied. For example, we are helping to bridge the digital divide with @DEFIndia. In 2017, we launched Kanchiloom to digitally empower Kanchipuram weavers to enhance their skills and improve access to the market. Read more online at [www.nokia.com/en\\_int/about-us/sustainability/improving-peoples-lives-with-technology/digital-life](http://www.nokia.com/en_int/about-us/sustainability/improving-peoples-lives-with-technology/digital-life). The weavers



are young women who now have more choice and opportunity.

In the field of education, Nokia-Samridhdhi Bridge school 2016–2017 saw the successful admission of over 55 once out-of-school children to age appropriate classes in mainstream schools in June 2017. The journey continues and Nokia-Samridhdhi Bridge school 2017–2018 commenced in July 2017 by providing access to education, health, and

nutritional information to 120 out-of-school children from various scrap dealer/rag-picker settlements. For more information [download our CSR India report](#).

Technology can be used in many ways for the benefit of society. For example, in 2017 we were delighted to work with #ProjectLoon to deliver LTE service in Puerto Rico to help with disaster recovery after hurricane Maria.

# Protecting the environment

We believe the potential benefits of technology far outweigh the potential negative impacts. Technology will play an increasing role in nurturing and protecting the environment and in helping to achieve the global climate goals. We intend to play our part.

# Highlights in 2017

# 120+

Customers  
have one or more of our zero emission products

# SBT

Science based targets  
First telecoms vendor to have science based targets **accepted**

Average energy savings  
for customers whose networks we modernized

# 44 %

# -6%

Emissions  
Use of sold products

# 99%

Material/energy utilization  
from equipment end-of-life services

# Our commitments, targets, and performance

Priority area	Material topic	Targets	Achievements 2017	Status
<b>Protecting the environment</b> 	Product energy efficiency and GHG emissions	<b>2030</b> GHG reduction 75% compared to 2014 (scope 3, use of sold products) (This target is accepted by Science Based Target initiative)	Scope 3 emissions included in SBT are on target <b>✓ Assured</b>	 On-going - on track
	Energy efficiency and GHG emissions in own operations	<b>2017</b> Achieve at least 20% utilization of renewable electricity, as compared to total purchased electricity.	20% of our total purchased electricity was from renewable sources <b>✓ Assured</b>	 Achieved
		<b>NEW target 2018:</b> Achieve at least 25% utilization of renewable electricity, compared to total purchased electricity		
		<b>2017</b> Achieve a total facility energy usage reduction of 1.8%, as compared to 2016 levels (Scopes 1+2)	Our total energy consumption across our facilities decreased by 3% as compared to 2016 <b>✓ Assured</b>	 Achieved
		<b>NEW target 2018:</b> Achieve a facility electricity usage reduction of 3%, compared to 2017 level		
		<b>2030</b> GHG emission reduction of 41%, as compared to the 2014 baseline level (Scopes 1+2). (This target is accepted by Science Based Target initiative)	Scope 1&2 emissions included in SBT are on target <b>✓ Assured</b>	 On-going - on track
<b>NEW target 2018:</b> GHG emission reduction of 1.8% from facilities, compared to 2017 level (Scopes 1+2)				

# Our commitments, targets, and performance

Priority area	Material topic	Targets	Achievements 2017	Status
<b>Protecting the environment</b>     	Energy use and GHG emissions in supply chain	<b>2018</b> 150 suppliers setting emission reduction targets  <b>NEW target 2020:</b> 180 suppliers setting emission reduction targets	This was already achieved in 2017. 153 of our suppliers had emission reduction targets in place. ✓ <b>Assured</b>	 Achieved
		<b>2018</b> 90 dedicated one-to-one reviews with suppliers, collaborative emission reduction projects.	The one-to-one reviews of suppliers emissions data is done in collaboration with CDP. By the time of issuing of this report 51 of our suppliers have registered for the feedback session.	 On-going – on track
	Waste and water in own operations	<b>2017</b> Reduce the water use in our facilities by 2% compared to 2016 level  <b>NEW target 2018:</b> Reduce the water use in our facilities by 2% compared to 2017.	Water use decreased by 14% compared to 2016 ✓ <b>Assured</b>	 Achieved
		<b>2017</b> Establish a new baseline and related targets for waste reporting on account of changed waste reporting scope.	New Facilities Waste Management Guidelines were published and measurement accuracy was improved.	 Achieved
	Waste and water in supply chain	<b>2018</b> Deployment of non-carbon related projects with suppliers	In 2017 we shared awareness on waste reduction practices. In 2018 we will initiate a pilot program on water consumption in collaboration with CDP.	 On-going – on track
	Sustainable product design & materials	<b>2017</b> Eliminate PVC from Nokia products, where technically, economically, and environmentally feasible.	PVC was eliminated in Nokia products where suitable alternatives were available. Remaining PVC used predominantly in mature/older products where either flammability or price is a key issue.	 Achieved

## Managing our environmental impact

We are committed to protecting the environment and to the fight against climate change by making our operations environmentally sustainable, reducing the energy usage of the products we deliver to our customers, and helping other industries to meet their environmental goals.

We believe it is not simply about incremental one-off eco-efficiency improvements in our operations and in equipment design, but about investing in R&D and network deployment across the board in a judicious manner. We drive to develop networks and products that use no more energy in the future than they are using today, as the product use-time energy consumption is our biggest environmental impact. We embed circular thinking throughout our value chain, and look for all opportunities to avoid waste generation.

We combine circular and climate thinking across 3 domains:

- how digitalization helps achieve greater eco-efficiency in society
- how our products are designed and managed
- how our operations are managed

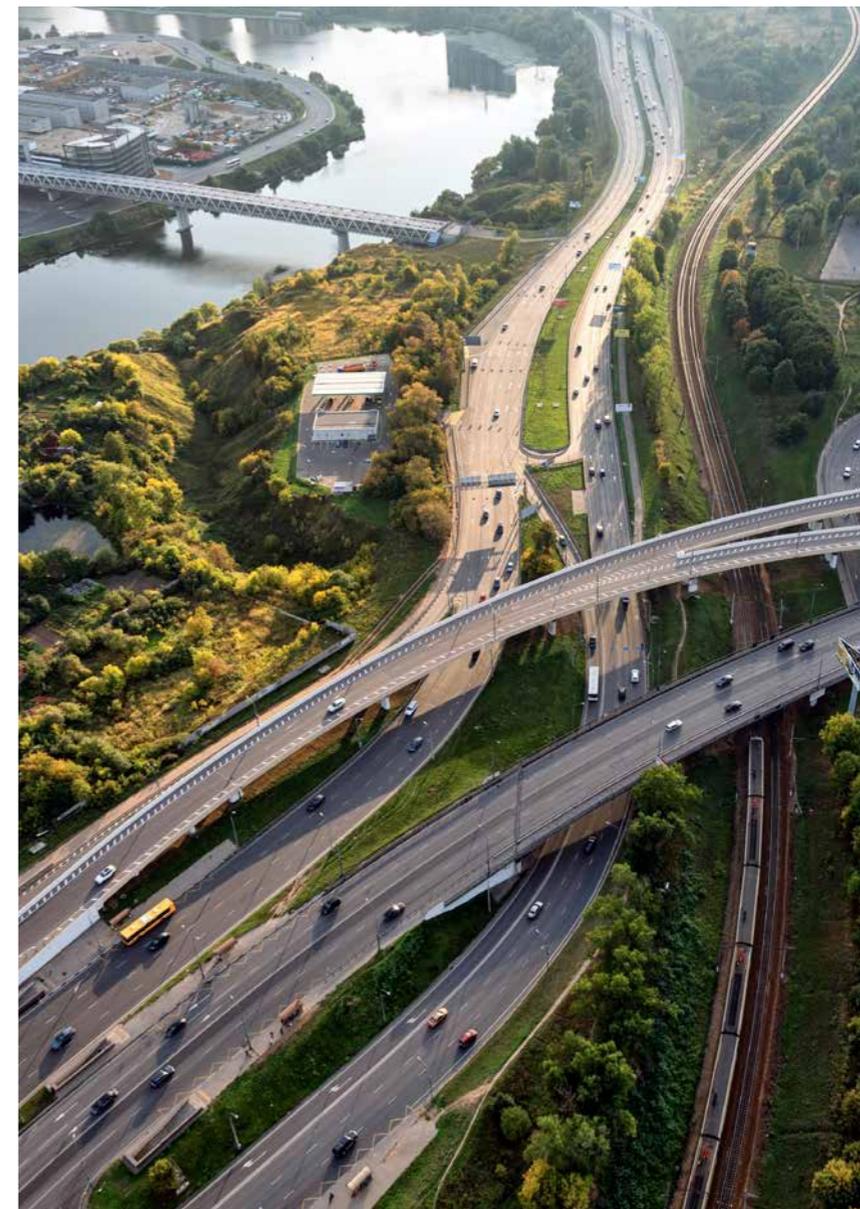
In 2017, we became the first telecommunications vendor to sign the commitment letter and submit

our emissions reduction targets to the Science Based Targets Initiative. The targets were formally approved in June 2017. The science based methodology and procedures help us establish and better align our energy usage goals and KPIs with climate science. Read more about the Science Based Targets Initiative at <http://sciencebasedtargets.org/>

“The global community will not succeed in keeping global warming well below 2°C without the help of the private sector. The Science Based Target initiative supports companies in setting emissions reduction targets in line with what climate science tells us is necessary to meet the goals of the Paris Agreement. The initiative’s overall aim is that by 2020, science based target setting will become standard business practice and companies will play a major role in driving down global greenhouse gas emissions (GHG). WWF is pleased that in Finland, Nokia and other front-runners, show that managing climate risks by setting ambitious GHG reduction targets makes business sense for a company.”

Liisa Rohweder, CEO WWF Finland.

We manage, track, and improve our environmental impact through a robust environmental management system (EMS). During 2017, we transferred to the new



standards version ISO 14001:2015, and the current coverage of sites under certification is 52%. The share of total employees covered by the certification is higher, as many of the non-certified sites are small ones with low employee numbers. We aim to expand the scope in the future. Our EMS covers all our Networks businesses.

All our environmental activities are related to circular economy and climate, and come under the EMS. We analyze our environmental aspects throughout the value chain, checking the significance of each aspect annually under the categories energy and emissions, and natural resources and waste.

In 2017, our offices in Espoo, Tampere, and Oulu were certified under the WWF Green Office program.

### Climate change – environmental risks

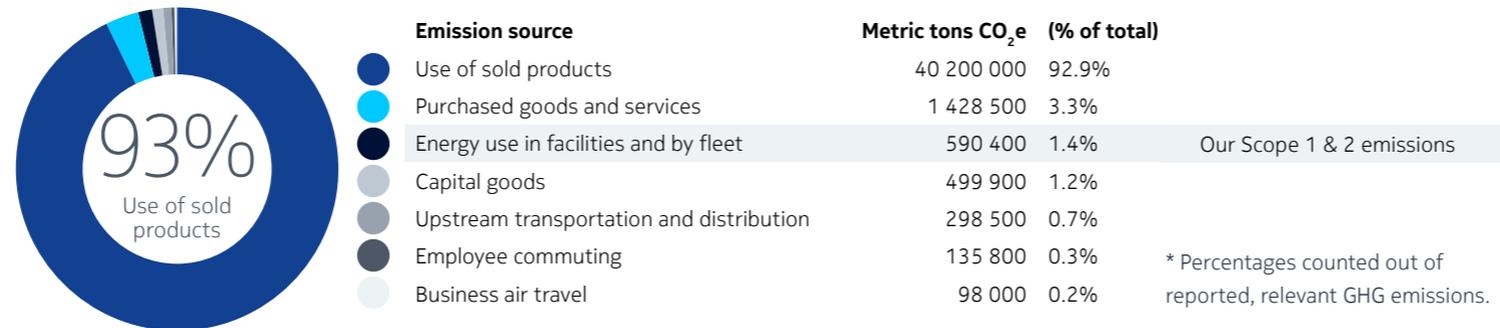
We understand that there may be potential risks and opportunities related to climate and other



environmental changes such as resource challenges, natural disasters, and changes in legislation. We use our core strengths in technology to affect positive change and drive opportunities to contribute to the fight against climate change. We also provide

for estimated costs of environmental remediation relating to soil, groundwater, surface water, and sediment contamination when we become obliged, legally or associatively, to perform restorative work on current and/or legacy sites.

### Our carbon footprint (Scope 1+2+3), metric tons CO<sub>2</sub>e

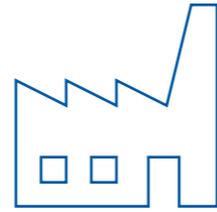


# Minimizing our footprint

Ensure our own operations are eco-efficient

Support a more eco-efficient supply chain

Supplier requirements  
Audits & assessments  
Capability building  
Training & awareness  
Carbon disclosure



Raw materials, components, products & services



Our operations, logistics and installation



End of product life



Product use

Minimize our energy use, emissions, waste, and water use

Optimize packaging  
Reduce transportation via air

# Maximizing our handprint

Helping customers deal with increased data traffic in a sustainable way

Helping other industries to reduce their energy use and emissions

Refurbish and recycle old telecoms equipment

Lifetime extension & refurbishment of our customers' old telecom equipment.  
Material recycling

Create products that are energy and material efficient

## Sustainable product design and materials

We are committed to protecting the environment and to mitigating climate change by making the products we deliver to our customers more efficient in how they are made and how they operate. We do this by designing for the environment or DfE. Our DfE mission is clear and simple: to innovate technologies that ensure that we develop environmentally sustainable products.

In this respect, DfE has two key objectives:

- design products and services that reduce environmental impact in our customers' networks, and
- reduce our environmental impact by operating more efficiently, that is within our facilities where we perform our jobs, and in the facilities where our products are manufactured and distributed.

Life cycle thinking is a key principle of our approach to reducing environmental impact and improving material and energy efficiency across our own operations, product use-time and take-back, and through to our suppliers. It is integral to the products and services we deliver to customers from creation to end of life. We employ the ISO 14040 /14044 standards as the basis for the life cycle assessments (LCAs) performed on our products.

When we measure our carbon footprint from our operations through to the complete life cycle of our products, that is, their design, manufacture, distribution, use, and treatment at end of life, we find that our products' energy consumption during use is a priority, as about 93% of our total carbon footprint comes from this part of our business.

DfE helps product developers to determine the environmental requirements that are relevant to the product for the global marketplace. Environmental requirements and guidelines for our products, including the Nokia Substance List, are the main sources for that information. There are also DfE tools available to support the designer during product development, including an energy scorecard, life cycle environmental assessment tools, and selection tools for substance restrictions and materials.

DfE also provides guidance, or best practices, that may voluntarily be considered during design to increase and promote the environmental benefits of our products. Implementing best practices, such as extending a product's lifetime with frequent software

updates, and considering alternatives for substances designated as to be avoid, can help us achieve more environmentally sustainable products and processes, a competitive advantage in the marketplace, and an improved platform to meet the needs of our customers.

DfE is fully integrated into our Create process for product development. This process employs checkpoints throughout the product development phases to ensure that the relevant environmental requirements are met. At the final stage of product development, DfE requires the completion of an Environmental Product Declaration or EPD. It contains product related information based on regulatory requirements. Answers to many frequently asked customer inquiries are also covered.

### Design for Environment (DfE) methodologies for product development

What	How		
<b>General requirements</b> <ul style="list-style-type: none"> <li>• Legal</li> <li>• Nokia commitment</li> <li>• Customer</li> </ul>	<b>DfE requirements</b> <ul style="list-style-type: none"> <li>• Environmental requirements and guidelines for Nokia products</li> <li>• Nokia Substance List</li> </ul>	<b>DfE tools available</b> <ul style="list-style-type: none"> <li>• DfE plan</li> <li>• DfE review</li> <li>• Energy Scorecard</li> <li>• LCA tool</li> <li>• Material data collection tools</li> <li>• Substance Restrictions tool</li> </ul>	<b>DfE output</b> <ul style="list-style-type: none"> <li>• Compliant and competitive product</li> <li>• EPD (customer document)</li> <li>• Material data</li> </ul>

We have set a Science Based Target for 2030 (baseline 2014) to reduce by 75% our Scope 3 greenhouse gas emissions caused by the emissions from customer use of our sold products. The DfE program helps product developers to achieve this goal by setting targets and evaluating energy-saving features with each new product introduction. Some examples of recent energy efficiency improvements within our products include:

- new component technologies that resulted in higher port density and integration, and throughput per Watt, such as in-house designed and optimized 100G and 400G Photonic Service Engine, and the new FP4 – 16 nanometer network processor for core and edge routers
- improved software features such as low power and standby modes for xDSL fixed broadband technologies
- improved thermal management resulting in optimized cooling and power designs, such as cooling fan efficiency improvements, and liquid cooling for base stations

### Materials and Restricted Substances

Materials and restricted substances are another key part of our DfE program. Global legislation or regulations ban or restrict several substances considered hazardous to either humans and/or the environment. These substances must not be present in our products, components, and materials that are selected during the product design phase. In addition, future customer and legal requirements will have an influence on the choices made today in developing a product. To ensure these needs are

met, our products, including original equipment manufacturers' products (OEMs), parts, modules and components must meet the requirements stated in our Substance List. Suppliers' product documentation must also provide us with a list of any EU REACH candidate substance of very high concern present in a product. Furthermore, products, parts, modules, and components must not contain any substance listed as To be Avoided in our Substance List to the extent technically and economically possible.

Each year, the Nokia Substance List is updated to cover our concern over substances that may pose a potentially increasing risk to the environment and human health. For 2018, we further restricted beryllium compounds in a more unified approach for supplier awareness and avoidance.

In a continuing effort to eliminate the use of PVC (polyvinyl chloride) in our products where technically, economically, and environmentally feasible, we worked particularly with our cable assembly suppliers. Over 2017, we evaluated the component codes that were used in significant volumes, excluding those that we reviewed in earlier efforts. Of the codes evaluated, PVC-free materials were already being used for 49% of them, and an additional 11% are being changed to PVC-free materials. The remaining amount will be either converted to PVC-free as replacement cables become feasible, i.e. meet fire safety codes and other technical requirements, or phased out with their associated legacy product.

In 2017, we registered with the European Union for the placement of products into the market, which

contain fluorinated gases. These materials are used in small amounts as refrigerants in hermetically sealed units to cool critical electronic components in mobile networks base stations. Although the amount of fluorinated gases we used is very small relative to the total EU market quota, we are working with our cooling equipment suppliers to substitute a refrigerant material with a lower greenhouse gas potential. We aim in the short term to eliminate the need to register and use additional quota for fluorinated gases.

We are compliant with the new declaration of conformity requirements for India RoHS and Taiwan RoHS, the new Hazardous Substance Table requirements for China RoHS, and the new restrictions on hazardous substances that came into effect at the end of 2017 for the United Arab Emirates. We are progressing well with our suppliers being ready to comply with the European Union RoHS directive's upcoming restrictions on four phthalates by July 2019. The EU Commission's draft decisions on the RoHS directive's exemptions review were published for most of the exemptions in 2017. They included time extensions for lead and cadmium in optical parts, lead in alloys of steel, aluminum and copper, and lead in high melting type solders. This provides additional time for us to phase out these specialized applications of lead within our supply chain and component inventories.

In 2018, we will be preparing for the United Kingdom leaving the European Union and clarity on environmental standards in the run up to the exit. Circular economy thinking is another area that will have a significant impact on the way products

are designed and manufactured globally. We are already seeing a rise in potential new regulations and industry voluntary agreements. To download the latest Nokia Substance List go to [www.nokia.com/en\\_int/about-us/sustainability/downloads](http://www.nokia.com/en_int/about-us/sustainability/downloads).

### Material Efficiency

Our Design for Environment process for all product development within the company includes design principles, guidance, and best practices to promote material efficiency of products. Material efficiency includes designing products that use less materials and energy while having increased throughput capacity and functionality.

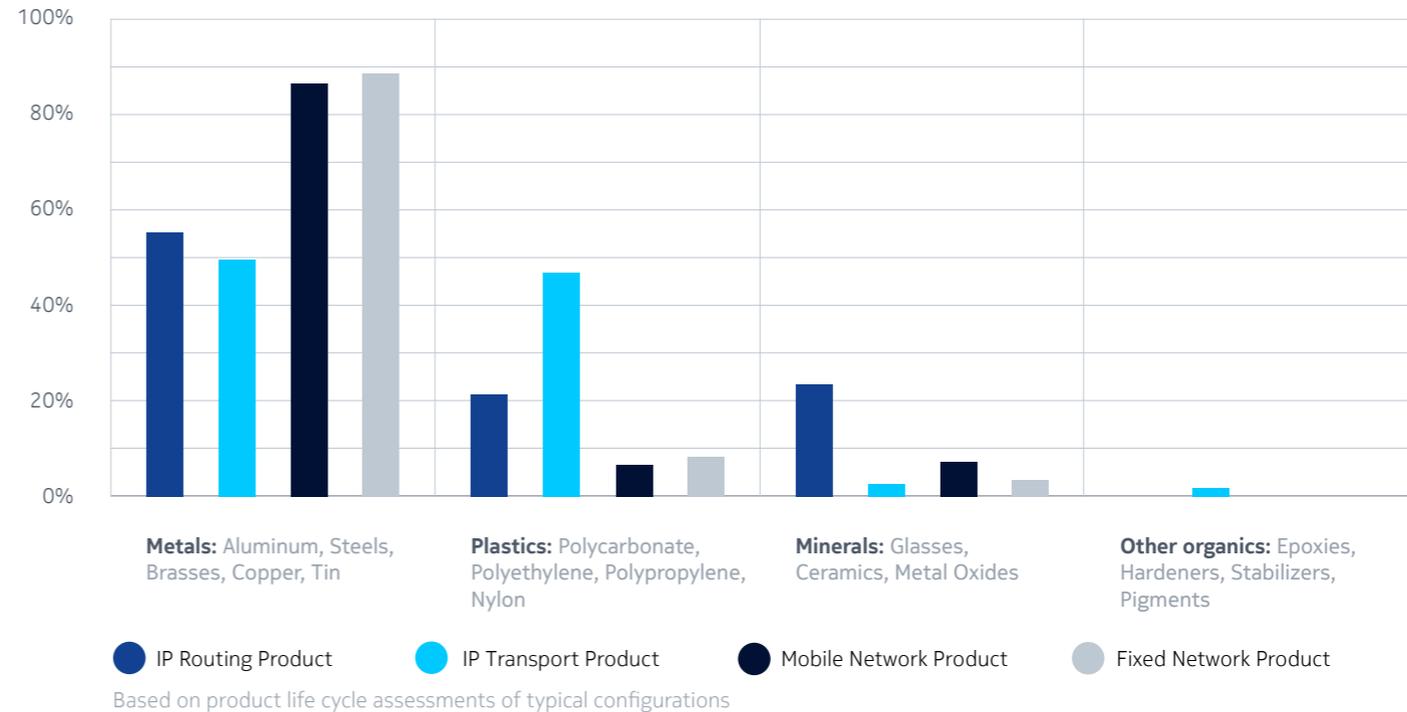
Our Fixed Networks business puts continuous effort into developing material efficient technologies and solutions across all areas of access networks:

- New fiber access solutions that occupy less or even no space in the central office, resulting also in less cooling and maintenance of the space
- Cloud and Software Defined Access Networks (SDAN) increase the overall efficiency of networks. Our SDAN solution enables fixed access network slicing, which allows operators to divide and control different slices of the bandwidth, also removes the need for excessive digging for parallel fiber networks in the ground, duplication of patching room space, and allows the reuse of the same hardware and fiber infrastructure. By centralizing the control and management functionality, our solution provides a six-fold reduction in the space needed for equipment racks when compared to a converged cable access platform.

In IP networks, the new 2.4 Tbs FP4 network processor silicon technology provides a six-fold performance improvement over the previous generation of FP. Through a high degree of integration and the introduction of intelligent memories, the FP4 chipset also subsumes entire collections of supporting memory chips that would

surround the processor, and integrates them onto the same die. This innovation provides space savings and further reduces the complexity of the boards. The result is far simpler boards that are far more powerful, more reliable, and where chipsets are delivered in one-fifth the board space of previous generations.

### Product Materials Breakdown



## Nokia and exposure to radio waves

We design products that transmit and receive radio frequency (RF) energy. We ensure that our product portfolio, including macro cells, small cells and Wi-Fi, comply with the established national and international standards and regulations on RF exposure. We provide installation procedures and training to those working for and with Nokia to ensure that equipment is installed correctly and radio wave exposure levels are in compliance with established exposure limits. We engage with customers and partners about RF exposure to our products and provide detailed instructions to ensure they operate equipment appropriately to keep the general public and workers' exposure below the established exposure limits. For more detailed information see Nokia RF exposure statement at [www.nokia.com/en\\_int/about-us/sustainability/downloads](http://www.nokia.com/en_int/about-us/sustainability/downloads).

## Carbon Handprint Project

We are collaborating with VTT in its Carbon Handprint project (read more at: [www.vtt.fi/sites/handprint](http://www.vtt.fi/sites/handprint)). Handprint refers to the beneficial environmental impacts that organizations can achieve and communicate by providing products or services that reduce the footprint of others. Carbon handprint is the reduction of the carbon footprint of another party. By assessing the difference between the carbon footprints of a product's impact on a baseline practice and that of a modified practice, the

handprint of the product can be determined. From this assessment a manufacturer's carbon footprint can be analyzed to then determine the associated amount of handprint (allocated benefit).

VTT is analyzing a case study on our behalf, related to our innovative liquid cooling technology. In this case study the liquid cooling maintains proper operating temperatures for telecom network equipment while capturing and using the waste heat in facility operations of the telecom service provider.

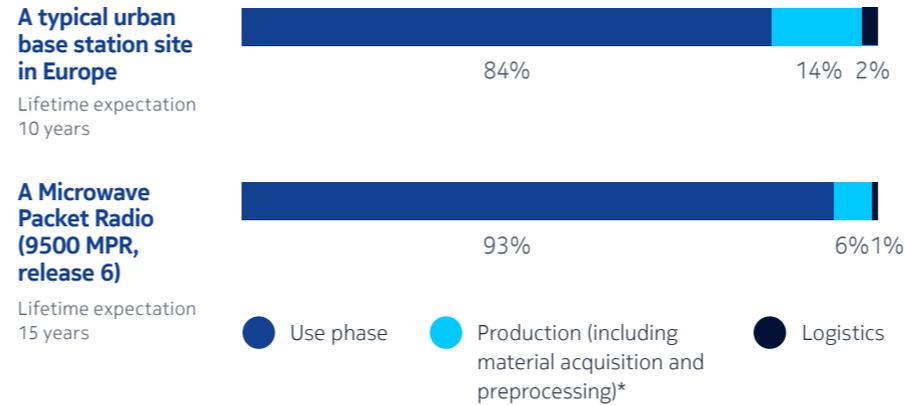
# Our products and networks – energy efficiency and carbon emissions

Data traffic continues to grow exponentially as demand for existing and new communications services grows. As more people and things become connected, it is imperative that we provide our customers with technology and solutions that help them deliver on this capacity demand in a sustainable way.

In the book *The Future X Network: A Bell Labs Perspective*, it is stated that global annual network energy spend is expected to quadruple by 2025, from 95 billion dollars to 343 billion dollars. The need to decouple data growth from energy usage has never been greater.

Firstly, we minimize the environmental impact of our products in use, which forms the greater part of our carbon footprint, but we also try to maximize the use of our products and services to bring positive impacts through automation, connectivity, efficiency, resource management, and digitalization. In 2017, we continued to improve the energy efficiency across our product portfolio, supported customers with optimization and energy services, further encouraged the use of renewables and provided software solutions to help manage and analyze

## According to life-cycle assessment, the use phase accounts for the majority of the global warming potential caused by our typical products



\* Emissions from end-of-life are included in production as a small credit due to recycling / reuse of materials such as metals.

energy consumption. We look at our whole product life cycle as part of Design for Environment.

### Towards zero emissions

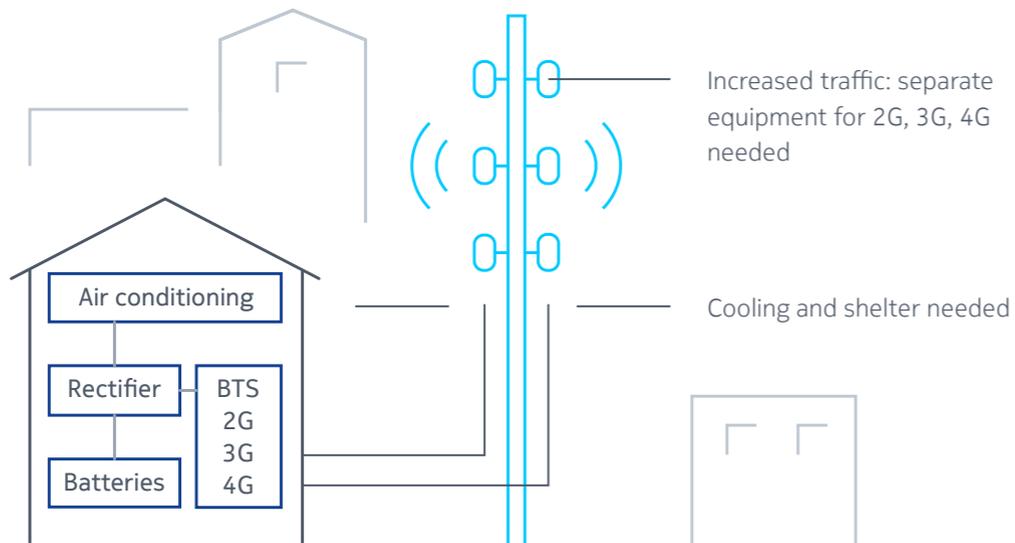
For mobile service providers most of their carbon emissions come from the radio access network. Our AirScale radio base station solution (BTS) spearheads our commitment to helping our customers build a sustainable business supported by a zero emissions network. Innovative hardware and intelligent software cut base station energy consumption. The combination of greater energy efficiency and

more cost-effective renewable energy sources are transforming the economics of radio access.

In 2017, the customer base station sites we modernized used on average 44% less energy than those where our customers did not modernize. This reduces the environmental impact from electricity consumption and is directly reflected as reduced costs for our customers, and a reduced carbon footprint.

## Traditional base station site

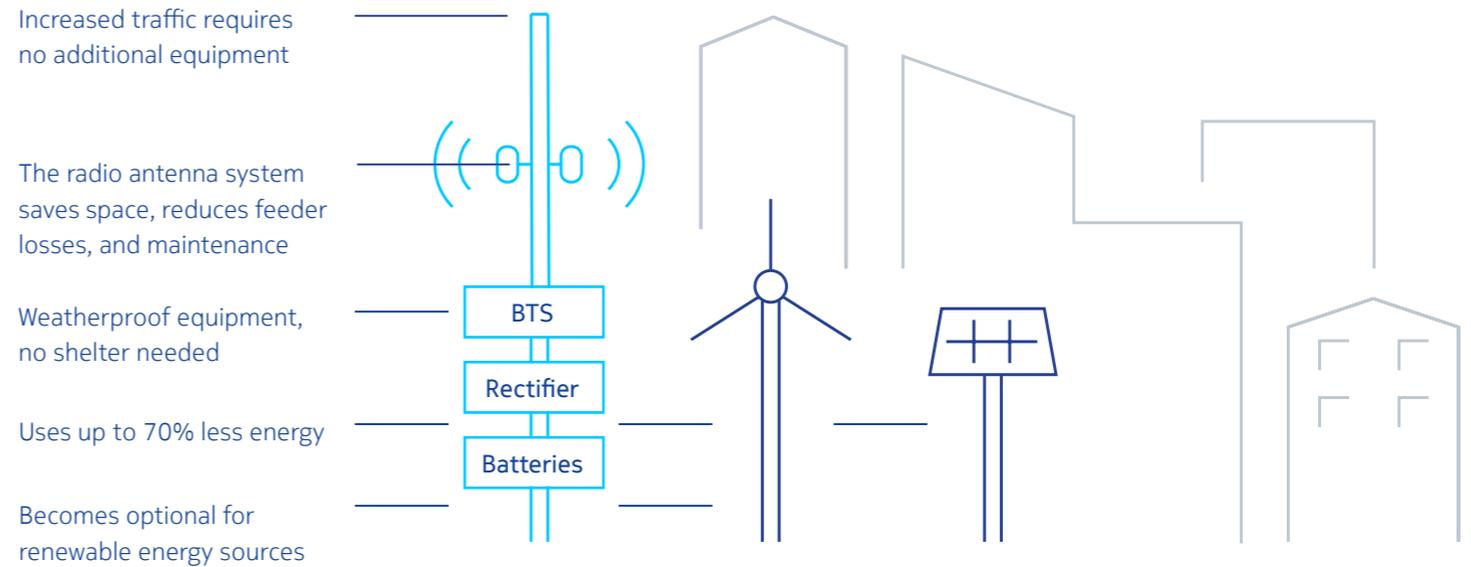
**+2°C** Traditional way of working leads to global warming



## Zero emission base station site

**-70%** Reduce emissions by AirScale Base Station

**-44%** Average lower energy bill in 2017 cases



Our AirScale BTS deliveries reached 23% of all our BTS deliveries, and we expect to reach over 70% in 2018. This is expected to yield higher energy efficiency gains from modernization in 2018, and to compensate to a greater extent the potential power consumption increase from commercial 5G roll-outs. Our new AirScale multiband radios consume up to 28% less power during busy hours compared to single band radios with an average (24H ETSI) reduction typically between 10–20%. We expect a strong market shift to multiband radios starting in 2018.

A good example of the environmental benefits of modernization is China Unicom in Hunan province, who modernized the radio access network and achieved improvements in energy use, emissions, and costs. See how in the [video](#).

We also further extended our zero-emissions radio network offering, which includes some 20 products and services. We continued to develop the use of liquid cooling for base station sites as well as investigating the capacity to capture waste heat from the base stations and use it as useful heat, for example, for heating buildings. We have delivered zero emission products to 120 customers around the world, helping them reduce their emissions.

We are expanding our liquid cooling portfolio. In Las Vegas at the Power Gen International event in late 2017, we demonstrated the pre-commercial AirScale BTS Liquid Cooling and a proof-of-concept of a liquid cooled AirFrame Server solution for data centers. Several commercial pilots are planned for 2018.

Liquid cooling converts waste heat into useful heat, makes base stations and data centers silent by removing the need for fan units, and reduces power consumption by 15%. This does not include the further benefits of removing aircon systems that typically contribute 30–50% of a BTS site power consumption.

We also launched an AC/DC/AC converter that enables the thick DC cables to be replaced with thinner AC cables. Not only are the cables cheaper and easier to install, but their energy losses run at less than 0.3%, a fraction of the 8.5% typical of conventional DC feeder cables. This can reduce emissions by up to 40%.

More information on zero emissions is available at <https://networks.nokia.com/airscale/target-zero-emissions>.

“At Elisa we want to contribute to achieving a carbon neutral society. We are committed to reducing our energy use and carbon footprint, and we are looking at ways to innovate in responding to the challenges and opportunities of climate change and resource efficiency. Working towards zero emissions in our radio access networks, piloting innovative approaches such as liquid cooling to cut energy use, and further taking part in research relating to the positive impact of communication networks are important measures of our approach. Elisa believes that industry wide cooperation and innovation brings the greatest positive impact.”

Vesa-Pekka Nikula, Executive Vice President, Production, Elisa

We are also working on energy efficiency in other business lines:

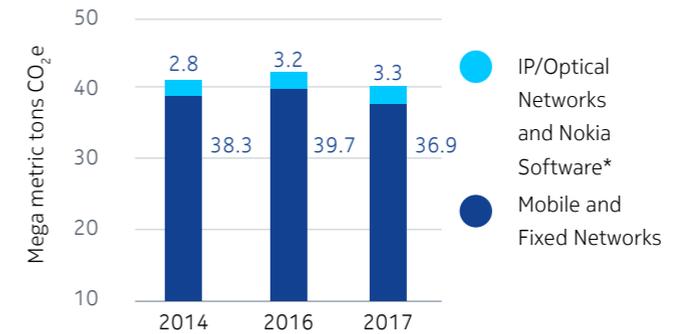
To provide smart home services to their consumers, communications service providers need Optical Network Terminals (ONTs) with more powerful chipsets and more functionalities, which also means more power consumption. A new chipset has been implemented in an ONT model that lowers the typical power consumption by 48% and maximum power consumption by 24%.

New fiber access solutions that are 50 % more energy efficient compared to the traditional larger size nodes are now available in areas with smaller population density (rural, semi-rural areas) or small-scale deployments. Our silicon innovation drives other fundamental benefits in system efficiency. Each generation of FP silicon network processor provides unprecedented speed, scale, and functionality while being more energy efficient.

We have set a Science Based Target (SBT) for 2030 (baseline 2014) to reduce by 75% our Scope 3 greenhouse gas emissions caused by the emissions from customer use of our sold products. We concentrate on the long-term trend line, as product development takes time and is a step by step process. The trend line is not linear and we can see that emissions are relatively stable during the initial years, but over time emissions will decrease.

For 2017, while product energy consumption and related emissions decreased due to our active R&D efforts, the amount of sold products increased. Our SBT for scope 3 includes the majority of product use time emissions, covering more than 80% of all scope 3 emissions. The SBT scope is smaller than our total Scope 3 emissions from use of sold products, and products within the scope of the SBT represent the two most energy consuming segments of our Networks business product portfolio.

**Scope 3 CO<sub>2</sub>e-emissions from customer use of sold products reduced by 6%**



\* Nokia Software was earlier called "Applications and Analytics"

Product use time varies between 6 and 15 years, depending on the products. Energy use calculations are based on product group specific ETSI standards wherever standards have been published. In 2017 data has 100 % business group coverage of Nokia's Networks business and estimated at least 90% coverage of product portfolio.

# Our own operations - Energy efficiency and carbon emission

As part of the science based targets setting, we have committed to decrease our Scope 1 & 2 emissions, that is emissions from our own operations, by 41% by 2030, compared to the 2014 baseline.

We are well on track with the target. We also achieved our 1.8% year-on-year target to reduce energy consumption across our facilities, while our total energy consumption decreased by 3% as compared to 2016. Please find detailed data on our 2014–2017 environmental performance in the **data-section of this report**.

In 2017, our energy efficiency projects saved over 11 000 MWh of electricity and contributed to our overall CO<sub>2</sub> emissions reduction. These included projects in India involving sharing of best practice activities from pilot projects involving for example, the use of sensors, controls, and LED lighting.

Other major investments included Variable Speed Drives (VSDs) in Murray Hill in the U.S. and Ottawa in Canada, adiabatic cooling in Poland, and free cooling/air flow improvements in Antwerp, Belgium. Innovative arrangements included the introduction of an Energy Service Contract (ESCO) in Espoo in Finland and DALI lighting systems in the UK.

We also commenced the procurement of a comprehensive software platform which will increase the automatic collection and reporting of environmental data.

During 2017, Workplace Resources also carried out procurement activities for global frameworks for carpet and furniture. This process included the incorporation of sustainability into our requirements and was part of the evaluation criteria ensuring that with this and other improvements to our design requirements, future projects include the most sustainable materials.

Our location in Sunnyvale achieved a LEED Gold certification under the US Green Building Council (USGBC) rating scheme. The project originally targeted a LEED certification for Fit Out and after some challenging issues a review identified the project was still capable of certification and the

building received a LEED GOLD certification on 7 June 2017. In this LEED project an additional investment of around Euro 46 000 resulted in achieving savings of over Euro 75 000 per year and reduced total cost of ownership. The site is close to public transportation and amenities, enabling better work/life balance. Along with the incorporation of our own design standards which included sustainable products, all contribute to improving awareness and providing greater satisfaction and productivity.

In 2017, we also conducted a broad project related to the energy efficiency of our laboratories. Our locations with electrical sub-meters allow us to monitor our electrical power usage on a more detailed basis and analyze trends and patterns. When we split the site level electrical consumption into the lab and office/infrastructure components, we found that on average, 75% of electricity was consumed by labs and 25% consumed by office

Energy consumption in our facilities (GWh)



space and general facilities. We also found very different power usage patterns. Office space and general facilities had energy usage patterns that were dynamic, indicating that electrical devices/ machines were being turned off when not in use, particularly at night, weekends, and during holiday periods. However, most of our labs drew a steady power load, indicating that the equipment was always powered on. Based on these preliminary observations, the objective of this project was to find out best practices and to determine what changes could be made within our laboratory environment to improve energy efficiency.

This project produced a playbook covering several best practices and learnings. For example, in Oulu, Finland, the team moved part of the laboratory equipment outdoors, therefore removing the need for additional power required for cooling the equipment, as was the case when the laboratory was inside the building. The calculated energy savings are up to 30 %. Laboratory teams in Fixed Networks and Mobile Networks business groups have developed a software script that automatically powers down equipment when it is not needed. This has been piloted in Antwerp, Chennai and Shanghai, as well as in Espoo, with an average reduction in power usage of 3%.

### Our car fleet

In 2017, apart from the initial impacts on the CO<sub>2</sub> measurement as a result of the change from the New European Driving Cycle (NEDC) to the Worldwide harmonized Light vehicle Test Procedure (WLTP), we had stable carbon intensity (CO<sub>2</sub>e) per vehicle

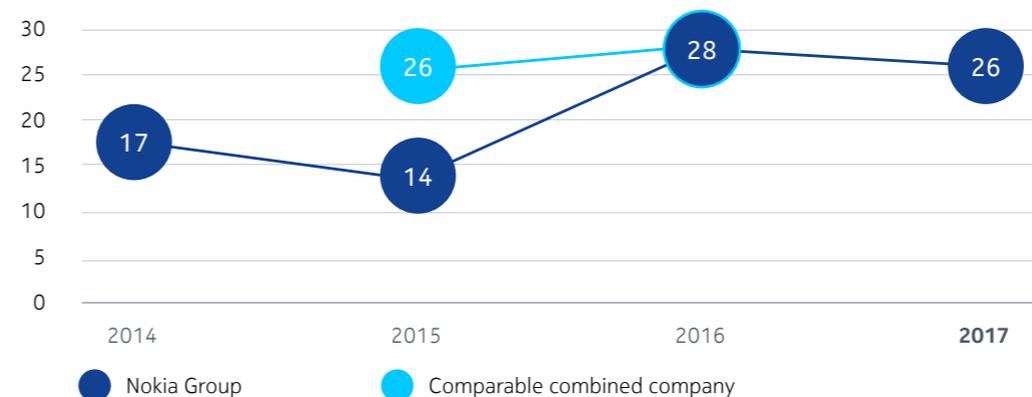
kilometer driven for our car fleet, as compared to 2016. For example, in Finland the CO<sub>2</sub> average of new company cars was approximately 30 grams per kilometer lower than the market average of new registrations. The reduced carbon intensity and reduced number of cars in our combined fleet led to a reduction of 6% in greenhouse gas emissions from the car fleet, compared with 2016. Policy and process harmonization has started and will continue in 2018, but the change in CO<sub>2</sub> measurement will increase the official CO<sub>2</sub> values of the cars from 2018 onwards.

We also have a marine fleet. The greenhouse gas emissions decreased in 2017 by 36% compared to 2016 due to a decrease in nautical miles traveled.

### Product transportation and distribution

We aim to limit the use of natural resources. In transportation, we always drive to save space, reducing the amount of packaging materials used, and maximizing our transport efficiency through pallet or container load optimization, eliminating the need for additional trucks or containers where possible on both inbound and outbound shipments. Reuse of packaging materials also contributes to reductions in CO<sub>2</sub> emissions from deliveries. In 2017, we reduced use of new packaging materials by 3 700 metric tons by taking the packaging coming from suppliers and reusing it in customer deliveries. The amount of new packaging is 1 400 metric tons less than in 2016. Our packaging designs use recycled

Scope 1+2 CO<sub>2</sub>e-emissions in relation to net sales (metric tons GHG/€ million)



Scope 1+2 CO<sub>2</sub>e-emissions cover emissions from energy use in our facilities, from our owned and leased car and marine fleet and minorly from releases of HFC refrigerants, fire suppression systems and from R&D and manufacturing. Scope 2 emissions are calculated with market-based method.



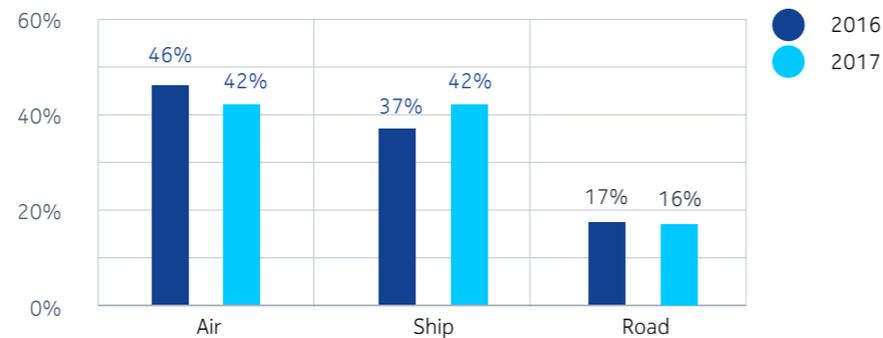
materials in all aspects of our packaging where possible. OEM (original equipment manufacturer) packaging, such as packaging for cabinets, antennas, batteries, and cable reels, is typically 100% re-used.

To drive improvements in our transportation and distribution, we look at the most energy efficient ways of transporting components from suppliers to us, and in delivery of our products onwards to our customers.

In 2017, our Scope 3 GHG emissions related to upstream transportation, and distribution of our products stood at around 298 500 metric tons CO<sub>2</sub>e, an increase of 11% over the previous year. The main reason for the higher emissions was an increased amount of deliveries, though, on the positive side, we were able to decrease the share of air freight from 46% in 2016 to 42% in 2017.

For 2018, our focus will be to further positively impact the environmental efficiency of the transportation of components from our suppliers to us, as it helps us reduce the distances, and the need for airfreight.

Share of transportation modes



Introduction of recyclable cushions

We introduced vacuum-formed plastic cushions that are manufactured from 100% recycled material on some of our AirScale products. As well as being environmentally friendly, this change allows us to ship 25% more products on one pallet, thus reducing our transportation volumes and related CO<sub>2</sub> emissions.

## Improvements in North America

By double stacking pallets of the remote radio head (RRH) product, which were previously shipped on a single layer, on trucks between Flextronics Guadalajara and the DDC Hub, we have saved between 17 and 24 truckloads per month. This was a collaborative effort between Nokia and our EMS partner, Flextronics Guadalajara. This reduction in trucks travelling between these locations will result in significant CO<sub>2</sub> reductions. As part of the solution to allow this double stacking of the pallets, we designed custom-sized pallets for two different size radio head unit packs to increase the number of radio heads per truckload layer, as well as enabling the pallet loads to be double stacked. We also sized and implemented heavy duty edge-boards to enable double stacking of the RRH pallet loads.

## Reducing our travel footprint

Business travel includes flights, rail, rental cars, taxis, and public transport. Our reporting is based on the biggest contributor to business travel emissions, air travel, for which we calculate the CO<sub>2</sub>e emissions based on the number of miles flown. In 2017, our CO<sub>2</sub>e emissions related to business travel were around 98 000 metric tons, meaning a 14% decrease when compared to 2016. Emissions were also reduced as our employees no longer needed to travel in relation to the Alcatel-Lucent integration as was the case in 2016. We also continued internal lobbying and guidance to reduce the need for internal business travel and encouraged the use of virtual meetings.

During 2017, we also continued to encourage the use of electric or low-emission cars, organized shuttle buses between hotels, offices, and airports, and encouraged employees to use public transport and even ride-sharing applications.

The recently published New Shared Mobility Study on Helsinki suggests that replacing private car travel with shared vehicles would end congestion, cut emissions, and free up public space. Under our Global Operations umbrella, Travel & Fleet and the Innovation Partner and Venture Management (IPVM) Ecosystem Advocacy teams took action to test solutions supporting the future development of mobility and towards a zero-emission digital future by launching challenges in the Open Ecosystem Network - an open co-creation environment initiated by Nokia. [www.open-ecosystem.org](http://www.open-ecosystem.org).

Car-Rental 2.0 was a challenge to find candidates to offer modern car sharing solutions to Nokia travelers. After thorough analysis of excellent submissions, we chose pilots through Proof of Concepts (POC), where selected services were tested in a real business environment. The first two pilots took place in Espoo, at our headquarters, and further pilots are planned in selected European countries in 2018. The results proved the potential of a sharing economy for corporations, leading to reduced use of taxis and an optimized fleet size.

As the next step for the 2017 challenges, we are looking for a wider mobility concept offering through

a new challenge. The Future of Mobility, which leans more towards a mobility budget-type of offering, provides flexibility for employees and better use of existing assets and services. This approach will combine both business travel and car fleet, with the aim to further reduce the carbon footprint of our own operations. More information on our mobility pilots can be seen at [www.nokia.com/sustainability](http://www.nokia.com/sustainability).

## Our supply chain - energy efficiency and carbon emissions

The main target for our environmental work with suppliers is to encourage key suppliers to report their climate impacts and set carbon reduction targets through the CDP Supply Chain Program. This helps us to plan improvement programs with our suppliers and improve reporting of our scope 3 emissions. For more detailed information please refer to the Responsible Sourcing section on [pages 95–101](#) of this report. Activities related to our product transportation and distribution suppliers are described in earlier sections of this chapter in connection with our own operations.

## Waste and water in our own operations

Waste in our own operations is something we take seriously and we have put in place a variety of waste reduction, reuse, and recycling programs. Although our own operations use very little water, we try wherever possible to use the latest technology to reduce and monitor our use of water.

During 2017, we improved transparency of waste generated in, and disposed of, from our facilities. We developed and implemented new reporting guidelines, including estimation instructions for sites where we do not receive actual invoices.

We have also commissioned a new reporting tool which will allow us to automate a number of data collection procedures and reduce the potential for manual processing, speeding up the process and improving the coverage and accuracy of the data.

Global participation involving a number of communication channels, and significant use of social media provided feedback and improvement suggestions, leading to the publication of the new waste management guidelines, greater coverage of sites measuring and reporting waste, and increased accuracy of the measurements.

Our 2017 target for waste from our own operations was to establish a new baseline and related targets for waste reporting on account of a changed waste reporting scope. This we achieved through the publication of the new Facilities Waste Management Guidelines and improved accuracy in measurement. This now sets an absolute baseline of waste for 2017 of 15 000 metric tons.

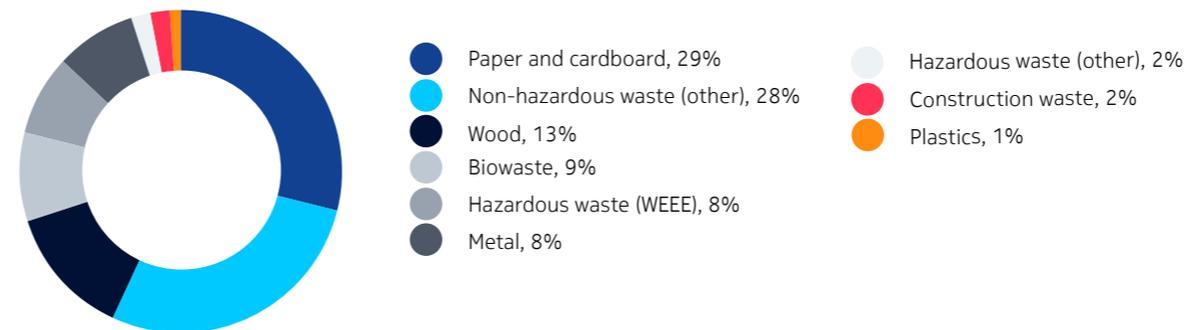
Our aim is to use this information to set targets and measure future performance.

In 2017, we had 2 internal campaigns #StopTheWaste and #StopTheEmissions. We also implemented new waste sorting instructions, and shared our SBT climate targets. We used posters, webex seminars on related topics, Yammer discussion and sharing of best practices.

#StopTheEmissions also included switch-off campaigns and sharing of the results from office energy savings from the previous year. The #StoptheWaste campaign involved 220 participating sites in 45 countries.

Although the nature of our business means water is not a significant resource for us, we do track, measure, and aim to reduce the amount of water we use in our facilities. In 2017, we used 2 331 000 m<sup>3</sup> of water. Water use decreased by 14% compared to 2016. In 2018, we aim to reduce water consumption by 2% from 2017 levels. We also work hard with our supply chain to help our suppliers put in place waste and water management programs as well as setting targets. For more information on our work with our supply chain in these areas, go to the Responsible Sourcing section on [pages 95–101](#).

### Types of waste generated by our own operations

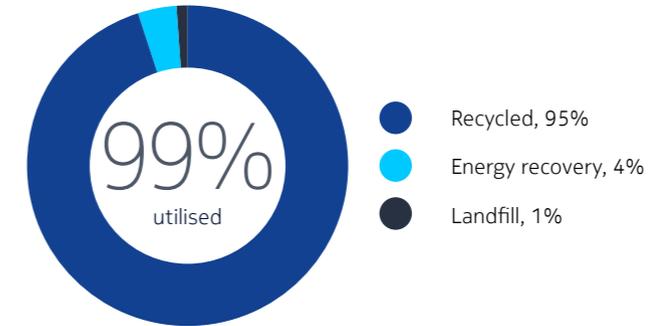


## Product reuse, refurbishment & recycling

We apply a circular economy approach, for example, offering an Asset Recovery Service, including refurbishment, reuse, and recycling of older equipment as part of product lifecycle management. In 2017, through our voluntary programs, we sent around 2 600 metric tons of old telecommunications equipment for materials recovery and we reused approximately 68 000 units.

We also began working with other industry leaders through the iNEMI organization (<http://www.inemi.org/>) to develop a metric that can address the value of components and materials at end of life, their ease of liberation with current and future recycling technologies, and regional market factors in reusing and recycling electronic products. The goal is to have designers use the metric as a means of scoring their product design early in the development process and then making suitable changes to improve that score. The industry group has developed a framework for the metric and is currently collaborating with the University of Tennessee in Knoxville, U.S., to establish scoring criteria for the reuse and recycling metric. More information can be found at <https://networks.nokia.com/services/care/asset-recovery>.

### Product take-back



# Conducting our business with integrity

Our entire business is built on trust. Our Code of Conduct expresses our personal commitment to earn this trust every day, in each community and in all of our business activities. It reflects our values through clear and simple direction for all of our employees and business partners.

# Highlights in 2017

# 678

Ethical concerns  
reported through our ethics helpline

# 393

Sustainability audits  
implemented in supply chain

# GNI

First telecommunications  
equipment provider to  
join the Global Network  
Initiative's Board and  
commit to external human  
rights assessment

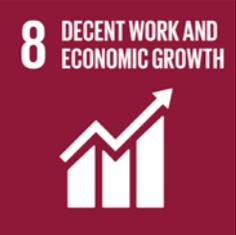
# 96

Ombuds leaders  
in 45+ countries, 65+ cities

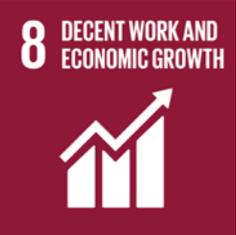
# One of the

world's most ethical  
companies as honored by the Ethisphere Institute in 2018

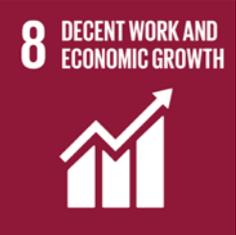
# Our commitments, targets, and performance

Priority area	Material topic	Targets	Achievements 2017	Status	
<b>Conducting business with integrity</b>  	Ethical Business Practices and Corporate Governance	<b>2017</b> Set the baseline based on new Culture Cohesion question “Does your line manager periodically talk with you and your team members about the importance of ethics and compliance?”	In 2017, the average score for this question, across the two rounds, was 72% favorable.	 Achieved	
		<b>2020</b> Employee/Line Manager engagement on importance of ethics and compliance. 75% favorable answers targeted.		 On-going – on track	
		<b>2030</b> Employee/Line Manager engagement on importance of ethics and compliance. 85% favorable answers targeted.			
		<b>2017</b> Ethical Business training (EBT) completion: 95%		In 2017 the result for EBT completion stood at 86% of our employees. ✓ <b>Assured</b> This was below the target. We will continue to work hard to improve this.	 Not achieved
		<b>New target 2018:</b> EBT completion: 95%			
<b>2020</b> EBT completion: 98%			 On-going – on track		
<b>2030</b> EBT completion: 100%					

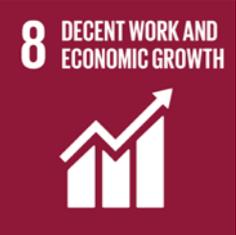
# Our commitments, targets, and performance

Priority area	Material topic	Targets	Achievements 2017	Status
<b>Conducting business with integrity</b>  	Privacy and Data Security	<b>2017</b> Nokia has approved company-wide security baseline requirements. Plans for the deployment of both security and privacy requirements to all businesses and product programs will be in place and underway.	We achieved this target providing ourselves with a solid foundation to fulfil our 2020 target to be recognized as an industry leader in security and privacy.	 Achieved
		<b>2020</b> Our aim for 2020 is that Nokia be recognized as an industry leader in security and privacy. This will be assessed through external benchmarking.	Our activities in 2017 provide us with the foundation to achieve this target.	 On-going – on track
	Preventing product misuse	<b>2017</b> Conduct a formal Human Rights Impact Assessment for the new Nokia product portfolio with an externally verified expert.	The Human Rights Impact Assessment project was moved to 2018 to align it with GNI self-assessment. Work is currently ongoing.	 Not achieved
		<b>NEW target 2018:</b> Conduct a formal Human Rights Impact Assessment for the new Nokia product portfolio with an externally verified expert.		
		<b>2018</b> Successful completion of the first GNI assessment	Target reset. We will complete the GNI Assessment in 1Q/2019 as per decision made by the GNI Board in 10/2017.	 On-going, -not on track
		<b>NEW target 2019:</b> Successful completion of the first GNI assessment		
<b>2020</b> Nokia as externally recognized leader in vendor related issues in freedom of expression & right to privacy according to external benchmarking e.g. Ranking Digital Rights.	During 2017, with an aim to further increase transparency and dialog, we published more HRDD cases around the issue of dual use. We also began internal work on impact assessment as we work towards this 2020 target.	 On-going – on track		

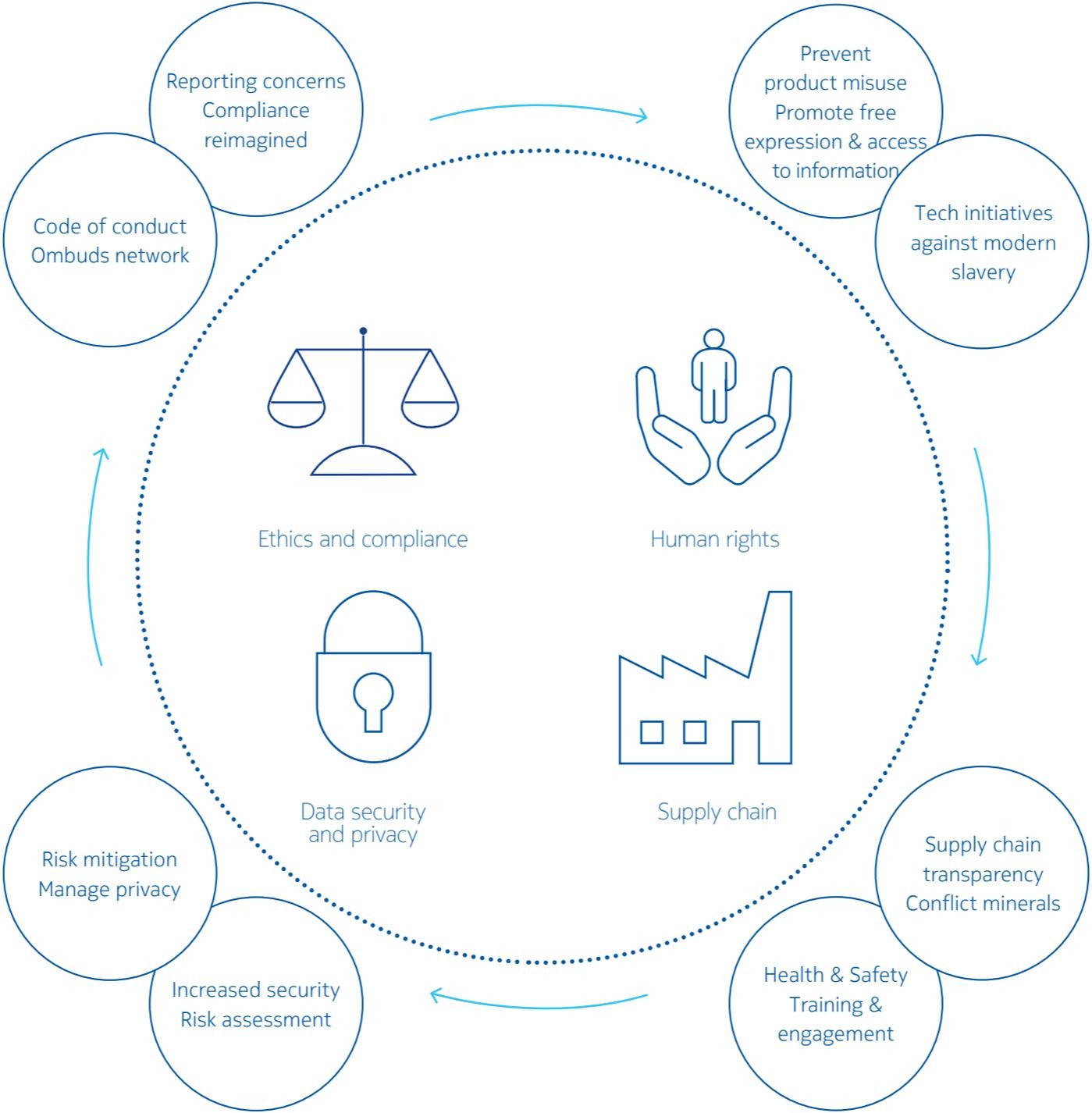
# Our commitments, targets, and performance

Priority area	Material topic	Targets	Achievements 2017	Status
<b>Conducting business with integrity</b>  	Nokia's direct economic impact – Tax & other payments to the stakeholders	<b>2017</b> We will disclose country specific information to the tax authorities regarding 2016 according to the new reporting requirements (so-called country by country reporting within the framework of OECD BEPS action 13)	Large multinationals are obliged to disclose country-specific information to the tax authorities (so called country by country reporting within the framework of OECD BEPS action 13). We are compliant with the new reporting requirements.	 Achieved
	Labor conditions / suppliers & partners	<b>2020</b> Comprehensive supplier sustainability risk mitigation (90% of Suppliers assessed with Satisfactory Sustainability Score and 100 on-site audits conducted per year)	71% achieved a satisfactory EcoVadis score in 2017 and we conducted 72 audits <b>✓ Assured</b>	 On-going – on track
		<b>2020</b> Establish supplier worker empowerment program (enabling trainings on NokiaEDU and Worker Tollfree Helpline)	Ongoing, no major progress in 2017, increased actions planned for 2018	 On-going – on track
	Materials traceability and Conflict Minerals	<b>2018</b> Achieve full traceability to the smelters in our supply chain and their conflict-free status (Mobile Networks)	90% of our suppliers have achieved full visibility to the smelters in our supply chain.  83% of smelters identified as part of Nokia Corporation's supply chain were validated as conflict-free or are active in the validation process.* <b>✓ Assured</b>	 On-going – not on track
		<b>2020</b> Achieve full traceability to the smelters in our supply chain and their conflict-free status (Nokia Corporation)		 On-going – on track
				* The same traceability percentage is valid also for Mobile Networks

# Our commitments, targets, and performance

Priority area	Material topic	Targets	Achievements 2017	Status
<b>Conducting business with integrity</b>  	Health, Safety, and Wellbeing	<b>2017</b> 80% of all suppliers delivering high risk activity to be requalified using Nokia H&S Supplier Maturity Assessment Process.	975 suppliers delivering high-risk activity were assessed by our H&S Maturity Assessment Process and 81% of assessed suppliers met “H&S compliant supplier”-status. (Compliant=3/5 scores) ✓ <b>Assured</b> Over 90% of suppliers delivering high risk activities were covered by H&S Maturity Assessments	 Achieved
		<b>2018</b> 100% of all suppliers delivering high risk activity to be assessed using Nokia H&S Supplier Maturity Assessment Process .	By end of 2017, over 90% of suppliers delivering high risk activities were covered by H&S Maturity Assessment.	 On-going - on track
		<b>2020</b> 50% of suppliers delivering high risk activity to meet or exceed “H&S preferred supplier” status.	We have an active program on-going, please see comments on 2030 and 2017 targets.	 On-going - on track
		<b>2030</b> 100% of supplier delivering high risk activity to meet or exceed “H&S preferred supplier” status.	We are first focusing on getting 100% of suppliers to “compliant”-level (score 3/5; 81% of covered suppliers in 2017) and concentrating then gradually to “preferred”-level (score 4/5)).	 On-going - on track

# Ethical and responsible business



## Ethical business and corporate governance

Our reputation for always acting with unyielding integrity is our most precious asset. Our commitment to upholding the highest principles of business ethics and integrity defines us as a company and distinguishes us from many of our competitors. Throughout our more than 150-year history, we have nurtured a culture of high integrity where every employee is held accountable and responsible for upholding our ethical values.

### Compliance Reimagined

In 2017, we executed ambitious goals in a year of significant change by building on the theme of Compliance Reimagined. Key initiatives supporting these goals were implemented throughout the year, including: Strengthening leadership accountability by finalizing the compliance governance model, and establishing business-owned Compliance Operating

Reviews as the cornerstone of the global compliance program;

- Continuing deployment of the Nokia Compliance Controls Framework (CCF) and addressing identified gaps to mitigate compliance risks;
- Establishing a specialized Center of Excellence (CoE) to address anti-corruption risks;
- Building a mindset of compliance as a strategic business partner;
- Enhancing key program elements, including: (1) right-sizing the risk assessment program for the new company; (2) re-energizing the compliance program owner network of subject matter experts; and (3) creating a robust and comprehensive communications calendar.

### Code of Conduct

We have a Code of Conduct that is applicable to all our employees, directors and management, as well as a Code of Ethics applicable to the President and CEO, Chief Financial Officer and Corporate Controller. We apply our Code of Conduct, not just to our own employees, but also in our daily activities and business dealings with all our external stakeholders. Leadership involvement and oversight on ethics and compliance are provided by the Board of Directors via the Audit Committee. Compliance management is further supported by both global and regional compliance committees.

Our Code of Conduct sets down the key principles and practices of our ethical business approach and provides clear guidance to our employees as well as other stakeholders we work with. The high standards of our Code of Conduct allow us to build and maintain personal integrity across the company and protect our reputation. It can be summarized in five simple principles which run through everything we do and define how our employees are expected to behave:

- Obey laws and follow policies
- Be fair and honest
- Treat each other with respect
- Declare conflicts of interest and avoid appearance of impropriety
- Report any concerns promptly

We are committed to follow and uphold the laws and regulations in all countries where we operate. The Code includes basic legal guidance and information on the key ethical behavior standards to help our employees make the right decisions in a variety of business scenarios they may encounter in their daily work. The Code underpins our labor conditions, and is supplemented and strengthened with human rights policies and procedures that underscore how we aim to ensure fair employment.

Equality and respect are fundamental to our company culture. To that end, we promote a diverse and inclusive workplace where opportunities for achievement and growth are based on merit. We strictly prohibit any form of discrimination, retaliation or harassment, including sexual harassment.

The Code of Conduct is further enhanced by 14 key business policy statements. The policies in the Code of Conduct are non-exhaustive summaries of the policy statements, and provide guidance on proper ethical conduct. The 14 policy statements include: Improper Payments/Anti-Corruption, Conflict of Interests, Fair Competition, Privacy, Dealing with Government Officials, Intellectual Property & Confidential Information, Working with Suppliers, Trade Compliance, Insider Trading, Health, Safety & Labor Conditions, Controllership, Fair Employment Practices, Human Rights, Environment, and operational guidance on third-party screening and corporate hospitality. The complete policies and respective Q&As are made available to our employees.

Our Compliance Policy Owner program is a critical element of our overall compliance program. Each of the 14 key compliance policies addressed in our Code are managed by a designated policy owner, who is the identified subject matter expert. This is a critically important role. As a policy owner, each functional expert is responsible for ensuring that the company remains compliant with laws and regulations, adapts to changing market conditions and business imperatives, and incorporates evolving best practices standards into their programs.

The Code was cascaded to employees via intranet, email, posters, and line managers, as well as on a company mobile app, launched in 2015, to reach out to our highly mobile and tech-savvy workforce. The Code is available in 24 languages and publicly available in English [www.nokia.com/en\\_int/investors/corporate-governance/code-of-conduct](http://www.nokia.com/en_int/investors/corporate-governance/code-of-conduct).

In 2017, there were no significant fines or non-monetary sanctions for non-compliance with laws and regulations related to anti-corruption, discrimination, product health or safety and security, environment, data privacy, export control laws or tax payments.

### Third Parties

The company works closely with its supply chain to encourage adherence to the same standards of ethical business across all sales and supplier interactions and to help ensure responsible sourcing and globally acceptable labor practices. To this end, we require our sales third parties to acknowledge our Code during the onboarding process. In addition, our suppliers and vendors acknowledge adherence to the Electronic Industries Code of Conduct (EICC) as part of their contractual obligations.

In 2017, we developed a separate code of conduct for third parties, which will be deployed in 2018 along with relevant training. We work diligently to ensure that the technology we provide is not used to infringe human rights, including the right to privacy, freedom of expression and assembly.

### Responsible advertising

Advertising at our company must be built on a clear and accurate messaging framework, as set out in our visual and verbal guidelines, with pragmatic statements, grounded in fact, with real proof points, and reasons to believe in Nokia. The use of false or deceptive messages, ambiguity, or aggressive sales techniques are strictly forbidden and against our Code of Conduct and our brand guidance.

### Open reporting - Global Ombuds Program

New this year, we implemented a Global Ombuds Program designed to strengthen our open reporting environment and reinforce our non-retaliation policy. The Ombuds network is a critical element in preventing, detecting and addressing wrongdoing by expanding the existing channels currently available for reporting issues. Taken from the existing ranks within the business, these compliance 'ambassadors' extend the reach of the compliance program and provide an additional reporting channel for potential concern-raisers – namely, a personal point of contact who can candidly advise them on raising concerns, provide feedback on the investigation process, and ensure that no retaliation occurs.

# Ombuds Update

Status as of 31-Dec-2017

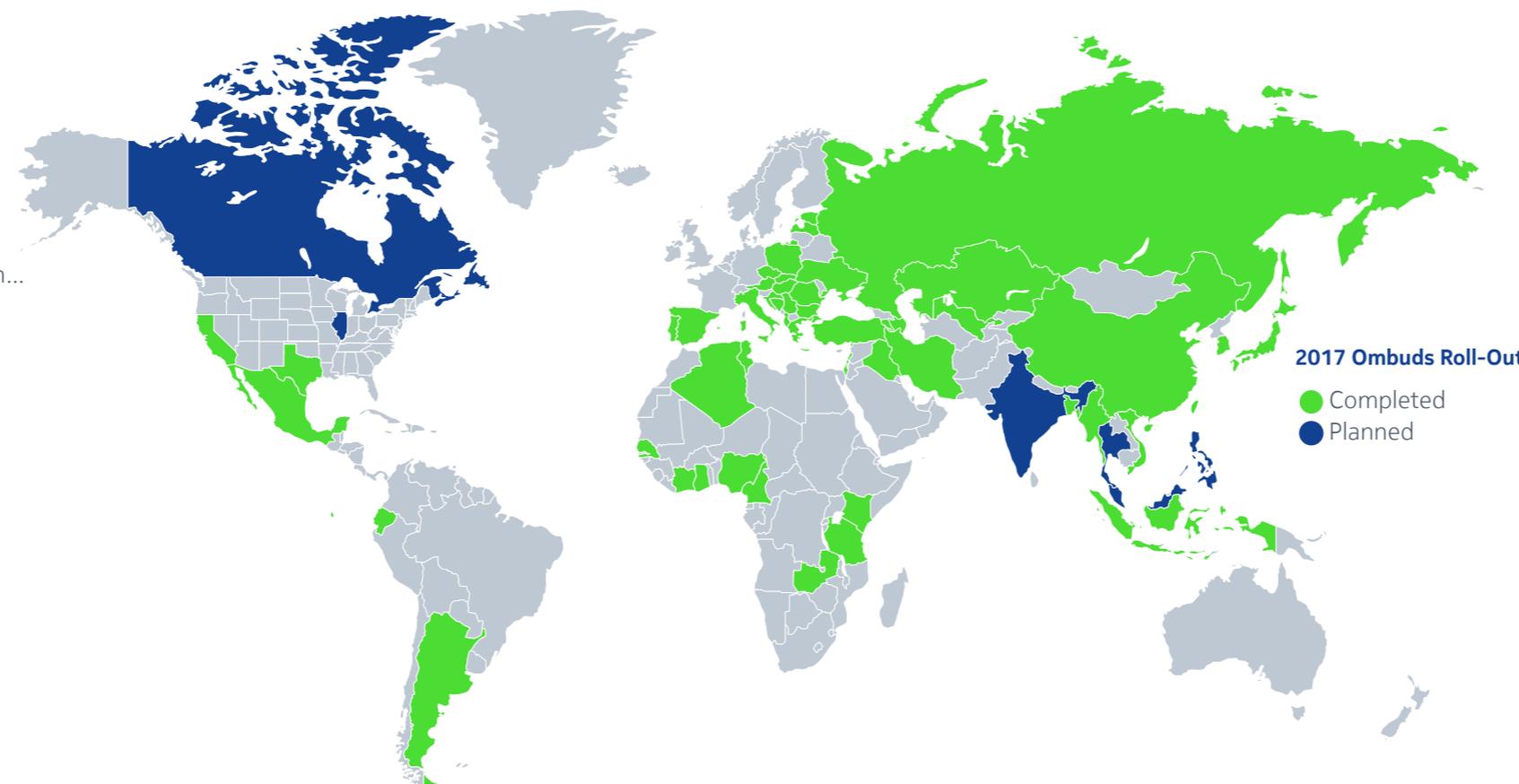
## Ombuds Landscape

96 Local Ombuds Leaders Based in...  
 45+ countries  
 65+ cities  
 ~40% employee coverage

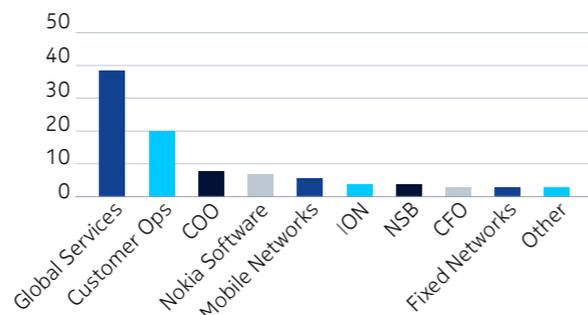
## 2017 Statistics

- 135 questions & concerns raised
- 24 ethics related questions & issues
- 10 issues reported to Ethics Helpline
- 2 cause found cases

## Ombuds Demographics



## Organisation, # of Ombuds



## 2018 Priorities

- Continue global roll-out; strive for 90% employee coverage
- Increase program awareness
- Deeper engagement of Ombuds (e.g., greater involvement in town halls, roundtables, etc.)
- Leverage best practices
- Analyze trends; identify compliance training improvement opportunities

## Completed

- Albania
- Algeria
- Argentina
- Armenia
- Austria
- Azerbaijan\*
- Bangladesh
- Bosnia & Herz.
- Bulgaria\*
- Cameroon
- China
- Croatia
- Czech Republic
- Ecuador
- Estonia\*
- Ghana
- Greece\*
- Hungary
- Indonesia
- Iran
- Iraq
- Israel\*
- Italy
- Ivory Coast
- Japan
- Kazakhstan\*
- Kenya
- Latvia
- Lebanon
- Mexico
- Myanmar
- Nigeria
- Poland\*
- Portugal\*
- Romania
- Russia
- Senegal
- Serbia\*
- Slovakia\*
- South Korea
- Spain
- Tanzania
- Tunisia
- Turkey
- Ukraine
- USA (CA, NJ, TX)
- Uzbekistan\*
- Vietnam
- Zambia

\*Europe pilot

## Targeted for 2017

- Canada
- India
- Malaysia
- Philippines
- Thailand
- USA (IL)

### Leadership Engagement, Accountability and Compliance Oversight

Our unceasing commitment to integrity spans the organization vertically from the Board of Directors, through the leadership to employees at every level of the organization, and horizontally from the company’s base in Finland to its far-flung operations in Asia, Africa, Europe, the Middle East, and the Americas.

We have a strong and experienced leadership team that brings together leaders with many years of experience in IT, digital technologies, software business, research, and telecommunications, as well as finance, strategy, sales and operations, and various other business disciplines. The diversity of business backgrounds of our Group Leadership Team (GLT) has been integral to our transformation into an industry and innovation leader in next-generation technology, software, and services. The GLT is responsible for the overall management of our company, including decisions concerning strategy and the new business portfolio. The Chair and members of the GLT are appointed by the Board. The GLT is chaired by the President and Chief Executive Officer (CEO).

Leadership involvement and oversight of ethics and compliance are provided by the Board via the Audit Committee, which convened nine times in 2017, and covered ethics and compliance topics in 5 of those meetings.

Nokia’s President and CEO chairs the Compliance Committee, which provides oversight and strategic direction for ethics and compliance. Our Chief Compliance Officer (CCO) presents separately and independently to the Audit Committee of the Board, and to the GCC every quarter, or more frequently as necessary. The CCO also regularly meets with the Audit Committee in executive sessions without members of senior management present. Our CCO reports solid line to the Chief Legal Officer (CLO), with dotted line reporting to the Board.

The structure of our organization is designed to maximize the effectiveness of the program. The E&C organization is matrixed, with dedicated leaders for each of the company’s six regions, as well as leaders for each of the company’s three main business groups. This structure ensures that compliance risks are identified and managed both horizontally and vertically. In addition to the dedicated E&C organization, our Legal Team is an integral part of the compliance program and is vested with the responsibility to drive compliance in their daily operations.

Our E&C program is driven in the business and in the regions through a structured governance model. At the center of the structure is the GCC which is responsible for developing policies, processes and risk mitigation programs. The GCC is composed of the GLT, which includes our CEO, our CFO, and our CLO. The plans and policies approved by the GCC are driven down to local regional and business committees.

The regional and business compliance program is complemented through other compliance operating forums, such as the Compliance Operation Reviews (CORs) and the Disciplinary Committees where leaders – and not the compliance team – own and are accountable for compliance. CORs are led by the business or country head, with active participation from senior leaders from the finance, HR, services and procurement teams, and are a critical part of our strategy of leadership engagement and ownership in all aspects of compliance. At each level and in each



forum, leadership engagement is a critical part of the structure. The structure is depicted below.

### Risk Assessment and Management

Evaluating ethics and compliance risk is critical to our success. As a result, we have implemented a systematic and structured approach to risk management across our business operations and processes. Key risks and opportunities are primarily identified against business targets, either in business operations or as an integral part of financial planning. These key risks and opportunities are analyzed, managed, monitored and identified as part of overall business performance management with the support of risk management personnel. Risk management covers strategic, operational, financial, and hazard risks and is focused on eliminating risk, as well as managing the key risks that would prevent Nokia from meeting its objectives.

Our risk assessment program is a dynamic process and the program is implemented through four independent and unique mechanisms:

1. Quarterly Enterprise Risk Management (ERM);
2. Annual company-wide compliance risk assessment bottom-up exercise to understand potential compliance issues that employees may face and to provide appropriate support to help them deal with compliance risk
3. Country or entity-specific Compliance Controls Framework (CCF Reviews) – essentially an internally-developed, business-owned process of identifying anti-corruption risks and developing responsive mitigation controls
4. Regional or country-specific desktop assessment, conducted by Nokia's Regional and Business Compliance Leaders on a regular basis to gauge the pulse of the business and watch out for new trends and risks.

Each of these processes provides a unique opportunity to conduct a deep-dive into the business, functional, country and/or entity specific risks. Identified risks are then addressed through a detailed mitigation plan with assigned ownership and accountability. Each item is tracked for timely completion. Each methodology complements the other and using all the four vehicles, spread out at different times during the year, ensures that we have a 360-degree view of our processes and are receiving feedback from multiple touch points.

## Compliance Control Framework – The Concept

In addition to these assessments, we continuously engage with employees through anonymous surveys to gauge the effectiveness and understanding of our compliance program across the workforce. Compliance is a standard part of the Culture Cohesion Tracker surveys. Employee and other stakeholder input is actively sought to further develop the company's program through town-hall meetings with business leaders at our sites around the world, as well as inclusion in external presentations to various stakeholder groups. This is shown through the inclusion of ethics and compliance in discussions with key suppliers as part of ongoing training and engagement.

On an annual basis, our Internal Audit team also collaborates with the compliance team in audits and through other inquiries that assess the effectiveness of our compliance processes and controls. In creating the 2017 Internal Audit Plan, 12 audits were requested by the E&C organization to address due diligence work that arose due to the acquisition of Alcatel-Lucent. Internal Audit completed 12 country specific reviews during the first half of 2017 focusing on high risk countries. This included anti-corruption risk reviews covering expense statements, petty cash, bank account access, revenue recognition, selection and use of supplies. This addition to the Internal Audit plan was approved by the Nokia Audit Committee and the results were communicated to the Committee. The Internal Audit team collaborated to take steps to mitigate all risks identified during these reviews.

And lastly, Internal Audit is called in by the E&C organization to assist with investigations that are financial in nature. This occurs a few times per quarter. These requests are treated with high priority and other work is reprioritized to provide the needed resources, often altering the internal audit plan to address these priorities. Internal Audit also attends the quarterly E&C regional reviews where issues that have been identified through audits are presented and discussed. Internal Audit also involves the E&C organization when ethics-related issues are identified in audits. While not common, this usually involves potential issues of employee fraud, third party onboarding and/or due diligence, and gifts and hospitality policy.

We use these multiple feedback channels to drive and enhance the culture of continuous improvement in our compliance program, and together with relevant senior leaders also carried out 20 Compliance Control Framework reviews during 2017.

## Compliance Training Program

Effective and engaging compliance training for all employees is an essential component of our compliance program. We require that every employee take annual training in ethical business practices, as well as other live and web-based targeted training, on topics such as anti-bribery, competition law, conflict of interest, and privacy.



Annual training plans are created and are based on defined compliance topics of importance, new and/or updated policies, potential risks identified, and address any other key changes to law or regulations.

Course content for both live and web-based trainings is constantly assessed to ensure that it incorporates best practice standards for ethics and compliance training. All training includes real life scenarios, knowledge checks and links to important company policies, procedures and contacts, where applicable.

The Ethical Business Training module is one of the mandatory web-based training courses that was deployed in 2017. This training includes a review of all 14 policy areas in our Code of Conduct including: ethics in the workplace, fair competition and anti-trust, trade compliance, privacy, bribery and corruption, gifts, entertainment and hospitality, conflicts of interest, human rights, environment, equal opportunity, discrimination, and harassment. We achieved 86% completion globally by the 31 December 2017 deadline. We will continue to strengthen our efforts to increase this completion percentage in order to meet or exceed this target in 2018.

### Compliance Communications Program

Compliance communications are necessary to ensure that all employees are knowledgeable and understand the laws, regulations and policies that apply to them. In addition to formal training, we have developed a robust and comprehensive communication and awareness program to foster

a culture of integrity, to enhance compliance awareness, and to ensure adherence to the Code and related policies.

We employ two different approaches for communications: 1) global, where communications are distributed to all employees; and 2) regional, where communications are customized to reflect local initiatives and requirements.

The Nokia 2017 Communications Plan included various communication vehicles used to keep the messaging dynamic and interesting, including: town hall meetings, push emails, newsletters, Yammer posts, compliance blogs, a dedicated line manager newsletter and materials sourced from an external online library of readily available and customizable multimedia training and communication materials. In addition, the dedicated Ethics & Compliance website consolidates essential compliance resources into one central location and facilitates continuous reinforcement of the company's commitment to compliance and integrity. In 2017, we also designed and deployed two important communications items:

- **Leading with Integrity – A Guide for Managers:** a training module designed as a comprehensive self-use guide, with voice-over features, providing an overview of the business integrity program, outlining the responsibilities of managers and highlighting available resources.
- **Manager's Ethics & Compliance Guide:** a handy, two-page reference brochure, containing key components from the comprehensive guide. The brochure is also available on the Nokia Code mobile app.



### Integrity Week

New in 2017, we launched the global Integrity Week initiative, providing a special dedicated opportunity to reinforce our core values and commitment to doing business with integrity. The goal of Integrity Week is to engage with employees globally to create awareness around the Code of Conduct, reporting channels, policies and other important compliance initiatives. We do this in

**“Wisdom is knowing the right path to take. Integrity is taking it.”**

numerous creative and interesting ways, reinforcing the message that business integrity is not just a corporate responsibility, but a personal one for every employee.

To support the initiative, core and customized regional activities were planned for each day of the week and were designed to:

1. Drive awareness of how integrity impacts employees in their everyday work
2. Promote integrity as a fundamental way of how we conduct business
3. Lead by example by providing tangible, concrete examples of integrity in the workplace
4. Engage and enable employees to comply and align with Nokia's core values

Feedback from the 2017 Integrity Week was exceedingly positive, with robust and global engagement of employees and senior leaders. Local events were held at 90 sites globally with an estimated 6 700 attendees participating in these activities in person. The week wrapped up with the announcement of a small group of employees who were selected as 2017 Compliance Hero Award Recipients. This program, also created in 2017, was designed to recognize employees who uphold and exhibit exemplary ethical values and behavior.

### Reporting of ethical concerns without fear of retaliation

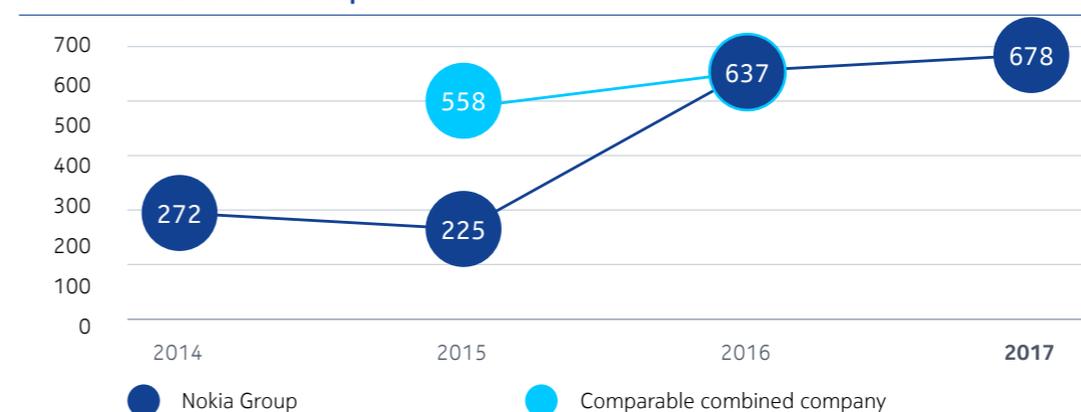
It is paramount that we create a culture and atmosphere of trust amongst our employees that

ensures they feel comfortable in bringing concerns and potential violations of the Code of Conduct to our attention, without fear of reprisals, retaliation, or negative response. We clearly state in our Code of Conduct that there is zero tolerance for

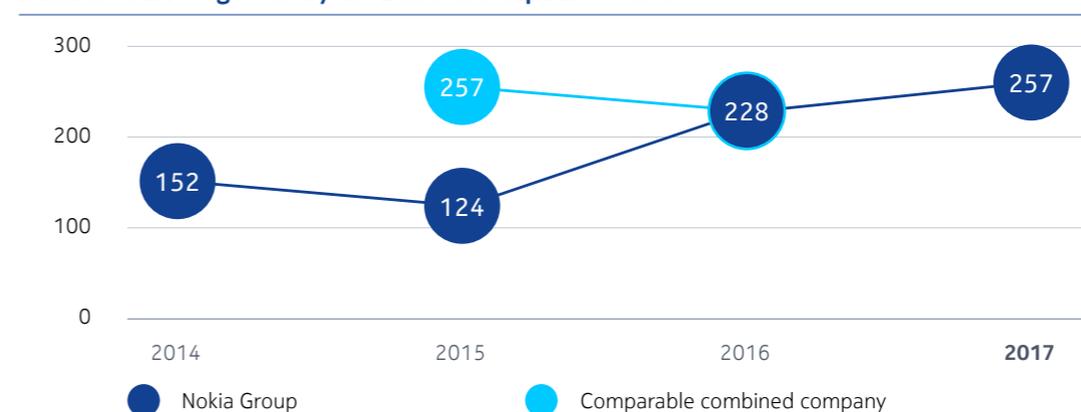
retaliation related to reporting of ethical concerns. Confidentiality is guaranteed.

We offer multiple channels to report ethical concerns, through a dedicated email address, online, or via

Number of ethical concerns reported



Number of investigations by the Ethics & Compliance Office



dedicated country-specific phone numbers. We respond to and investigate all concerns promptly and take any necessary corrective actions. All concerns are logged and tracked regularly. Our hotline is open for employees and external stakeholders.

Our Compliance Hotline, allows for anonymous reporting. In 2017, our Ethics & Compliance office received 678 concerns of which 257 were investigated by Business Integrity Group as alleged violations of our Code of Conduct and 127

allegations were substantiated with “cause found” after investigations. For 2017, we also implemented corrective actions including 47 dismissals, and 45 written warnings, following these and other investigations. All of the above numbers increased from 2016, due to the continued efforts by the compliance team to promote a culture of open reporting in the company. During 2017, the former Nokia Alertline and former Alcatel-Lucent Ethicspoint helplines were merged into the Nokia Business Ethics Helpline, providing a unique set

of tools where employees and externals can report any compliance concerns. The result of these efforts were reflected in the increase in the number of investigations. The relevance of the allegations reported merited the investigations team involvement, and therefore the increase in implemented disciplinary actions can also be attributed to the increase in the number of reports and the severity of the allegations raised.  
Hotline: Email: [ethics@nokia.com](mailto:ethics@nokia.com)  
Online: <https://nokiaethics.alertline.com>

**Number of employees dismissed on grounds of a violation of the Code of Conduct**



**127 allegations substantiated with "cause found" after Ethics & Compliance office investigation in 2017**

Number of ethical concerns reported	678
Number of investigations by Ethics and Compliance office	257
Number of allegations substantiated with "cause found" after investigation	127

**Number of ethical concerns reported in 2017**

Conflict of interest	55
Controllership	71
Dealing with government officials	2
Fair competition	5
Fair employment (all HR related concerns)	231
Guidance	141
Human rights	2
Improper payments	11
Intellectual property & confidential information	31
Privacy	0
Trade compliance	6
Wellbeing, health, safety and environment	23
Working with suppliers	40
Other	60
<b>Total number of concerns reported</b>	<b>678</b>

**Ethical business - case examples of reported concerns**

Issue raised	Our guidance	Actions taken
Account Sales Manager delivered a falsified commitment letter (with electronic company seal) to a local reseller. In addition, the Account Sales Manager used the commitment letter to report fake order intake/forecasts.	Our Code section on Controllershship emphasizes that the company classifies and records its transactions and assets appropriately. It is critical to maintain complete and accurate records.	The allegations were substantiated and the employee was terminated for cause.
Employees with frequent international trips were making fake expense claims by submitting either fake or inflated hotel and other travel invoices for reimbursement.	Our Code section on Controllershship emphasizes that an employee must not misrepresent financial records, including falsifying expense reports.	The allegations were substantiated and employees terminated for cause.
Employee (on last day of employment) was believed to have downloaded Nokia confidential and proprietary information for non-Nokia uses. The employee was further suspected of having a conflict of interest (side consulting deal) with a potential competitor.	Our confidential, proprietary, and trade secret materials are among its most valuable assets. Theft, misuse or misappropriation of our intellectual property is both a violation of company policy and – in many countries – a violation of law.	The allegations were substantiated and we took recovery action against the individual and the potential competitor.
A sales manager was accused of owning a company that directly competed with Nokia. In addition, employee was allegedly promoting his business and actively securing business for his company and not for Nokia.	A conflict of Interest may arise when our interests and an employee's personal interests are at odds. Our Code of Conduct proscribes certain conflicts of interests and invites all employees to disclose potential conflicts to their line manager and/or E&C.	Allegations were substantiated and the employee was terminated for cause.

Above are anonymized illustrative examples of investigations carried out in 2017 by our Business Integrity Group.

## Anti-corruption program & Center of Excellence

We employ a multi-faceted approach to anti-corruption issues. We have clear and unequivocal policies concerning improper payments, facilitation payments, gifts and hospitality, sponsorships and donations, and other risk areas. We carry out training and regularly communicate to our employees regarding risks, and we review these risks and our mitigation measures with the company's senior leadership and Audit Committee. We carefully screen and monitor any third-party representatives engaged to act on our behalf and we demand the same high standards of conduct from them. We conduct periodic audits and risk assessments to ensure that we identify and respond to anti-corruption risks. We expect employees to ask questions and raise concerns whenever they believe there is a potential violation of law or policy, and we investigate all such concerns in a prompt, thorough and objective manner. When an investigation confirms a violation, individuals are held accountable.

To properly address anti-corruption related issues, the company has developed and implemented a global Improper Payments program that reaches all of our employees, as well as our business partners. The program is comprehensive and consists of several complimentary anti-corruption policies, procedures, processes and guidance designed to prevent the offering, giving, or receiving of improper payments, with emphasis on interactions with government officials. Such payments include facilitation or "grease" payments, improper gifts,

entertainment, gratuities, favors, donations or any other improper transfer of value.

The program is also designed to ensure that we only engage reputable sales representatives and other third parties who share our unwavering commitment to ethics and integrity and meet our stringent due diligence standards.

We have developed a Distributor Code of Conduct to ensure high standards of conduct as we seek to build long-term relationships with our distributor partners by actively engaging with them and helping them to build their own robust compliance programs. This is a unique initiative built on a foundation of mutual interest and on building lasting relationships that extend beyond developing business.

We also follow a strict no agents & consultants rule that prohibits the use of commercial agents and consultants in virtually all of our commercial dealings, other than in exceptional cases or where required by law. We believe that every commercial partner we engage must bring tangible and material value. Agents who broker deals or provide only consultancy services in a deal are strictly prohibited from working on our behalf. This reduces the risk of corruption considerably.

We drive awareness of the specific requirements of relevant procedures and processes through global communications and targeted trainings by Regional and Business Compliance Counsel, not only covering our own employees, but also our sub-contractors and customers, where necessary.

As part of our efforts to ensure continuous improvement, we have launched a new dedicated Anti-Corruption Center of Excellence (COE). The mandate of the COE is to efficiently manage the sales third-party onboarding processes, as well as the review and approval of gift, entertainment, hospitality, donation, and sponsorship requests. In addition to driving awareness through trainings and communications, the COE employs two critical tools to implement the company's anti-corruption program. First, requests to pre-approve gifts, hospitality, sponsorships and donations extended to external parties are entered by employees into the online Gifts, Travel and Entertainment (GTE) Tool in accordance with relevant procedural requirements. Second, all requests to onboard sales third parties are entered in the online Third-Party Screening Tool (TPST) in accordance with relevant procedural requirements.

## Competition Laws

Nokia has a robust compliance program around Competition/Anti-trust Law to ensure compliance with applicable competition laws. The compliance program consists of an implementation and monitoring framework, systematic awareness and training, and mechanisms for incident reporting and management.

In May 2016, Nokia launched an updated group-wide competition law e-learning module as part of competition law compliance efforts. The e-learning is targeted at all our executives and employees who work with competitors, customers, partners,

suppliers, sales, contract negotiations with third parties, procurement, intellectual property, licensing, technology collaboration, standardization, and strategy. This module provides our employees with an overview of the basic competition rules for dealing with competitors, suppliers and other business partners. By highlighting different practical situations and case examples, the training helps to clarify how competition law may be relevant to an employee's daily work in different circumstances.

### World's Most Ethical Award

We were honored by the Ethisphere Institute as one of 2018's World's Most Ethical Companies owing to our past achievements, present strong program, and bold vision for the future. The award is given annually by Ethisphere, the leading organization for corporate ethics and compliance, to a small and select group of companies, following a rigorous evaluation process into the company's policies, processes, social responsibility, governance, and compliance culture. Having weathered unprecedented technological change and absorbed companies with varying commitments to ethical practices, we have literally raised the bar for integrity in our field.



## Addressing human rights

We believe that more connectivity is better than less and that the technologies we provide are a social good that can support human rights by enabling free expression, access to information, exchange of ideas, and economic development. We remain committed to the principles of The Universal Declaration of Human Rights and the United Nations' Global Compact, and we expect our suppliers and business partners to share these values.

Our human rights work is guided by the Code of Conduct and the Human Rights Policy. Potential product misuse is by far the most salient human rights risk in our operations. Through our Human Rights Due Diligence process, we aim to ensure via our sales interface that human rights are not infringed upon through the misuse of the products and technology we provide. We also operate in many countries with a diverse supply chain, and there is a risk that our employees, partners or agents may take actions that are in contradiction to our Code of Conduct or that customers and suppliers may

### Our Human Rights Framework

	Nokia employees	Product Misuse	Nokia supply chain
Human Rights Impact	Labor rights, Health, Safety, Wellbeing, Decent working conditions, Compensation <b>Impact - Materiality - Risk</b>	<b>Freedom of expression and privacy</b> <b>Impact - Materiality - Risk</b>	Labor conditions, freedom of expression, compensation, health and safety, corruption <b>Impact - Materiality - Risk</b>
Potential Risk mitigation	<b>Ensuring decent working conditions</b> <b>Health and wellbeing</b>	<b>Code of conduct</b> <b>Human rights due diligence</b>	<b>Code of conduct for suppliers</b> <b>Audits, assessments and training</b> <b>Health &amp; safety maturity</b>
Grievance mechanisms	<b>Compliance hotline</b> <b>1 in 90 discussions</b>	<b>Compliance hotline</b>	<b>Compliance hotline</b> <b>Audits and assessments</b>
Measurement	<b>Cultural cohesion tracker</b> <b>Related targets</b>	<b>Reported and investigated concerns</b> <b>Related targets</b>	<b>Results of indepth audits</b> <b>Developing health and safety</b> <b>Related targets</b>

similarly violate these principles, which could also have an adverse impact on our reputation, brand, or financial position. We therefore employ a range of processes and procedures to mitigate these risks.

Please read more about how we manage our supply chain in the Responsible sourcing section.

From 2018 onwards, the French corporate duty of vigilance law also requires parent companies to identify and prevent adverse human rights and environmental impacts resulting from our

own activities, from activities of companies we control, and from activities of our subcontractors and suppliers with whom we have an established commercial relationship. The table above provides help in navigating across this People & Planet report to find information on the specifically mentioned human rights topics.

## Respecting the right to privacy and freedom of expression – preventing the misuse of technology

Communications networks can play a significant role in enabling free expression, access to opportunities and ideas as well as social, environmental, and economic benefits. As an equipment vendor for communications technology, we have a responsibility to ensure our products communications networks are not used to limit or infringe on human rights.

The last few years have seen an unprecedented number of terrorist attacks in the world. This alone has increased the spotlight on security on the one hand, and increased calls for greater public safety on the other. In parallel, terrorism exemplifies the growing challenge of balancing the privacy rights of the individual with an increased need for security for both individuals and societies.

In this evolving global context, paired with the rapidly developing technological advancements in the Internet of Things (IoT) and Artificial Intelligence

(AI), getting that balance right has never been more pressing or more complex, for any of us.

### Importance of human rights due diligence

We conduct Human Rights Due Diligence (HRDD) investigations to mitigate the potential risk of misuse of our technology. The HRDD process is defined as a non-commercial cross-functional investigative process which is used to identify the potential risk of human rights violations through the misuse of our technology, and also to identify potential ways to mitigate these risks to ensure compliance to our Human Rights Policy. In addition to actual HRDD case investigation, this work entails continuous dialog, awareness raising, and training of relevant key personnel, for example, ensuring the sales teams are equipped with sufficient knowledge on the HRDD process to flag cases for further investigation. We also work continuously to improve the relevant processes around sales to ensure adequate gatekeeping and check points are included in these processes.

Our experience from recent HRDD investigations in 2017 indicate that there seems to be a potentially rising trend in the so-called dual use of standard technology. We therefore feel it is critical that when conducting risk assessments, the focus must be on the use case, that is, on the intended use of the technology. Monitoring mere lists of individual product sales items is not a sufficient measure

to adequately assess the intended use of the technology provided.

### Transparency – a must to strengthen the overall dialog in human rights

As stated already in our previous annual report, equipment vendors do receive government requests. These come either through our customers, who have received the request and come to us to implement a functionality to comply with the request, or in some cases directly from authorities who are looking for vendors to implement solutions on for example, direct access.

Our Human Rights Policy sets out our clear position on these requests - we do not pursue business directly with intelligence such agencies on such functionalities (surveillance), and furthermore, we provide passive lawful interception capability only to those customers who have a legal obligation to provide this service in their telecommunications networks.

The fundamental need for increased transparency has grown in importance for both our company and for the ICT sector in general. Furthermore, we join others in the industry as we continue to call for increased transparency from governments related to their surveillance activities and for greater clarity about the laws and regulations related to these topics.

We also remain committed to active industry level dialog on issues related to the balance between the right to privacy, freedom of expression, and personal security as fundamental human rights.

### Increasing transparency by commitment to external assessment

As part of our engagement with others, we were delighted to join the board of the Global Network Initiative (GNI) as a full member and as the first and only telecommunications equipment provider in March 2017. The GNI is a multi-stakeholder group of companies, civil society organizations (including human rights and press freedom groups), investors, and academics working together to protect and advance freedom of expression and privacy in the ICT sector.

We will no longer report on the status of implementing the ID Guiding Principles, but are currently undergoing a self-assessment against the GNI Guiding Principles to prepare for our first formal GNI Assessment in the first quarter of 2019, and look forward to sharing more information on the assessment and the results in our next report. More information on the GNI Guiding Principles is available on the GNI website at <https://globalnetworkinitiative.org/principles/index.php>

### Increasing transparency on the overall narrative

In our 2016 People & Planet report, we published for the first time, anonymized case examples for actual HRDD cases. Being able to discuss the

“The challenges posed by online extremism, surveillance, cross-border data laws and government-ordered network shutdowns cannot be solved by governments alone. The GNI continues to build an unrivaled multi-stakeholder platform of companies and civil society actors, all committed to working with governments on constructive solutions to uphold and respect the rights of free expression and privacy in the digital realm.”

Mark Stephens CBE., international human rights lawyer and GNI Independent Board Chair

vendor challenges to free expression and the right to privacy by way of demonstrating these concrete cases has been tremendously helpful for us in the overall narrative since publishing the first cases. We are therefore publishing a new set of HRDD case examples this year, in the hopes they will provide more information, in particular on the issue of dual use of standard technology (examples 1-3 on the following page)

It is our firm belief the narrative on these challenges will be more informative and descriptive to move the dialogue further than simple numbers alone.

### Looking forward

As a next step, we must start moving the conversation around human rights to also

encompass emerging technologies like 5G, Internet of Things (IoT) and Artificial Intelligence (AI). What are the potential challenges with IoT, when more and more personal devices are connected to public systems? What about the increased amount of data moving around in these systems, who owns that data? Who will have access to it? What are the mechanisms for ensuring lawful access to private citizens' data, if the data is already used and managed by public systems? What is the role of transparency from governments in reporting on their use of private citizens' data in incidents where this data is used for other than its original intent? How do we continue to balance the need for security and the right to privacy in this context?

These are just some examples of the questions ahead. The fact remains that we do not even know all the questions we are facing yet. We should all remain humble in that recognition, while also driving a shared determination to ensure human rights are applied in the digital space for tomorrow. It is our firm belief that the best answers will be generated from open and informed societal debate, combined with an international multi-stakeholder dialog. We invite everyone to contribute – the time is now.

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The former Telecommunications Industry Dialogue was disbanded as the majority of its members have taken up membership in the GNI. We encourage other telecommunications companies to join the dialogue. The annual report on the 2017 activities of the Industry Dialogue is available at [www.telecomindustrydialogue.org](http://www.telecomindustrydialogue.org).

## Human Rights Due Diligence anonymized case examples

	Country	Requestor	Request	HRDD investigation	HRDD decision	Policy Principle
<b>Case Example 1</b>	Extreme Risk Country	A non-governmental private entity	To provide a standard Local Access Network (LAN) platform switch to function as a data aggregator to push all aggregated internet traffic data onto the local Lawful Interception (LI) server.	<p>Given the request for unlimited and undefined authority to access subscriber data, it would not have been possible at all to ensure the principles of necessity, proportionality or legality, nor ensure any transparency on the authority use of intercepted data.</p> <p>Furthermore, no standard LI solutions would have been used, but only standard broadband products – making this case an excellent example of the "dual use" dilemma, again highlighting the importance to focus on the intended use of technology, instead of monitoring single product items.</p>	NO GO 	<p>Nokia will provide passive lawful interception capabilities to customers who have a legal obligation to provide such capabilities. We will not, however, engage in any activity relating to active surveillance technologies, such as storing or analyzing of intercepted data.</p> <p>Nokia will seek to prevent the sale of our products and services in cases where we believe there is a significant potential that those products or services could be used to infringe human rights.</p>
<b>Case Example 2</b>	Extreme Risk Country	A non-governmental private entity	<p>We have in our product portfolio a 3GPP standard solution to enable commercial use (targeted advertising) and emergency services location tracking required by law. This solution enables positioning of an individual subscriber at arbitrary location accuracy depending on which positioning methods have been enabled as well as supported by the user's device. An additional application can be used to make user location identification more precise, but again the 3GPP compliant use case is related to emergency services such as disaster alerts, or targeted advertising with no real-time user information storage.</p> <p>The authority request was to integrate this solution with a surveillance system provided by a third party, and to provide a historical database on user information for authority use.</p>	<p>The investigation focused on the request on the non-standard development &amp; implementation of the historical database with access to an Legal Interception (LI) authority application.</p> <p>The creation of a historical database with an integrated interface to authorities would have enabled unlimited access to subscriber data with an undefined scope of governmental agencies in the target country, thus negating the principles of necessity, proportionality or legality on authority use of end-user data.</p> <p>Furthermore, no standard LI solutions would have been used, but only standard database creation with normal systems integration and interface creation – making this case an excellent example of the "dual use" dilemma, again highlighting the importance to focus on the intended use of technology, instead of monitoring single product items.</p>	NO GO 	<p>Nokia will provide passive lawful interception capabilities to customers who have a legal obligation to provide such capabilities. We will not, however, engage in any activity relating to active surveillance technologies, such as storing or analyzing of intercepted data.</p>

## Human Rights Due Diligence anonymized case examples

	Country	Requestor	Request	HRDD investigation	HRDD decision	Policy Principle
<b>Case Example 3</b>	Extreme Risk Country	A non-governmental private entity	To provide a central billing system bringing together call data records (CDR) from all areas of the operator network into a single mediation system. The request included creating a downstream to a data repository with an interface to authorities, in other words a Legal Interception (LI) repository of all call metadata. This data would be updated or downloaded from the central system twice a day.	<p>When compared to standard core network ETSI standard based LI functionality, this capability would have included the X2 interface (call, SMS metadata), but excluded X1 (call or message contents) interface.</p> <p>No standard LI solutions would have been used, but only standard broadband products – making this case an excellent example of the “dual use” dilemma, again highlighting the importance to focus on the intended use of technology, instead of monitoring single product items.</p>	NO GO 	Nokia will provide passive lawful interception capabilities to customers who have a legal obligation to provide such capabilities. We will not, however, engage in any activity relating to active surveillance technologies, such as storing or analyzing of intercepted data.
<b>Case Example 4</b>	Extreme Risk Country	A governmental entity	To provide the organization with a private, public-safety LTE network and terminals/handsets with end to end application level encryption.	<p>The solution in scope was to provide a private network to enable communication within the organization. There is no access to public mobile networks, nor are any lawful interception capabilities included.</p> <p>The intended use of the solution was to improve response times for first responders in disaster relief situations by enabling a more reliable means of communication between the different organizations during an emergency.</p>	GO 	Nokia will provide communication systems and standard networking capabilities to governmental customers for purposes such as public safety, railway communications, and smart city enablement.
<b>Case Example 5</b>	Extreme Risk Country	A non-governmental private entity	With the introduction of a new legal requirement in the country, mobile operators will be legally required to expand the lawful interception capability in their networks with a new functionality.	<p>This request falls within the scope of passive interception, and this requirement is included in the conditions for operational licenses for telecoms operators as a legal obligation to provide this capability.</p> <p>Furthermore, according to local law, lawful interception in the country remains subject to court order.</p>	GO 	Nokia will provide passive lawful interception capabilities to customers who have a legal obligation to provide such capabilities.

## Responsible sourcing

Our reputation not only depends on what we do, but also the activities of our supply chain. We aim to work together with our customers and our suppliers to increase transparency and responsible business practices in our supply chain. We endeavor to put in place the processes, programs, procedures and policies to mitigate supply chain risks, and provide remedy and collaboration with our suppliers to enable a more sustainable and transparent ecosystem.

Our supply chain consists of three categories of procurement: product which covers the materials that go into our products; services which we offer to customers such as network planning, installation and maintenance and construction; and finally indirect supply which consists of goods and services we buy to run our business, such as IT, logistics, financial, legal, and marketing. The majority of our manufacturing suppliers are based in Asia, whereas our services suppliers are located around the world.

In 2017, we had business with approximately 12 000 suppliers, 80% of our total supplier spend was distributed across approximately 435 suppliers.

In 2017, we continued our efforts to bring together the complex procurement systems of the former Alcatel-Lucent and the former Nokia into an integrated system.

Before any work begins with a supplier, we expect them to meet the high ethical, social, and environmental standards set out in our Supplier Requirements, which can be found [here](#). These requirements are an integral part of all our supplier contracts. We expect suppliers to have the appropriate management systems, resources, and a code of conduct that shows a high commitment to respecting human rights, good labor practices and conditions, as well as clear ethical business conduct. We also expect our Tier 1 suppliers to apply the same standards to their own suppliers.

We strictly implement our company purchasing procedures in our relationships with existing suppliers, as well as when taking potential new suppliers on board. We are transparent in our relationships with our suppliers, and gifts and entertainment are neither given nor received beyond those of nominal value such as lunch in a canteen.

We qualify suppliers according to our standards and practices, expect them to comply with all applicable laws and regulations, and show they share the values stated in our Code of Conduct.

Global supply chain related risks are identified in our materiality analysis. In addition, a more exhaustive analysis has been done by determining all the risks related to suppliers' activities. The nature, magnitude of the risks, and monitoring requirements are included in the category strategies which are elaborated every year by the procurement teams. Our risk approach also considers the location of the

### Our supply chain in a nutshell



Product + Services + Indirect

suppliers and the business context. For example, our compliance hotline is also open to externals such as suppliers. More information on raising concerns can be found on [page 86](#) under the Ethics and Compliance section. We also have KPIs in place to monitor our responsible sourcing activity, as well as global targets.

#### Overview on types of suppliers addressed through our CR programs

- Over 90% of relevant supplier base is covered by Supplier Health and Safety Maturity Assessment
- Over 50% of supplier spend is covered by CDP supply chain climate change program
- 98% of relevant supplier spend is covered by Conflict Minerals program
- 40% of supplier spend is covered by EcoVadis sustainability assessments.
- 100% of supplier spend is covered by the Request for Information (RFI) process, related to anti-corruption due diligence, health and safety, and overall sustainability.

For onsite audits we do not measure the percentage as audits are risk-based.

#### Monitoring, assessment and auditing

We run robust assessments with our supplier network regularly to support them in meeting our ethical standards and improving performance where necessary. We monitor our suppliers through a variety of methods, of which the most important are:

#### Our Corporate Responsibility supplier requirements audits

- Our general audit covers the full comprehensive set of supplier requirements, and corporate responsibility requirements are part of this set. This type of audit is most commonly used with new high-risk suppliers or when a supplier has seen a significant change in its business situation. For example, we would use this type of audit if an existing supplier moves or is planning to move a manufacturing facility to another country.

#### Labor conditions and environmental management - in-depth audits

- For our existing suppliers, we conduct specific corporate responsibility in-depth audits. Implementation of these audits is aligned with the SA8000 methodology, and the audits cover document reviews, interviews with managers and employees, and site visits, as well as inspections of facilities, production lines, and warehouses.

We also use EcoVadis sustainability assessments to review the environmental, labour, health, safety, ethics, and sustainable procurement management systems of our suppliers with a tailored questionnaire and supporting document reviews. On EcoVadis we expect suppliers to achieve a satisfactory score, and follow up with suppliers whose score is below satisfactory level. In 2017, we had 71% (70% in 2016) of suppliers on EcoVadis with a satisfactory performance score. EcoVadis scorecards are requested to be renewed on a bi-annual basis.

In 2017, we implemented 393 (390 in 2016) supply chain audits, which included 72 on-site audits on corporate responsibility topics; 47 were on-site audits against our full set of supplier requirements and 274 suppliers were assessed using the EcoVadis scorecards.

In 2017, we spent 187 auditor days conducting Corporate Responsibility in-depth audits (109 in 2016) at 71 supplier sites (39 in 2016) in Thailand, Philippines, Indonesia, China, Taiwan, India, UAE, Mexico, Brazil, Argentina, Iran, Nigeria, Algeria, and Romania, impacting a total of around 23 893 supplier employees. We found 591 instances of non-compliance of which 268 related to health and safety, 59 related to environment. Based on the findings, we made 913 recommendations for improvement, and these are being addressed through corrective action plans. See examples on the following page. In addition, our customers conducted one onsite audit through the Joint Audit Cooperation (JAC) framework.

Audit closure is a continuous challenge – our target is to close CR onsite audit findings within 6 months of the audit. In 2017, timely closure of audits stood at 58%. We realize this must be improved and will make increased efforts to achieve a higher percentage closure going forward.

## Number of corporate responsibility on-site audits compared to 2016

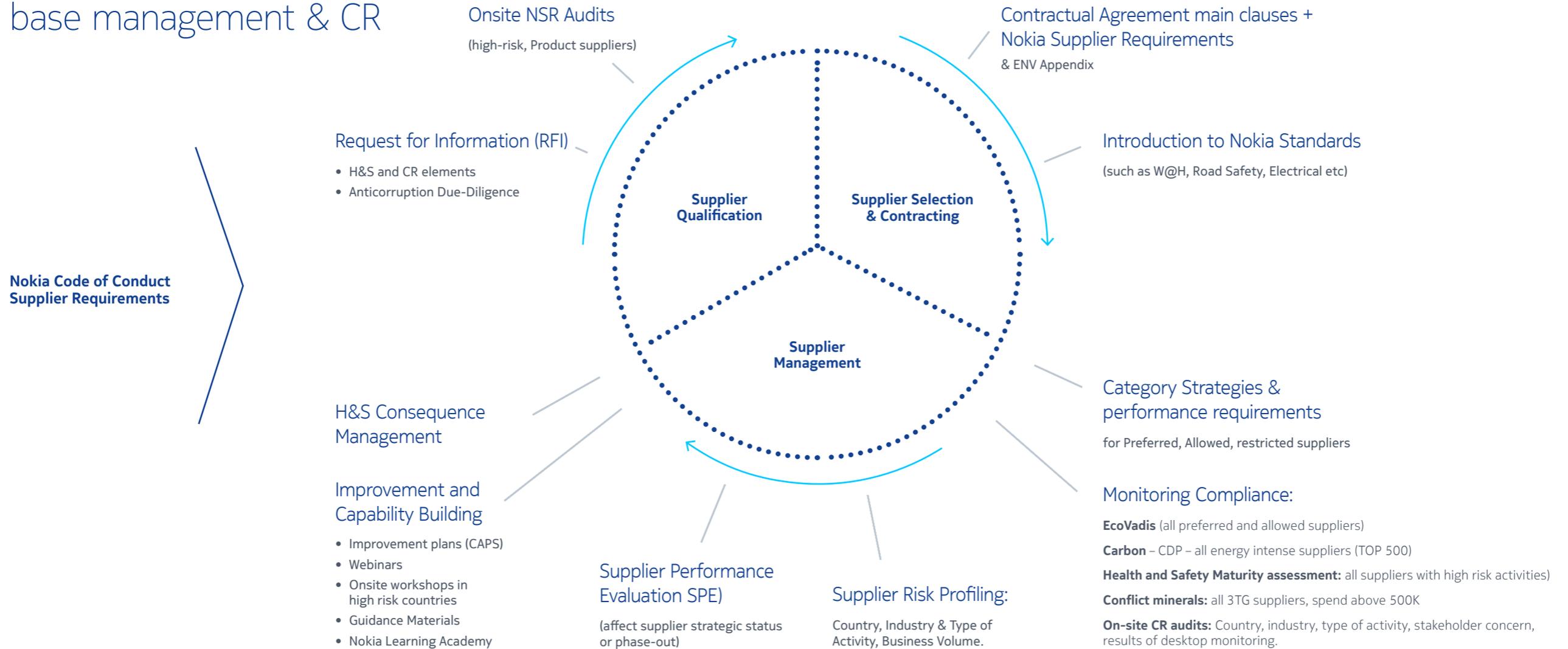


## Findings from our in-depth audits

Category of Findings	Instances of non-compliance	Number of potential risk areas identified	Total number of recommendations for improvement
Child labor (proof of age documents missing)	1	0	1
Forced labor (contract agreement issues/fine/deduction etc.)	2	2	4
Health and safety	343	174	517
Freedom of association and right to collective bargaining	2	9	11
Discrimination	3	1	4
Disciplinary practices	7	5	12
Working hours	28	9	37
Remuneration	82	22	104
Management systems	218	133	351
Environmental management system	74	27	101
<b>Total</b>	<b>760</b>	<b>382</b>	<b>1142</b>

The table is based on 72 CR in-depth audits conducted in 2017.

# Brief overview of supplier base management & CR



## Capability building – driving improvements

Additionally, we ran 15 training workshops for suppliers operating in high-risk countries such as Thailand, Philippines, China, Taiwan, India, UAE, Argentina, Mexico, Iran, Nigeria, Algeria, and Romania. In 2017, we organized online trainings on conflict-free sourcing and climate change, and we arranged face-to-face training workshops establishing improvement plans and actions for 253 suppliers. Please refer to the diagram: Supplier participation in Nokia sustainability workshops and webinars.

Supplier participation in Nokia sustainability workshops and webinars



### Identified non-compliance and actions taken

Category	Non-compliance identified	Actions taken by supplier
Forced Labor	Passports of a few employees were kept under the custody of the employer (due to misunderstanding that it is legally required and also as a protection against employees leaving with high-value tools in hand)	Supplier agreed not to use this method of passport retention and returned all passports to the affected employees.
Remuneration	Supplier was splitting the employee wages into two components: Basic + House Rent Allowance. The basic wages from which the Provident Fund was calculated however was less than the legal basic minimum wages in the country.	HR Procedure was amended in line with the government norms and the Provident Fund calculation was changed accordingly. Evidence of Provident Fund return was provided indicating that Provident Fund calculation was in line with regulation.
Health & Safety (manufacturing)	Chemical spillage in small chemical storage area in the manufacturing area was inadequate. Eyewash module was placed far from the chemicals storage area.	Chemical handling tables and transport trolley for chemicals were updated and placed for all production modules. Eyewash module was placed near chemical cabinet where it was missing.
Health & Safety (services)	Work at Height supervision requirement was not included in relevant procedure for Work at Height.	Work at Height Procedure was revised and updated as per requirement.
Management Systems	Health & Safety as well as environmental requirements were not yet included in supplier qualification.	Supplier has updated supplier qualification procedures with H&S and environmental requirements embedded.
Management Systems	There is no anonymous channel for feedback and communication on compliance issues	Supplier created a website form enabling anonymous feedback on compliance issues. Compliance committee was formalized.
Environmental management system	There are no energy efficiency targets and measurement in place	Supplier has implemented basic measurement and has reduction targets in place.

This table is based on 72 CR indepth audits conducted in 2017.

### Climate impacts – helping suppliers reduce and report

As stated we insist that all our suppliers, except those with very low environmental impact, must have a documented Environmental Management System (EMS) in place. For key suppliers and for those with greater impacts, it must be certified to ISO 14001. We actively track this compliance through audits and assessments.

We work closely with our supply chain to jointly create environmental improvement programs and better our upstream Scope 3 emissions reporting (overall Scope 3 means all indirect emissions that occur in our value chain, including upstream and downstream) through the CDP Supply Chain Program.

The main target for our environmental work with suppliers is to encourage key suppliers to report their climate impacts and set carbon reduction targets through the CDP Supply Chain Program. This helps us to plan improvement programs with our suppliers and improve reporting of our scope 3 emissions.

In 2017, 292 of our key suppliers, an increase of 49 from 2016 and representing 53% of our total procurement spend, responded to the CDPs request to disclose their climate performance information. Of these, 214 disclosed their carbon emissions (an increase of 22 from 2016) and 153 also provided emission reduction targets (an increase of 26 from 2016). The total saving from these carbon reduction initiatives was 19 million metric tons CO<sub>2</sub>e and around USD 6.7 million during the course of the year.

#### Supplier climate disclosure figure

292

Suppliers disclosed data, >50% of Nokia spend

92

Suppliers purchased renewable energy

97

Suppliers engaged their own suppliers

214

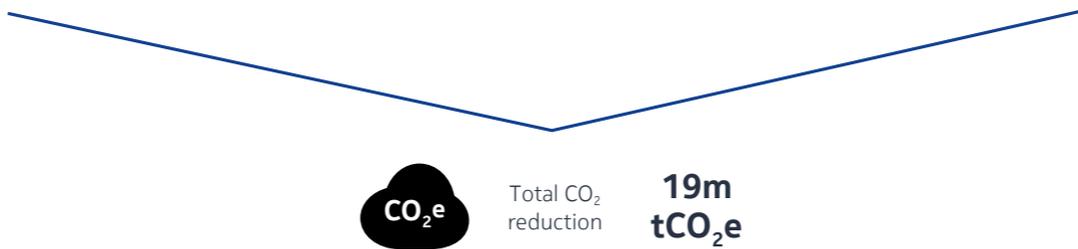
Suppliers reported GHG emissions (Scope 1/2)

153

Suppliers reported reduction (20 thanks to us) and have active targets for emission reduction

89

Highlighted collaborative opportunities with us



It should also be noted that 97 suppliers engaged their next tier in CO<sub>2</sub> reporting.

In addition, 130 of our suppliers calculated a Nokia allocation of their emissions based on the products and services we purchase from them and 49 suppliers provided emissions intensity data. Using hybrid methodology for calculation, based on supplier information, our emissions with participating suppliers totaled 592 288 metric tons of CO<sub>2</sub>e\*. By scaling up the allocated emissions to 100% of our suppliers, we estimated our scope 3 emissions from our supply chain to be approximately 1.43 million metric tons of CO<sub>2</sub>e.

### Developing Health & Safety Maturity

Working conditions within our supply chain are a key component of our sustainability approach and tracking. As we have equipment installation and maintenance contractors in our supply chain, who spend much of their time working at height, in confined spaces, and driving long distances, we place special emphasis on health and safety. We aim to make sure contractors are aware of the potential dangers associated with their work, have and use the appropriate safety equipment, and receive the necessary training. Our health and safety guidance is further specified in standards around road safety, work at height and working with electricity and explained in our supplier workshops.

In 2017, we conducted 975 health and safety maturity assessments (on-site evaluations conducted by our regional health and safety professionals) on suppliers providing us high risk activities such as



working at height, transportation, and electrical work. 81% of assessed suppliers met H&S compliant supplier status. Those not meeting the requirement were recommended for phase-out or for thorough improvement where we had no alternative choice (for example, in some of the developing countries we do not have suppliers capable of meeting our requirements, and we need to work hard on improving them and putting strong supervision in place).

While strengthening learning and capability building around our health and safety requirements, we also made it clear that failure to have controls in place will result in business consequences. As part of consequence management for incidents that occurred during 2017, we issued 37 warning notes to our suppliers and terminated business relationships with 6 suppliers.

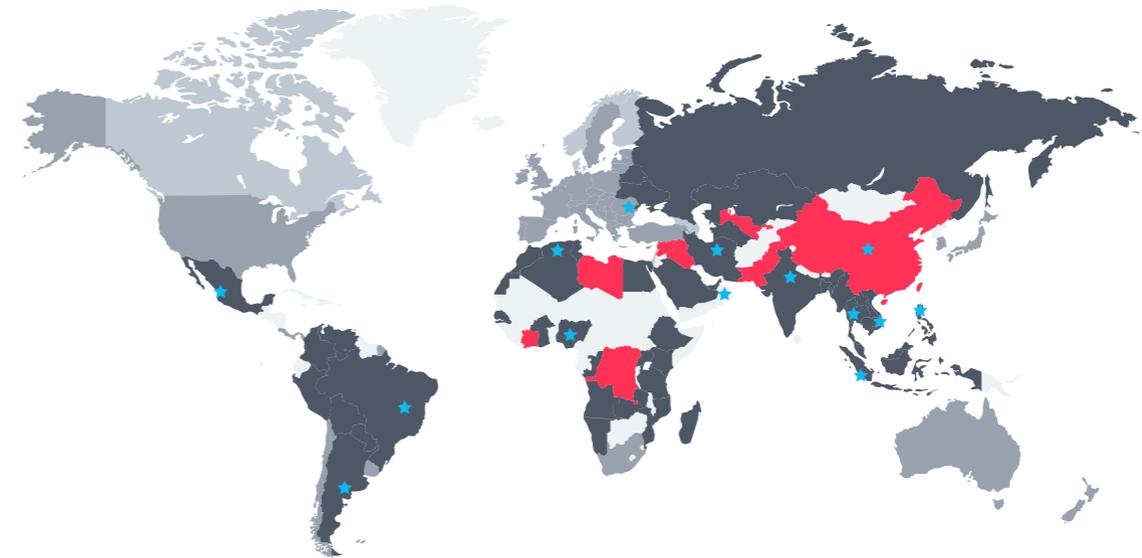
## Combatting modern slavery in the supply chain

We do not tolerate slavery, servitude, trafficking in persons, and forced or compulsory labor in our own operations or in our supply chain. In 2017, in our first Modern Slavery statement, we disclosed the risk map, our mitigation, and due diligence procedures (see updated map in our upcoming modern slavery statement).

### Dealing with early warning signs

In 2017, we encountered four deviations from our supplier audits filed in the forced labor category, in the United Arab Emirates and Taiwan. In three of these cases, worker passports were withheld by the employer. Although these documents were withheld with worker consent to keep passports safe, there was also an issue of misunderstanding of the legal requirement, where the suppliers understood the legal act as an obligation to keep proof of the original document (in reality a copy of the passport was sufficient). Another argument provided by the supplier related to engineers having high value equipment in their hands and keeping the workers passports provided protection for the supplier from workers potentially misappropriating the equipment if they left the employment.

### Nokia country presence modern slavery risks assessment



This map is an aggregate of a selection of Verisk Maplecroft indices. The map covers countries where we have significant business with suppliers, but may not cover all countries where our suppliers operate. This was created based on Verisk Maplecroft's Global Risks Portfolio. Read more details in our Modern Slavery statement at [https://www.nokia.com/en\\_int/about-us/sustainability/downloads](https://www.nokia.com/en_int/about-us/sustainability/downloads)

- Extreme risk      0–2.5
- High risk          >2.5–5
- Medium risk       >5–7.5
- Low risk           >7.5–10
- No significant area of operation
- ★ Locations of corporate responsibility on-site audits and workshops we conducted in 2017. Modern slavery was one element among other sustainability topics.

In addition, there was a case in Taiwan where the employer was withholding a certain amount of salary and depositing it into a separate account for which the access was kept by the employer until the end of the employment. These cases have been addressed with the suppliers as part of audit follow-up and the learnings have been shared with all of the suppliers at the supplier workshops in each location.

The map overleaf was created based on Verisk Maplecroft's Global Risks Portfolio. Read more details in our Modern Slavery statement at [www.nokia.com/en\\_int/about-us/sustainability/downloads](http://www.nokia.com/en_int/about-us/sustainability/downloads).

### Child labor – zero tolerance

We have a strict policy against the use of child labor and we continuously work closely with our suppliers to scrutinize, monitor, and remediate any and all potential risks. We have strict ethical and human resources policies which have designed to ensure that no one below the legal working age is hired in our business. If a child labor risk is identified, we immediately put in place a Child Labor Remediation Plan in line with SA8000 recommendations. In 2017, we did not identify any child labor incidents in our supply chain audits or in our own operations. However, at a supplier audit conducted by a customer, we had a finding related to student labor working overtime (working day exceeding 8 hours), which was immediately addressed and resolved as part of a corrective action plan.

We further reiterated zero tolerance on the subject at all audits and workshops with suppliers,



strengthening the message on requirements to map the related risks and develop child labor mitigation and remediation plans for direct and indirect forms of child labor, as well as special protection required for young people and student labor if they are used.

### Freedom of association and collective bargaining

All employees have the right to form or join their own organizations and conduct collective bargaining. We expect our suppliers to uphold that right, without obstruction or discouragement. Where there may be legal restrictions in place, we find alternative means to enable both individuals and groups to raise

concerns to management. As a rule, our corporate responsibility audits include a review of freedom of association as one component of employee-management communications.

In 2017, we noted potential risks of non-conformities as part of on-site audits related to employee-management communication, such as missing anonymous feedback and complaint channels or records of worker union representative elections.

### The role of ICT in tackling modern slavery

In June 2017, we published our first Modern Slavery statement. While it is often perceived

that ICT may enable many activities related to modern slavery, it is our mission to help find ways in which the technology we provide can be used to eradicate modern slavery. We work with others in the industry to identify ways through which we can, as an industry, contribute with concrete solutions to tackling some of the issues related to modern slavery.

To this end, we co-hosted a multi-stakeholder event to increase the cooperation and dialog around the role of digital technology in tackling modern slavery at Wilton Park in the UK. The event cohosted with one of our service provider customers brought together expert representatives from law enforcement, government, international academia, and NGOs, dealing with the issue of human trafficking over a two-day period. To date, we continue to build on the important dialog initiated at the event with our stakeholders, and continue to encourage other technology companies to join us. We remain active in the industry events around this theme, and also participated in several events in 2017, mainly in Washington DC and London, UK.

In late 2017, we also held our first Sustainability Forum targeted at a broad mix of key stakeholders in Finland. Some 60 guests from government, academia, NGOs, and businesses in Finland joined us for the forum at our executive experience center to hear and discuss our work in sustainability with an emphasis on Human Rights & Modern Slavery. The event was a great success and we hope to repeat the event outside of Finland in 2018.



“Modern slavery is the world’s fastest growing crime, with over 46 million victims currently estimated globally. The vast majority of victims of modern slavery are found in situations of forced labour in the world’s global supply chains. To effectively tackle this issue a number of key steps need to be taken. Smart legislation needs to be enacted to create a level playing field, encouraging a race to the top through innovation in finding solutions. Businesses need to back up their commitment with action to effectively engage with the multiple issues surrounding forced labour. Collaboration with other key

stakeholders will be an important part of this response. Alongside this, the long-term re-education of the public around the true value of goods and services is vital; what is the true cost of cheap goods?

Finally, businesses must move away from an extractive profit model of procurement and supply to one of sustainable profitability.

If we achieve all of this then we will make a real impact in the fight against modern slavery and have a chance of hitting the Sustainable Development Goals, including the eradication of modern slavery by 2030.”

Andrew Wallis, OBE., Chief Executive Officer, Unseen

## Materials traceability and conflict minerals

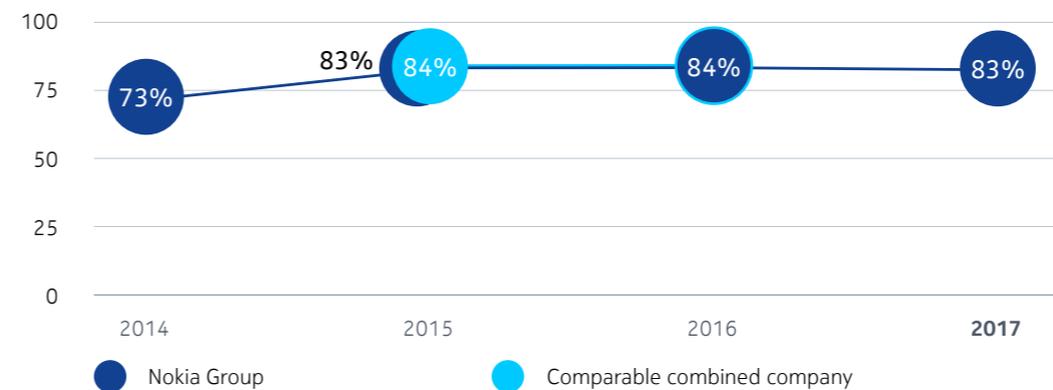
We see the potential risks associated with the mining and minerals trade of the metals from which key minerals in electronic components are extracted. These risks may include military conflict, human rights violations, and negative environmental impacts.

The traceability of our materials and ensuring our products are conflict-free is a priority for us, which is also reflected in our updated Conflict Minerals Policy which can be found at [www.nokia.com/en\\_int/investors/corporate-governance/policies](http://www.nokia.com/en_int/investors/corporate-governance/policies). We understand the challenges associated with conflict minerals\* and are determined to find long-term solutions that will help ensure responsible and conflict-free sourcing via legitimate trade and improvements in those countries where the risk is greatest. We require our suppliers to show their commitment to only sourcing these materials from environmentally and socially responsible sources.

Materials that either directly or indirectly contribute to conflict are unacceptable. We collaborate with our industry peers through the Responsible Minerals Initiative (formerly known as Conflict Free Sourcing

\* Columbite-tantalite (coltan) (or its derivative tantalum), cassiterite (or its derivative tin), gold and wolframite (or its derivative tungsten).

Share of smelters that have been validated as conflict-free or are active in the validation process



Initiative) to improve the traceability of minerals and ensure responsible sourcing. We have developed a robust due diligence approach, aligned with the OECD Due Diligence Guidance for Responsible Supply Chains of Minerals.

In 2017, we set a firm requirement for our suppliers to establish full traceability of smelters in our supply chain, with those suppliers neither meeting the objective nor having a corrective action plan, being recommended for phase-out. As a result, 90% of our suppliers were able to meet the requirement.

As our weakest link was the market in China, we also organized ten conflict minerals due diligence audits for our suppliers in China, with deep dives on supplier scoping and due diligence with their own suppliers. In addition, we further strengthened the competence of our Chinese suppliers on conflict minerals due

diligence via two dedicated conflict-free sourcing workshops in China.

On the smelter and refinery level 83% of smelters identified as part of Nokia's supply chain were validated as conflict-free or active in the validation process of the Responsible Minerals Assurance Program (RMAP), and a further 5% of smelters were identified where our due diligence efforts have demonstrated that the smelters can be reasonably considered as conflict-free, for example, by sourcing from recycled sources or from outside of the conflict affected areas. With the remaining smelters we are continuously taking steps to either receive their commitment to go through RMAP or remove them from our supply chain by 2018.

In relation to the upstream part of conflict minerals sourcing, we have also extended our engagement

in the Public-Private Alliance for the next five years, contributing to the development of in-region programs.

In 2017, we also conducted mapping of cobalt in our components and carried out a pilot origin inquiry with cobalt related suppliers. We will continue cobalt related due diligence in 2018. For more information on our due diligence results, please refer to our conflict minerals report available at the end of May 2017.

### End to end

All our assessments and audits are tied together and reflected in supplier performance evaluation, where sustainability provides one of the five pillars of the supplier performance evaluation score. Sustainability was also addressed as part of our procurement category strategy renewal, where all procurement categories with high sustainability risks had to set minimum requirements for all CR assessments for the suppliers who were categorized under the Preferred and Allowed statuses.

“Our customers reviews and feedback play a pivotal role in our sustainability initiatives. At an organization level, multiple initiatives such as 1. Energy conservation measures like usage of energy efficient equipment, consolidation of operations in energy efficient locations and better maintenance quality and green procurement initiatives. 2. Increase in renewable energy 3. Increase in virtual server infrastructure with a reduction in physical servers. Such initiatives have directly lead to carbon emissions savings.”

Tech Mahindra comment from CDP program

“We calculated our corporate emissions at the first time. The process help us to identify energy efficiency initiatives in our buildings.”

Carenet, China supplier, comment from CDP program

## Data privacy and security

How companies protect customer, employee, or other sensitive data is one of the most significant issues facing our industry today, and its importance grows ever greater as we see the implementation of 5G, IoT and AI, with everything and everyone connected.

We have dedicated processes firmly in place to address this, focusing on technical protection, process, and people. For example, technical protection includes security information event monitoring (SIEM) by our security operation center (SOC), access controls, and making authentication and encryption mechanisms available for system users.

Process-related controls include business-driven governance, security as part of global business processes, integrated enterprise risk management, and active third-party management. Our internal processes address the proper handling, storage, transmission, and destruction of sensitive or confidential information.

Our ongoing key programs to identify and protect critical data include:

- Critical information protection program
- Focused assessments

- Nokia privacy program
- Supply chain security program
- Customer security requirements program
- Common security controls program
- Selected ISO 27001 certifications

People-related mitigation relies on active security culture management, enabling and supporting employee security work, and employment life cycle management. To drive this, we have an internal accreditation program with three tiers. Approximately 20 000 of our employees have already completed it. It is supported by awareness campaigns including quarterly company-wide phishing testing.

Our market research reveals that security is an ever-growing concern within the telecommunications industry. We are firmly dedicated to protecting next-generation networks from attacks, and are seen as a leader in the provision of network security solutions. We hold annual Security Days and Nokia HackAthons. For more information on the solutions we provide to our customers visit [networks.nokia.com/solutions/security](https://networks.nokia.com/solutions/security).

Our breach management process is followed in the event of a breach or attack. The plan focuses on three key elements:

1. Detection and analysis
2. Containment, eradication, and recovery
3. Post incident activities

We run a response function that consists of three teams – Incident Response Teams (IRTs), the Major Event Team (MET) and the Crisis Management Team

(CMT) – depending on the type of incident or crisis. Each team has well defined tasks, and teams carry out training on an annual basis. Teams consist of subject matter experts from all areas of the company. Regular training and internal and external testing on our breach management capability is provided. The testing includes annual internal table-top exercises, as well as annual external outside-in simulated attacks.

As is the case for all international companies with internet-facing services, we face daily attack attempts. We actively and regularly validate our security throughout the year through:

- External and internal security audits
- Group wide external maturity assessment
- External and internal simulated attacks (red team tests)
- Regular group wide phishing testing
- External information security risk rating service
- Customer feedback
- External and internal ISO 27001 audits for our Global Delivery Centers

All our employees and external contractors are required to take mandatory Information Security e-learning courses every two years. New hires must take an e-learning course when starting with Nokia and our security awareness and culture Key Performance Indicators (KPIs) are tracked on a monthly level.

In 2017, we achieved our target to have approved company-wide security baseline requirements. Plans for the deployment of both security and privacy requirements to all businesses and product programs

were put in place and are underway. This also provides us with the foundation to achieve our 2020 target to be recognized as an industry leader in security and privacy.

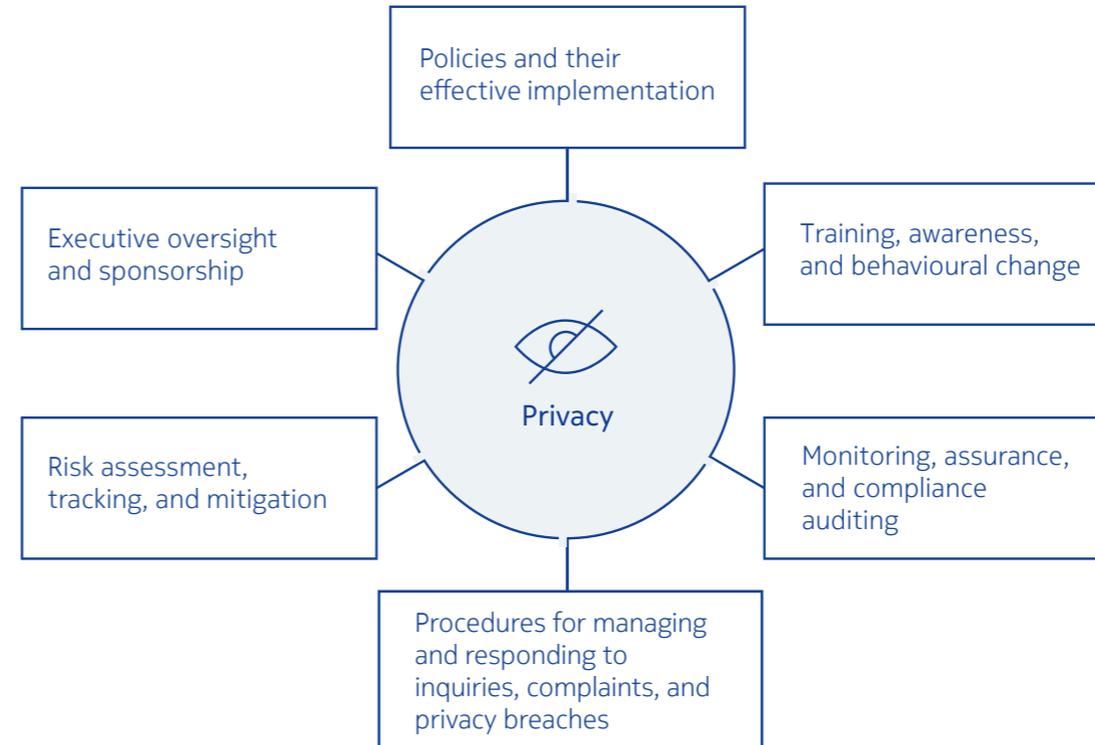
### Getting privacy right

With the growing complexities provided by today's technology and business environment, it is imperative that we lead and enable strategic and consistent management of privacy related risks, as well as ensuring we are in a position to make the most of all the opportunities ahead. With the arrival of 5G and IoT, in a world where everyone and everything are increasingly connected, cloud storage, big data, and other technology advances, getting privacy right is not only desirable, it is a necessity.

Our privacy management model is set out in our group-wide Privacy Management Policy, which provides clear privacy principles and a governance framework to implement sound privacy related practices across our businesses. We continue to strengthen our framework with supporting policy and procedures. We review and update related data governance processes, ensuring they remain fit for purpose. Thanks to our programmatic approach, we remain in a position of strength to safeguard personal data entrusted to us.

Compliance with the new General Data Protection Regulation (GDPR) and other privacy laws as well as commitments to customers, are enforced via our Privacy Principles and Requirements.

### Our privacy management model



# Respecting our people in everything we do

We foster a culture of high performance and high integrity, guided by our vision, brand, and values.

# Highlights in 2017

# 975

Suppliers delivering  
high-risk activity

assessed for H&S Maturity

# ~103 000

Number of total  
employees\*

increased 2% while attrition rate fell by 1 percentage point

Employees  
completed annual performance evaluation

# 94

# %

# 23000

Leaders and employees  
trained on gender balance

# 234 300

employee training days  
delivered by our EDU organization

\* year-end situation

# Our commitments, targets, and performance

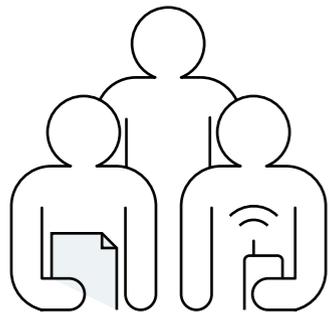
Priority area	Material topic	Targets	Achievements 2017	Status
<b>Respecting our people in everything we do</b> 	Employee satisfaction, Engagement, and Development	<b>2020</b> 90% employee engagement  Due to changed measurement of employee engagement, we discontinue to track progress against the % employee engagement.	In 2017, we continued to measure the favorability of employee perceptions across a wide variety of topics about company and culture with an anonymous employee survey (CCT). The result rose from 76% to 80% favorability towards the company. CCT has following two target questions: <ul style="list-style-type: none"> <li>• “Overall, as a company, Nokia is heading in the right direction.” (83% favorability)</li> <li>• “Overall, Nokia’s culture is heading in the right direction.” (80% favorability) Arithmetic average for % favorability for these two CCT Target Questions was 81%.</li> </ul> <b>✓ Assured</b>	 On-going - on track
		<b>NEW target 2020:</b> Sustained focus on CEO-sponsored Nokia Culture Principles		
		<b>2020</b> Nokia to be the “employer of choice” (in our size) for all of our major hubs in locations around the world and become the best regarded employer in our industry globally.	Through implementation of our global Location Development program, all of our major Nokia sites continue to roll out programs and initiatives to create a best-in-class talent acquisition ecosystem. These ecosystems leverage connections with local communities and universities to improve our reputation as a best-in-class employer and foster robust and diverse local talent pipelines.	 On-going - on track
		<b>2020</b> Foster the spirit of employee volunteerism across the company and increase their engagement.	New volunteering guidelines introduced in 2017 .	 On-going - on track

# Our commitments, targets, and performance

Priority area	Material topic	Targets	Achievements 2017	Status
<b>Respecting our people in everything we do</b> 	Employee satisfaction, Engagement, and Development	<b>2018</b> Introduction of the renewed Employee Engagement model with increased frequency and depth.	Project was kicked off and phase one business case ongoing. Review of external market offering and internal development projects ongoing. A no-go or go decision regarding business case to be taken in Q2. In 2017, employee perceptions regarding Nokia and the experience of working here was measured using the Culture Cohesion Tracker. See Employee satisfaction target status above.	 On-going - on track
	Diversity inclusion and anti-discrimination	<b>2017</b> 2000 Nokia leaders, managers, and employees to participate in Gender Balance training.	We trained 2300 leaders and employees on Gender Balance. <b>✓ Assured</b>	 Achieved
		<b>2020</b> Increasing the % of women in leadership by 25% (baseline 2016)	In 2017, we had 15.2% women in leadership positions, meaning a slight drop compared to 2016 baseline of 15.5%. We continue working, within our five-year gender balance action plan, towards the 2020 target.	 On-going - not on track
	Health, Safety, and Wellbeing	<b>2017</b> H&S Awareness – 100% of employees to undertake mandatory training on health and safety behaviours and values. Nokia internal training “Making tomorrow safer”	94% employees completed the training. We will continue to drive for for 100% awareness.	 Not achieved

# Making Nokia a great place to work

## Average number of employees in 2017



101 731

2016: 102 687  
2015: 56 690

The market for skilled employees in our business is extremely competitive. Our workforce has fluctuated over recent years as we have introduced changes in our strategy to respond to our business targets and our endeavors.

Such changes and uncertainty have caused, and may in the future cause, disruption among employees as well as fatigue due to the cumulative effect of several reorganizations over the past years. As a result, we believe it is essential that we work on creating a corporate culture that is motivational, based on equal opportunities, and encourages creativity and continuous learning to meet the challenges.

We foster a culture of high performance and high integrity, guided by our vision, brand, and values. It is through our people and culture that we shape

technology to serve human needs. Our pursuit of performance with integrity and sustainability – a culture that stems from our Finnish roots – is key to why our customers and partners choose to work with us, and why our employees work for us.

Common shared cultural principles and focus on Drive, Dare and Care is the cultural platform we use to shape our core common culture. It means relentlessly driving for excellent results, having passion for good customer experiences and quality of products. We dare to innovate, learn, and challenge outdated practices. We have the attitude of entrepreneurs and we do not celebrate hierarchies. We care for our colleagues, we care for quality, and we put the Nokia team first.

Our core culture empowers people and teams to deliver on our strategy. It informs our quest for innovation, as we use our insatiable curiosity and deep technical knowledge to share the future for our customers. It also drives our pursuit of continuous improvement, our ability to outperform competitors and be a trusted partner for customers, partners, and suppliers.

We pursue high performance, always under the guiding principles of our values of:

- Respect: Acting with uncompromising integrity, we work openly and collaboratively, seeking to earn respect from others.
- Challenge: We are never complacent. We ask tough questions and push for higher performance to deliver the right results.
- Achievement: We take responsibility and are accountable for driving quality, setting high standards, and striving for continuous improvement.
- Renewal: We constantly refine our skills; learning and embracing new ways of doing things, and adapting to the world around us.

Our integrity is fundamental to how we internally work and what we provide for our customers. Particularly in the standards-driven world of network technologies, the choice that customers make are often less between different products, and more between different relationships. We stand out as a trusted customer partner, sustaining long-term relationships through our proven ability to deliver, and fostering a level of trust we work relentlessly to earn and keep.

## During 2017



98%

of employees had permanent contracts (the rest were trainees or had fixed term contracts) (97% in 2016).



9 430

employees were hired, leading to 10% rate of new employee hires (8 310 in 2016).



10 033

employees left Nokia, leading to a 10% total attrition rate (10 749 in 2016).



11

years was the average length of service at Nokia (11 in 2016).

**Our core culture - common aspects**



**Drive**

Passion for results, customers, and products



**Dare**

to earn and renew



**Care**

for the team before self

All company-wide guidance on our cultural direction, how we define it and what our employees think, are found on our internal global culture site. The site also provides a lot of support materials and resources for Line managers, teams, and employees.

**Enhancing company culture**

Our common approach to ways of working, mind-set and behaviors form our company culture. We drive for our culture to be one of high performance and high integrity. How we collectively shape our culture, we call Nokia Way. Nokia way is the way in which we will transform towards a high performance, high integrity culture that supports our business strategy. It is made up of 12 culture principles that are our working principles and culture priorities. These principles fall into three key themes: Drive, Dare, and Care. These three themes provide an easier way to communicate the philosophy expressed in our underlying principles.

**Reaching our people**

In 2017, Nokia Way manifested itself in a series of initiatives which take Drive, Dare, and Care on the road. These experiences made the new culture visible in the employees' everyday lives. We concentrated on building awareness of Drive, Dare, and Care through a roving reporter who was in search of the company spirit, and through a series of interactive webcasts enhancing the cross-company dialog. In addition, Nokia way provided an umbrella program to many other culture-building projects such as Train the Brain; Get 1h back; Healthier Together; our Quality Awards; YOUnik game; and Fearless Frankie.

Nokia Way global core culture webcasts have engaged more than 12 000 people. The Yammer chat involved several thousand people with close to 40 000 messages read. We had active core culture communication in most business groups and functions and we have Country Senior Officer (CSO) driven targeted plans in more than 20 countries. The roving reporter influenced more than 10 000 people by sharing our authentic company story. Train the Brain program educated 3 200 leaders on how our social brain works and what benefits a growth mind-set brings to us. The change facilitation in the businesses have surveyed 74 000 people for better change data, and trained over 600 change managers to execute better change leadership.

According to the latest results from our tracking of our culture cohesion, this has led to a good overall culture cohesion across, and belief in, our company, and a strong shared awareness of our Drive Dare Care mind-sets and culture principles. Most pleasing is that we have seen significant improvement in the Dare related areas, where people have said we need more attention.

Our cultural progress and evolution is monitored with a company-wide employee survey, called the Culture Cohesion Tracker (CCT). The CCT's purpose is to measure [via aspirational cohesion ranges] employees' perceptions of our company and cultural direction. CCT results give us a continued quantitative and qualitative employee feedback loop on a wide variety of important topics. Furthermore, the CCT helps identify areas of momentum that may be a cause for celebration

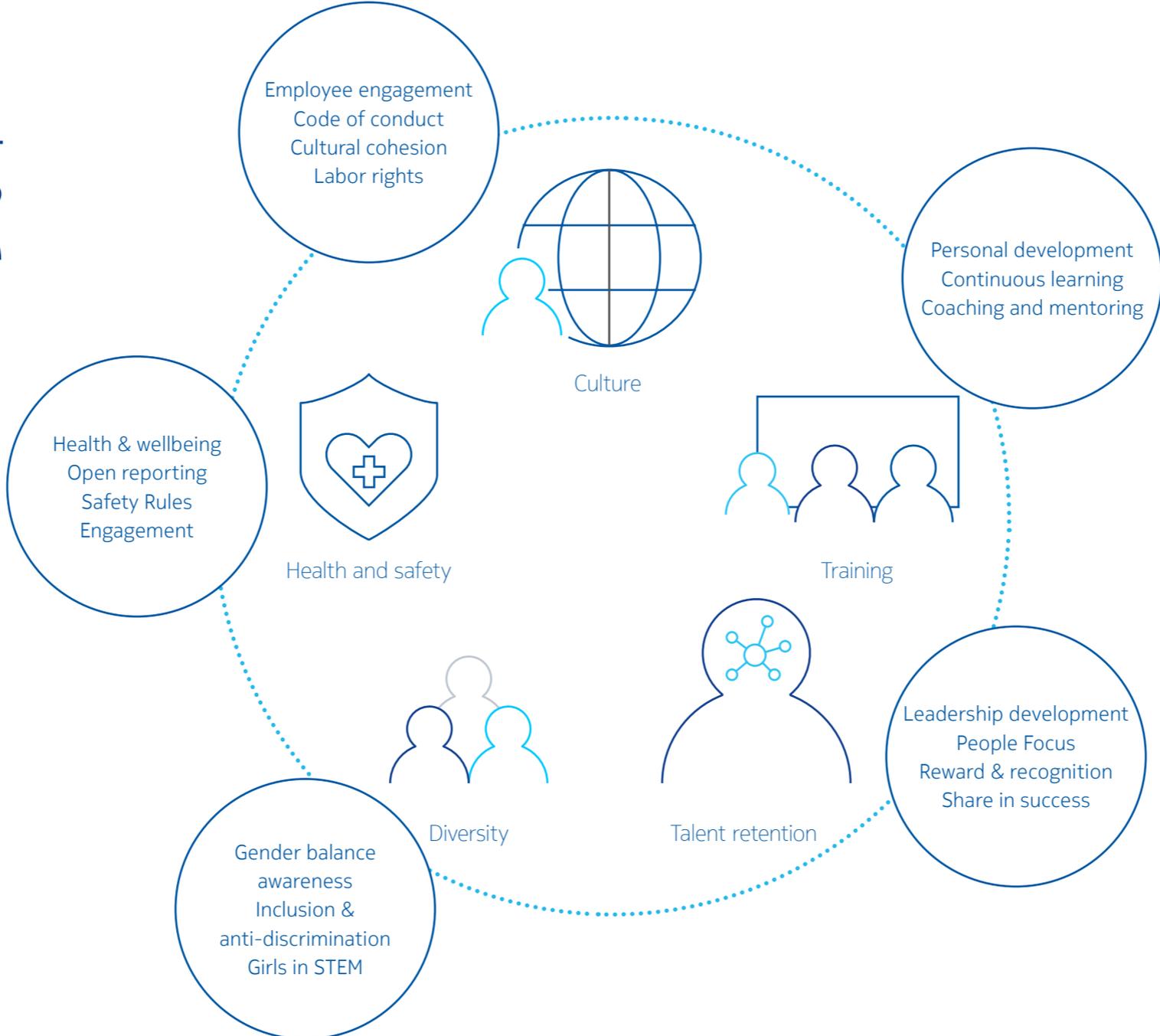
inside the company, and challenges we may face that imply a need for continued focus. The CCT was held during March and September 2017. Results were used to help each of the business groups and regions update and refine their own respective culture roadmaps, for the sake of effective communications about strengths and taking actions on prioritized challenges.

The most important questions in the CCT are the following two target questions, which were "in the green" during 2017. "Overall, as a company, Nokia is heading in the right direction" was 83% favorable. "Overall, Nokia's culture is heading in the right direction" was 80% favorable. The arithmetic average for % favorability for these two CCT Target Statements is 81% and we are using this average when needing to report one value for employee engagement. This value is inclusive of the Nokia Shanghai Bell (NSB) joint venture. The overall CCT result rose from 76% to 80% favorability towards the company between 2016 and 2017.

**Cohesion ranges**

	85>	Excellent engagement, strong cohesion
	73>	Good engagement, solid cohesion
	64>	Moderate engagement, fluctuating cohesion
	<64	Concerning engagement, weak cohesion

# Respecting our people



## Human capital development

Given the competitive market we face in finding and retaining skilled employees in our business, it is essential that we continually develop not just our culture, but also our talent management, performance support, and career development.

Our performance and talent management approach, called Nokia People Focus, enables the company to have a strategic and integrated framework to company goals, individual performance, talent management, career development, reward, and recognition. We are committed to people development and career growth. Regular manager and employee dialogs (1 in 90 dialog) focus on five key areas including goals, feedback, wellbeing, development, and coaching.

Our forward-looking approach to talent development starts with all employees as well as development of top talent. All managers recommend development proposals for employees, outlining clear actions for the coming 12 months. We encourage employees to complete a Personal Development Plan (PDP) in discussion with their line manager. Personal development is key to retaining and engaging our employees, and developing their skills.

Continued and ongoing simplification of our people processes and tools is essential to help reduce time and effort for line managers and Human Resources through the year. As part of our People Focus evolutionary simplification plan in 2017, we simplified the Annual Development Review (ADR) (year-end talent and performance assessment), Combined Goals, Outcomes and ADR for 2018, Personal Development Plans, and our primary assessment tool Success4You.

In 2017, 94% of all employees had an approved talent and performance assessment. We achieved a 90% rate in 2016. 2017 is the second year of the new integrated people processes and the introduction of a new simplified talent and performance assessment to our whole employee base.

Nokia People Focus aims to build a high performance, high integrity culture across the corporation.



### Integrated Personal Development Plan with Learning and Development

In 2017, we integrated the Personal Development Plan into our Learning & Development Hub. Doing so, we made the first step towards a single integrated learning & development platform offering a portfolio of learning & development solutions (learning store, personal development, competence development, and career development).

We enhanced the personal development plan by including a 1 in 90 dialog comment section that allows online interactions between an employee and the line manager, as well as a direct search engine for available trainings in the Learning Store. In a focused survey on 1 in 90 Dialog and Personal Development Plans, 74% of respondents had had a 1 in 90 Dialog in the previous 90 days and 92% of respondents found the 1 in 90 Dialog useful when they stated that they could point to concrete actions or next steps. 79% of the respondents took concrete actions based on the results of their discussions.

### Fostering talent

Capability needs are reviewed as part of the corporate strategic planning process and then prioritized in the learning and development agenda. In addition, each business identifies and manages a talent pool for succession and growth, with development covering a balance of experiential learning, coaching and mentoring, and corporate leadership programs.

### Development of a high performance workforce and a sustainable succession pipeline

We have a strong track record of leadership succession. We are proud that many of our senior leadership positions are filled by internal candidates. To maintain our leading role in the industry, we bring our best talents forward to fill new roles with minimal disruption.

In addition, we must continuously renew our skills across the company. Everyone, from individual

contributor to senior executive, is encouraged to take advantage of the many development opportunities on offer to develop those skills.

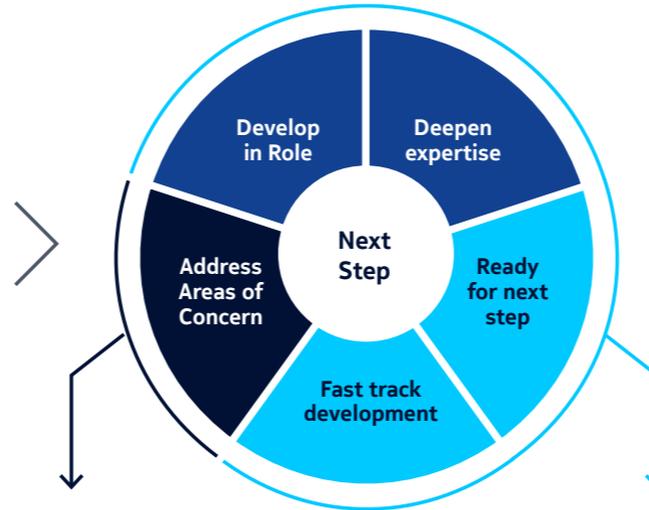
We have a focused talent and succession planning approach targeting successor skills and a needs/gap analysis culminating in regular development discussions and skills/competency building. Our ability to attract, develop, and mobilize a strong workforce across our business groups and corporate functions is strengthened by common and integrated talent management practices.

### Coaching and mentoring

Coaching and mentoring are an integral part of our employee development activities. Our coaching philosophy is conversation with a purpose. We help the coachees tap into and unleash their full potential, to focus their efforts on forward looking, incremental steps towards a goal.

By the end of 2017, we had a pool of around 300 coaches available for any of our employees to contact. Most major sites (>500 employees) will have

#### Annual Development Review



#### Related processes



at least one coach available for face-to-face sessions. Mentoring is not programmed as such, but is available across the company, and our senior leaders participate actively as mentors.

### Leadership Development

Our leaders are redefining themselves to stay relevant in a business world characterized by change, uncertainty, and new opportunities. They are expected to be less authoritative and more supportive and challenging.

To this end, we invest in the development of our leaders. The company delivers leadership programs across all levels from aspiring leaders to senior executives. Leadership programs are differentiated according to leadership levels and competencies.

The company provides self-enrolment and nomination-based programs. The self-enrolment programs target aspiring leaders to senior leaders. The nomination programs target executives and high potentials with “fast track” or “ready for next step” development plans. Our leadership programs aim to provide the mindset

and skills for leaders to effectively engage and inspire individuals and teams in a changing environment.

Some of our leadership programs seek to immerse leaders in experiential journeys which include external company visits to learn how other companies and leaders are doing in the space of Internet of Things (IoT) and to identify new opportunities for our company. In 2017, we had a budget of 6.1 million euros, which made it possible to develop the numbers of leaders shown below, across our portfolio of programs.

### 3 526 Nokia leaders were developed in 2017

Target group	Aspiring leaders	First Line Leaders	Leaders of Leaders	Senior Leaders	Executives	Several levels of leaders	Total
Number of individuals developed	583	1 490	777	222	285	169	3 526
Examples of training	Insight into Leadership	Me as a Nokia Leader	Accelerated Leadership	Inspiring Leader	Art of Influence	Coaching for Success	
		Talent Developer	Strategic Leadership	Shaping the Future	Good to Great	Coaching for Growth	
		Lead2.0	Change Leader	Transformational Leadership	Communicating Presence	Coaching for Growth Master	

### Chatbot in Human Resources Digitalization and AI opportunities

In 2017, we successfully launched the first chatbot internally in Human Resources. The possibilities of technology allow us to redefine the employee experience and find solutions for changes in human behavior when searching for information.

We introduced the first chatbot in Human Resources as part of our People Focus service offering, specifically to target and support the end-of-year review process. The end-of-year review is a crucial people process involving human resources professionals, line managers and employees. The chatbot has shown to be valuable in providing reliable, instant, and concise answers to frequently asked questions related to the purpose, process, timeline, tools, and forms. In addition, the chatbot provides one click to the right documents, tools, or contacts.

#### Employee training days provided by NokiaEDU



### NokiaEDU

The primary objective of NokiaEDU is to create a learning culture across the company, where our employees, customers, and partners can easily access relevant learning solutions. NokiaEDU works in close collaboration with its internal and external stakeholders to understand their business objectives, identify gaps affecting performance, and recommend learning solutions to address them. In the event that an existing learning solution does not meet the needs, a new learning solution is designed, developed, and delivered.

In 2017, NokiaEDU delivered 1.6 million training hours to our employees (1.8M in 2016). Consistent with its digitalization strategy, about 75% of employee training was technology-enabled, saving the company time and money over traditional classroom training. Virtual instructor-led training

accounted for 21% of employee training, up 11% compared to 2016.

NokiaEDU also provides training to customers and partners, which in 2017 totaled 838 000 training hours (711 000 in 2016). Our training not only instructs how to operate and maintain our products, but also includes more general technology training on topics such as Internet of Things. Overall, NokiaEDU learning solutions received a user satisfaction score of 97.7% in 2017 (97.1% in 2016).

In 2017, NokiaEDU targeted an increase in digital self-paced learning methods:

- Increase in Online Learning unique registrations: Target: +20%. Result: +37%
- Increase in Virtual Classroom Sessions: Target: +25%. Result: +40%
- Increase in use of Managed Learning Communities: Target: +20. Result: +28.
- Development and Execution of AR/VR solutions: Target: +5. Result: +10

#### Learning Store

This impactful web-based application enables our employees to more easily locate and access relevant learning solutions. Employees can view a wide range of learning collections, including business skills, product and technology training, and certifications. In 2017, the Learning Store was accessed more than 1 million times by employees, totaling more than 6.5 million hits.

This highly-successful application has been extended to our customers and partners so that they too

can easily access learning from their versions of the Learning Store <https://learningstore.nokia.com>.

### Global Day of Learning

Our second annual Global Day of Learning (GDOL) was a special event dedicated to reinforcing our culture of learning and our core value of renewal. It presented a unique opportunity through a full day's schedule of virtual and in-person learning events, where our leaders highlighted how we are shaping our company and the future of technology. At the end of the day, our goal was for all employees to gain a better understanding of our strategy, how different parts of the company contribute to it, and what we need to do collectively to realize our ambition. In the days following the live event, all the recordings of the sessions were made available as part of the Global Day of Learning Encore. The 2017 Global Day of Learning gathered 20 352 webcast participants across all sessions, and 93% stated they would participate in another GDOL.

**“A truly transformative event and probably the biggest cultural influencer event inside Nokia.”**

2017 Global Day of Learning Participant

### IDEAL Learning Program

In 2017, NokiaEDU launched a development initiative designed to prepare employees for the digital transformation. The IDEAL (Innovative, Digital, Entrepreneurial, Agile, Learning) program



Showcasing Virtual Reality technology at Global Day of Learning Event in Antwerp, Belgium.

builds capability for the future by strengthening the knowledge and skills our workforce needs to execute on our Rebalancing for Growth strategy, and

positively impact the company's performance. By the end of 2017, 4712 IDEAL Learning Program courses were completed by our employees.

## Ensuring decent working conditions & fair employment

We uphold high standards of ethics and rights in our own internal activities, and aim to treat all our employees in a way that satisfies internationally recognized ethical and responsible business practices, customers, investors, partners and the relevant legislation, whether global or local

### A management framework for labor conditions

We understand it is our basic responsibility to provide decent working conditions and to be seen to be fair and just in how we treat our own people. Our Code of Conduct provides the basis for our labor conditions, and is underpinned by a comprehensive set of global human resources policies and procedures that enable fair employment. We adhere to the International Labor Organization (ILO) Declaration on Fundamental Principles and Rights at Work and wherever we operate we meet the requirements of labor laws and regulations, and oftentimes strive to exceed those laws and regulations. We publish information related to policies and guidelines on our intranet.

We are aligned with key elements of the social accountability standard SA8000. Our policies,

Standard Operating Procedures (SOP), and Code of Conduct are implemented to help achieve the high standards we have set ourselves. The policies cover:

- Child labor avoidance
- Forced labor avoidance
- Freedom of association & collective bargaining
- Non-discrimination
- Humane treatment
- Working time
- Disciplinary practices
- Compensation
- Occupational health and safety.

This approach is also applied to our suppliers and partners. You can read more on our supplier practices under Responsible Sourcing.

### Zero tolerance for child and forced labor

We have a strict policy against using child labor and zero tolerance to all forms of forced, bonded, or imprisoned labor in our own operations and our supply chain. Where such a potential risk is identified, it is thoroughly investigated, and a remediation plan is put in place based on SA8000 recommendations. For more information on child and forced labor, see Conducting our Business with Integrity

### Freedom of association and collective bargaining

In line with our Code of Conduct, we respect the right to collective bargaining and freedom of association. Collective bargaining agreements are local, and in the vast majority of countries where we have collective

bargaining agreements, those also cover employees who have chosen not to be members of a union. Furthermore, employees are free to join, not join, or leave unions and associations of their own choice, and select their representatives in accordance with the local and international practices. Our management supports, encourages, and implements active, open communication and dialog with employees and/or employee representatives.

In countries where local works councils operate, we recognize their importance and work with them as required. We communicate regularly and continuously with employees directly as well as in specific meetings such as the European Works Council (EWC) in Europe. In annual EWC plenary meetings both employees and management are represented in the teams preparing and participating in the meeting. We also offer the opportunity for free elections where employees can choose their union representatives. All our production employees were represented by an independent trade union or covered by collective bargaining agreements.

Employee representatives are entitled to participate in trainings that are a necessity in order to take care of employee representative duties and to increase their awareness of trade union rights and obligations. Additionally, employee representatives are provided the opportunity to use company infrastructure during the work day.

Below is a sample of countries where we operate and where 100% (or very close to it) of the employees are covered by collective bargaining agreements.

- Algeria
- Austria
- Belgium
- Brazil
- China
- Finland
- France
- Germany
- Italy
- Madagascar
- Mali
- Netherlands
- Norway
- Portugal
- Romania
- Senegal
- Slovakia
- Spain
- Sweden
- Tunisia

### Non-discrimination

We do not tolerate discrimination in any way, shape, or form. We prohibit discrimination based on any personal attribute such as age, gender, nationality, opinions, memberships (such as membership or non membership of a trade union), religion, or disabilities in all employment practices, including recruitment, promotions, training, and pay levels. Diversity is discussed later in the Diversity section of this chapter.

### Working Time

We do not permit our people to work more than legally allowed. We define regular working hours in accordance with local laws. Young workers from 15 to 18 years old or as specified by local legislation are not permitted to carry out work that may be hazardous, unsafe, or unhealthy, are not allowed to work night shifts, and have a maximum daily working time of eight hours. Working time is the

time an employee must be available, ready to work and perform duties monitored and regulated by the employer. We provide guidance through the worktime standard operating procedure, and encourage project recording to address resource planning issues versus working hours. We guarantee the minimum one day off in every seven days in our production operations.

We take work/life balance seriously, providing training for managers on the signs and dangers of overload at work, as well as offering various extracurricular activities and facilities for sports, exercise, and wellbeing. We engage regularly with our employees on both a global and local level on these topics.

### Disciplinary practices

We appreciate that our employees are generally motivated by their work, understand and follow our processes, and act consistently with our values and required standards of conduct and attendance. However, if an employee's conduct or attendance does not conform to these expectations, disciplinary action may be taken.

Our approach to disciplinary action, as stated in our disciplinary SOP, is to ensure fair and consistent treatment of all our employees. The procedure recorded in the SOP sets out the steps that may be adopted in relation to conduct and/or attendance issues. In cases where local law and/or collective agreement(s) require additional or different procedures, we follow local law and/or applicable collective agreements. We will not tolerate any form of physical, mental, or verbal abuse, or harassment.

### Compensation

We pay at least the minimum wage or the appropriate prevailing wage, whichever is higher, comply with all legal requirements on wages, and provide any legally or contractually required benefits.

Furthermore, part-time or temporary workers are not excluded from our employee benefits plans due to the company policy or benefits practice. We have a strong focus on developing diverse talent across the organization. This includes pay practices which are regularly reviewed to align pay with performance, experience, and skills required for every position. In 2017, awareness raising on diversity, that we included in training material to HR and managers during the annual salary review process, created a foundation for renewed success in this focus area.

This framework incorporates the following programs:

- The Everyday Excellence award, which has been created to foster a global and uniform approach to recognizing a colleague across the organization for on-the-spot peer-to-peer recognition throughout the year.
  - The Business Excellence award is a flexible business driven award and is meant specifically for recognizing those whose contribution directly supports business objectives.
  - The Premium award has a business-specific eligibility: Deal of the Month, Innovation, and Quality award programs are launched separately.
- Our reward programs are designed to attract and retain key talents and engage our employees. They reflect our values, they are understood and valued

by employees, and they contribute to our business success by balancing market competitiveness and affordability based on a total reward approach. These are performance driven (both on an individual and company basis), flexible, and fair. The key elements of our compensation structures are annual base salary, incentive/bonus programs, recognition programs and long-term incentives. For more information see the Compensation section.

Our approach to performance management and rewards highlights the importance of quality dialog between line managers and employees, and greater rewards for individual contribution. Our employee reward and recognition program, Recognize Excellence, empowers employees and managers with a discretionary budget to perform peer-to-peer recognition and rewards. Aligned with and underpinned by our values, this allows more frequent and less formal ways of recognizing individual performance. The Recognize Excellence provides a tool, which makes it easy to acknowledge the contribution of colleagues.

### Share in success

We offer an employee share purchase program called Share in Success. Under the program, employees are given one free matching share for every two shares they purchase and continue to hold for 12 months. We aim to invite as many employees to participate in the program as possible, subject to local laws and regulations. In 2017, 36% of the eligible population in 57 countries chose to participate in the program. In 2018, we plan to include up to an additional



18 countries to the program, taking the total number of participating countries to 75 (out of a total number of 123 countries where we operate).

In 2017, we won recognition for this program from the World Centre of Employee Ownership with our flagship award of Best International All-Employee Share Ownership Plan 2017, and were also recognized by the Global Equity Organization for Best Use of an Employee Share Plan in an Emerging Market.

### Health and wellbeing

In order to thrive in the programmable world, we need to establish a framework that supports and enhances the changing nature of how, where, and when we work. We are focusing on driving sustainable business value through productivity, innovation, and creativity. Our ambition is to embed wellbeing into our culture in such a way that it is recognized as a key enabler of performance excellence and business success.

Our health and wellbeing framework consists of three pillars:

**Thrive** aims to create a culture of wellbeing and empower everyone to make smart decisions so that they can thrive in our agile, digital workplace. During the course of 2017, employees participated in three different 30-day step challenges as part of our global wellbeing program, Healthier Together.

Our pre and post challenge surveys show that those participating reaped a number of benefits including increased daily activity, breaking unhealthy habits, improved health, increased energy, weight loss and generally feeling in a better mood. This complements the Get 1 hour back movement started in 2016 and still going strong, which promotes time saving techniques and ways to work smarter.

**Manage** is about establishing globally consistent people management practices that recognize and proactively support positive wellbeing. Line manager training on issues such as workload and pressure helps our people managers to openly and confidently discuss wellbeing concerns with their team. This enables them to identify the sources of stress early and to proactively address them. Our 1-in-90 process requires a regular dialog between line managers and team members to enable mutual feedback. Having included a specific discussion point on employee wellbeing and work/life balance, this provides the platform to agree concrete actions which are followed up in the next round of discussion.

**Care** is one of the building blocks of the Nokia Way. In wellbeing terms this means building consistent support services globally and providing timely, professional care for every employee. We know that from time to time, everyone experiences situations that affect their general wellbeing, which can have an impact on their performance. We want to make sure we provide the best possible support in these matters.

Our health, safety & labour conditions policy can be found at [www.nokia.com/en\\_int/investors/corporate-governance/policies](http://www.nokia.com/en_int/investors/corporate-governance/policies).

### Get 1 hour back

In 2017, teams in 118 countries once again chose to take action to save time and participate in the Get 1h back activities. Each country selected which of the existing time saving techniques were useful for them, and came up with their own ideas as well. As a result, those countries who chose to report on their time saving activities, achieved an average time saving of 1 hour 17 minutes per person per week. For example, in a location of 2 000 employees this would mean an average of 154 000 minutes of time saved for work the teams feels is a more meaningful use of their time - every week.

Get 1h back activities continue on all levels of the organization. In 2017, we had an ambition to reduce the overall time spent on executive governance by half, and this was achieved through a selection of measures the recruitment team implemented throughout the year.

### Recruitment

We have taken active steps towards promoting diversity awareness in the hiring process by rolling out a Diversity in Recruitment video for hiring managers to recognize and remedy bias in the selection process. Our approach is to ensure that we treat all candidates fairly and with respect.

Recruitment of new talent is key to implementing our strategy, supporting youth employment, and enhancing our contribution to the communities in which we are present, through our traineeship programs. We also encourage and support internal development of our whole global employee population by promoting all non-executive job vacancies internally first, for a period of 10 working days, prior to inviting external applications. In 2017, 59% of hires were internal, compared to 42% in 2016.

### Gender diversity focused recruitment programs

We are committed to creating a dynamic work environment that values diversity and inclusion, respect and renewal, customer focus, and innovation. For example, in the India region, we have introduced various initiatives focused on recruiting diverse talent, both at the lateral and graduate level because we know that the success of our female employees is key to our success, and we are committed to supporting the professional goals and aspirations of our female colleagues.

In 2017, female share of hires stood at 24% out of the total hires, which is a year-on-year improvement of 13% on 2016.

### Social Media for careers

On our Global Careers social media channels we share stories from daily life at Nokia and show our culture through authentic stories of our employees. You can find us on LinkedIn, Facebook, Twitter and Glassdoor with a total number of more than 807 000 followers across the four channels. On LinkedIn and Facebook we have a very strong engagement with our target audience, including our own employees as brand ambassadors. All our externally open positions are advertised on LinkedIn and the vast majority also on Glassdoor.

Glassdoor is an authentic career community where current and former employees anonymously share reviews addressing company culture, values, and what their working life is really like. The platform has a huge range of reviews covering: CEO approval ratings, salary reports, interview reviews and questions, benefits reviews, office photos, and much more. They also post the latest jobs and allow for companies to have their own profiles to promote their employer brand.

We take our Glassdoor reputation seriously and are proud to score among the best technology companies. We have observed a positive evolution of our overall rating from 3.8 to 4.0 (scale from 1 to 5) in the last 12 months which positions us as an employer of choice on the market. Also 83% of the review providers indicated they would recommend us to their friends and see our culture and values (4.0 end of 2017) and work/life balance (4.1 end of 2017) as two of our main strengths.

More information on recruitment and careers can be found at [www.nokia.com/careers](http://www.nokia.com/careers). Or visit us on [LinkedIn](#), [Facebook](#), [Twitter @NokiaCareers](#). Learn more at [www.glassdoor.com/nokia](http://www.glassdoor.com/nokia).

### Our Academy in Poland

One example of our talent development is our academy in Poland which provides a series of training sessions for students, covering a specified range of technical topics depending on hiring needs. Moreover, this program is also available for experienced professionals who do not have the relevant experience in this field, for example, someone who studied engineering but has not actively worked as an engineer, or professionals who wish to change career paths. This program is also a great opportunity for those willing to learn a new profession after parental leave. The training sessions last between 4–7 weeks, during working hours for students and outside of working hours for professionals. Upon completion of the lectures and workshops, participants are evaluated. The second evaluation takes place after the end of the probation period, around two and a half months, and when the assessment is positive, the academy participant is offered a job contract and a steady job. In 2017, around 150 candidates were hired, with a program success rate of 50%.

### Supporting Young Talent and Apprentices

We value the importance of supporting graduate trainees and apprenticeships. We implement a range of programs in various countries where we operate.

Our approach is by definition local, as it is part of the local community identity. Below are a number of examples from around the world in 2017.

**In Germany**, our vocational training program currently accommodates more than 80 talented youngsters who we support during their bachelor's studies. The essential characteristic of this cooperative study program is the mixture of theory and practice: The university's curriculum combines higher education and on-the-job training, aiming to provide academic skills while also obtaining a variety of work-related expertise. The graduates of the program are an important source to fill entry-level positions with well-educated and highly motivated talent. Although two-thirds of the program are technical studies, we currently have 34% females.

**In Spain**, we support an average of 15 to 20 graduate trainees and apprenticeships linked to the 20 subsidized innovation projects we have. This is managed through the FUE (Fundación Universidad y Empresa) which has a contract as a third party supplier with Nokia Spain. It is a foundation linked to the Spanish Administration, in close contact with the most important universities in Spain. A consortium is formed to address the project, and the universities contribute their research centers, and with the funds hire mostly PhD students, approximately 5–10 people per project. We have about 20 active projects, which means between 100 and 150 students are involved.

**In France** we promote our technology innovation, such as 5G and IoT, and support the development of young talent in cooperation with universities and engineering schools. By providing internships and apprenticeships, our engineers help students better understand our technologies. In 2017, we offered trainee positions and employment to around 20 doctoral candidates and 430 trainees and apprentices, as well as participants in the French government program, Voluntary International Experience (VIE). In addition to upper engineering school students, we also welcomed around 100 children between the ages of 13 and 19 from hundreds of schools through different programs such as Passeport Avenir, Capital Filles (dedicated to young girls), and Ma Caméra chez les pros.

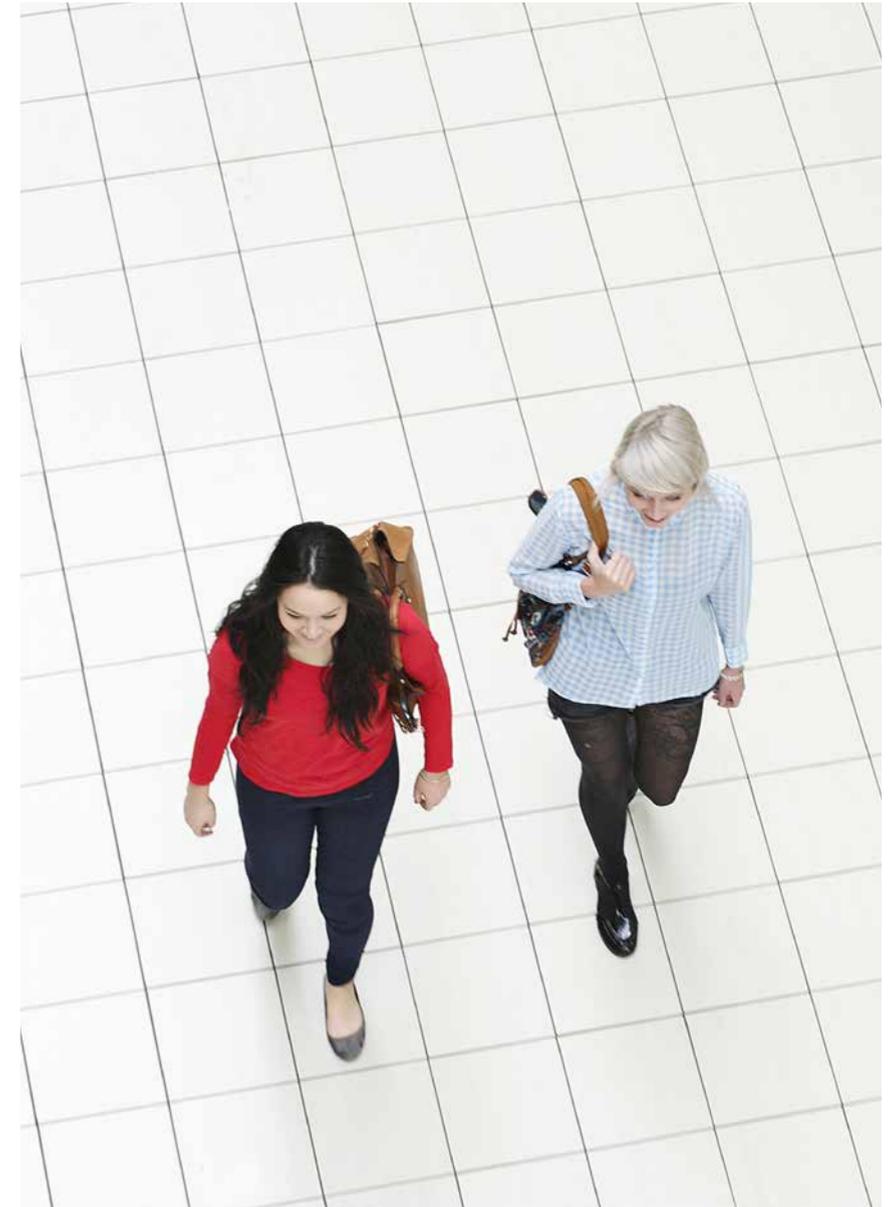
**In Finland**, we offer approximately 200 summer traineeships as well as thesis work, during which final year students gain work experience while completing their degree. Additionally, we participate in the Suomen Mentorit (Finland's Mentors) trainee program where we offer 6-month trainee positions for new graduates.

**In India**, our Campus to Corporate Connect Program is a customized learning experience designed for our prospective university hires. The program focuses on starting strong, accelerating the impact, building the network, and driving the careers of our university hires. Our Learn at Nokia Program focuses on offering training and online resources to graduate students through our lecture series, technical projects, as well as coaching from some of the brightest minds in our organization.

**In Canada**, our Future Tech project issued a broad challenge to high school students in Canada to apply via video in which they could talk about their interest and accomplishments in technology. The original plan was to hire eight students, but they were so outstanding we hired 21. One of the most impressive candidates was a female candidate who developed and created a demo of a life vest that automatically inflates when it detects your breathing is compromised. The program will be rolled out again in 2018 with an increased target.

**In China**, at the end of 2016, we had a country-wide university recruitment project. The selected students joined the company in the first half of 2017. The university recruitment project was launched at the end of 2016 in order to target those students who were to graduate in the first half of 2017. We received thousands of resumes for around 200 open positions. Five sessions of "talking to students" were conducted in five universities and around 170 selected new graduates joined the company in 2017.

**In the Middle East and Africa**, we launched our female graduate program in early 2017. With this program we aim to hire 100 graduates into a flexible mixture of full-time employment, External Temporary Labor, and Internships before the end of 2018. We are creating a pipeline of female talent who will hopefully progress through their careers in Nokia, and become female leaders of our future business. So far, we have hired 35 into a mixture of contracts ranging from short-term internships to full employment status.



“After graduating, I joined Nokia’s Application and Analytics team as a Technical Consultant intern. During my time of work, Nokia have already showed me how a quality internship is essential to expand my exposure to the working world. Every day is an opportunity that really allows me to become a valuable contributor and I am very fortunate because of the countless challenging experiences the program brings to prepare me for what’s to come in my future career.”

Salaried UAE based intern

In 2017, we also had 28 AIESEC trainees from all over the world gaining initial work experience.

### Internal Mobility

We have a strong global presence and concentrate on attracting and retaining the most competent talent. Based on the mode of operation and business needs, we balance local talent development with global mobility opportunities.

Global mobility is typically encouraged and enabled through short-term assignments or alternatively, if the need is long-term or even permanent, transfers under local agreements. In addition to these, we had 397 employees on long-term assignments across the regions in 2017 (477 in 2016).

### Providing support during restructuring

As a result of the integration work of the combined company, we raised our estimate of net operating cost synergies and announced a target of EUR 1.2 billion in total cost savings in 2018. Delivering against this commitment has required that we reduce the number of employees that we employ. These reductions are never easy. Throughout the process, we have made it a priority to provide support for those employees and to treat them with dignity and respect.

We have put in place extensive measures to limit the impacts of restructuring (including reorganizations leading to headcount reductions), such as:

- Employees affected by restructuring are entitled to severance packages which are higher than local statutory minimum.
- We support redeployment activities for impacted employees to find new job opportunities in the company, including re-training as necessary.
- We also offer career counseling and job search support outside the company.
- We offer employees continued training opportunities to maintain and develop their skills and competencies to meet the anticipated changes in business, markets, and the technology environment in which we operate.

On the positive side our overall amount of employees increased by 2% by year-end, while the attrition rate decreased from 11% to 10 % in 2017 when compared to 2016.

## Diversity, inclusion, and anti-discrimination

We cultivate a globally diverse workplace culture of respect across six continents. We believe that a diverse workforce is our platform for greater innovation, superior organizational performance, and delivering excellent service to our customers. We believe in the power of global sharing of ideas and culture.

As stated earlier we do not tolerate discrimination. We prohibit discrimination based on any personal attribute such as race, ethnic origin, color, nationality, disability, religion, age, gender, sexual orientation, gender identity, characteristics, or expression, in all employment practices, including recruitment, promotions, training, and pay levels. We have a strong focus on developing diverse talent across the organization. This includes pay practices which are regularly reviewed to align pay with performance, experience, and skills required for every position. In 2017, awareness raising on diversity which we included for the second year in a row, in training material to HR and managers during the annual salary review process, provided a strong foundation for renewed development in this focus area.

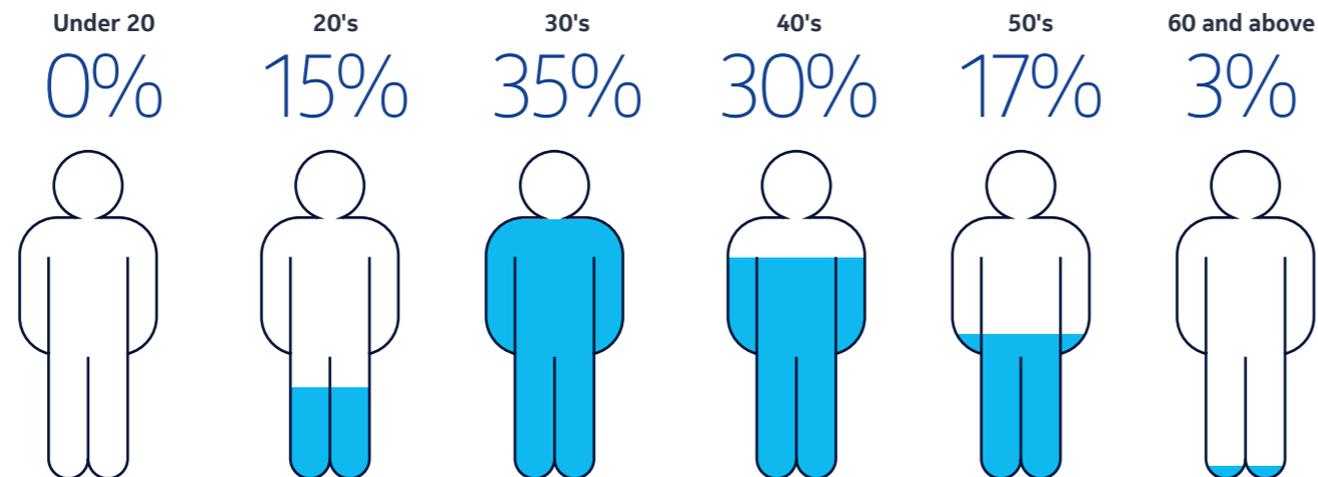
We have a Gender Balance Steering Committee that makes decision proposals to the Group Leadership Team and steers our various gender balance programs. On 8 March 2017, International Women's Day, our CEO Rajeev Suri signed the United Nations Women Empowerment Principles, stating that we are committed to doing our part to eliminate the disparity in technology companies between men and women. In September 2017, our CEO also signed a letter of cooperation with UNESCO to promote gender equality, women's empowerment, and women's leadership.

### Inclusion – our activities in 2017

We ran a Village of Diversity series of activities in our COO function

- A series of web events, gathering speaker panels and live discussions with focus on: diversity and inclusion
- March 2017, we held sessions on Gender Balance and LGBTQ – including female leaders and how they balance work and private life, career and family as well as introducing the Employee Resource Group EQUAL and LGBTQ principles.
- June 2017, Generation matters, we ran sessions on the multigeneration workforce – what do generations have in common, revisiting and challenging trends about generations-driven behaviors and needs.
- October 2017, we organized sessions on (Dis)abilities at Work – bringing in some personal stories, best practices, and a focus on mental health.
- The Village of Diversity reached more than 2 000 employees in the different sessions in 2017.

### Average age range of Nokia employees in 2017



We introduced our serious game, YOUnik in our COO organization, a gamification project to raise awareness on diversity and inclusion in an innovative way, by discovering human greatness and what makes everyone unique. It included a cross-cultural, cross-skill, multi-site project teams, with the game garnering more than 700 players in 2017.

### Gender Balance

The diversity of our Board of Directors consists of a number of individual elements, including gender, generation, nationality, cultural and educational backgrounds, skills, and experience. We believe diversity is not a static concept, but rather a relevant mix of required elements for the Board as a whole that evolves with time based on, among other things, our relevant business objectives and future needs. Board diversity is treated as a means of improvement and development rather than an end in itself. At the end of 2017, the gender balance of our Board was 70% male and 30% female. We aim to have a minimum representation of 40% of both genders on our Board by January 1, 2020.

In 2017, 13.4% of our senior management positions were held by women. In total, women accounted for 22% of our workforce in 2017. We are committed to:

- Develop more talented women into leadership to bring the proportion of female leaders in every organization in line with the proportion of women in the workforce. We are running two career development programs for talented women, who are undergoing one year's Executive Sponsorship, Mentoring, Networking and Executive Coaching.

Among the 2017 alumni, 30% have moved on to higher level positions.

- Foster a gender-neutral culture through training for leaders and managers on gender dynamics and unconscious bias, equipping them to best manage diverse teams; and ensuring that all our processes and communications are gender-neutral and inclusive. In 2017, over 2 300 leaders and employees were trained on gender balance topics.
- Participate in building a long-term female talent pipeline within the Information and Communication Technology (ICT) sector by helping bring more women and school aged girls into Science, Technology, Engineering and Mathematics (STEM)

Around 40 projects were run across our locations in 2017 to empower women and school aged girls, including:

- g4g workshops in Finland, France, India, China, Poland, and Nigeria, delivered in partnership with the greenlight for girls organization, an NGO specifically working with young people to boost their confidence and interest in STEM.
- In Finland, a 3-city launch of greenlight for girls events took place in March 2017. These events targeted girls aged 11–15 years seeking to inspire them to pursue STEM education by introducing them to the world of science through highly engaging workshops. All three sites hosted one-day events for 420 girls organized by 100 volunteering Nokia employees – both women and men. The workshops varied from 5G escape room to programming, from statistics to electronics, and from virtual reality to extracting one's own DNA and taking it home in a vial. The energy and enthusiasm was genuine – 94%

of the participants stated they wish to pursue or seriously consider STEM education.

- In June 2017, Nokia Paris-Saclay hosted the g4g event gathering more than 200 girls from five different schools, including 35 of our employees' daughters, to empower them in STEM. 14 workshops were empowered by 70 employee volunteers dealing with prototyping, coding, cloud, 5G, Virtual Reality, collaborative challenges, and drones.
- In December 2017, Nokia Shanghai with 40 volunteers welcomed around 120 girls aged 11 to 15 from surrounding middle schools, and employees' daughters, for a full day of g4g workshops to discover all aspects of Science Technology Engineering Mathematics (STEM) – including topics such as code breakers, human DNA necklace, fruit batteries, M&M statistics, cloud light, and a lab tour.
- Girls in ICT days were organized in Germany with 100 school aged girls, as well as GirlsInTech events in Greece, Hungary, Peru and Romania.
- In 2017, we kicked off our initial two-year program in Middle East and Africa aimed at attracting 100 female graduates, in partnership with numerous regional universities, institutions, and other government-run programs. The program has been designed to support the initial short-term hiring of female graduates throughout the region and offering opportunities to gain hands-on work experience in real-life environments.
- In November 2017 in Nokia Bangalore, with inspirational STEM role models, 100 bright and enthusiastic school aged girls had the chance to dive into 5G technology, IoT, Virtual Reality, to get hands-on experience with creativity and engineering.

## StrongHer - an employee network that promotes gender diversity

Initiated and led by employees for employees, this award-winning initiative contributes to women's empowerment, helping them unleash their potential and magnify their business contribution, and increase the representation of women at all levels and in all job functions in our company.

The network is a grassroots movement created in 2011 by six female employees in France and is open to all employees, men and women, executives and non-executives. Members want a company where women have the same opportunities as men and are well represented in all business domains and functions.

### Statistics as of January 2018:

- 2 600+ members
- 70 countries on five continents
- 35+ active chapters
- 24% male membership.

StrongHer advances gender diversity by offering networking opportunities, personal development, and a think-tank on leadership and management. It also provides exposure to diverse role models for women and men, along with business contacts within and beyond the technology sector.

StrongHer has been an eye-opener on the many causes for low representation of women in the ICT industry and in leadership roles. There is not just one "glass-ceiling", but some frequent explicit or

more implicit patterns and reasons at various steps of women's lives and careers, caused by others and women themselves. StrongHer works on three axes : DARE, ACT, and INSPIRE.

To ensure impact on the 3 axes, StrongHer built and deploys four emblematic worldwide programs:

- StrongHer Awards to spotlight talented women role models, organized in 10 countries in 2017
- Knowledge, Information and Wisdom for employees with KIW-e Mentoring program to help employees promote innovation through the creation of an expert community to share business issues and improve visibility with 142 participants in 13 countries in 2017
- KIW-e webcast where executives and experts shared business relevant knowledge in two interactive sessions with employees in 2017
- A charter for managers to explicitly walk-the-talk on gender balance, to publicly commit to take gender inclusive actions and become certified champions of the StrongHer values with preparation to launch a pilot in 2018.

Following the GEM-TECH Award received from the International Telecommunications Union (ITU) and United Nations Women (UN Women) community, StrongHer has been invited to be part of the Advisory Board of the EQUALS (formerly GEM-TECH) Award in 2017.

Finally, StrongHer had the opportunity to contribute directly to improving our diversity rating from a customer. The board of StrongHer visited the customer to present the activities and achievements



of the network on gender diversity worldwide. Actions were decided to continue engaging to promote gender diversity in both companies.

In this case, thanks to the team work driven by our company's customer quality leader with sales teams, diversity director, public affairs, the procurement team and StrongHer, our supplier performance evaluation on diversity rating improved from 3.5 in 2016 to 5/5 in 2017. StrongHer has proposed to replicate this with other sales teams.

## Black economic empowerment

In South Africa we are committed to good governance practices, transparency, and compliance with all Broad-Based Black Economic Empowerment (BBBEE) codes of good practice. We are currently a level 3 contributor with a target of being a level 2 contributor. We have an obligation to promote

Black Economic Empowerment Programs, and also to ensure alignment to our group diversity programs. Hence through our BEE plan, we always commit to achieving specific BEE deliverables and actual target percentages for each deliverable.

#### Specific BEE deliverables:

**Ownership** – We continue to maintain our effective black equity ownership with 31% black women ownership.

**Management Control** – We have targets and we measure achievement in order to increase ratio of blacks, and equally importantly, women in leadership positions. As per our plan, we want to ensure we achieve our targets through our recruitment process and internal promotions. To achieve our target, we have a local Vetting Committee which evaluates and manages the appointment of new employees according to our BEE Management Control plan. We have also put in place targets for a women's graduate program as a plan to improve our women ratio and ensure a robust women talent pipeline.

**Skills Development** – We established a dedicated and sustainable skills transfer program aimed more importantly at developing women with potential for advancing in leadership roles within the company. We have implemented learning programs for blacks including black women and disabled learners. We also strive to implement a targeted procurement strategy geared to increase procurement spend from companies which have made significant progress in the area of BBBEE. Our community investment activities are managed by a dedicated committee to

manage the initiatives linked to the socio-economic development of South Africa's disadvantaged communities.

### LGBTQ Inclusion

We were proud to be awarded the Human Rights Campaign (HRC) Corporate Equality Index score of 100% for the first time as the combined company. The HRC Corporate Equality Index is a U.S. national benchmarking tool on corporate policies and practices pertinent to LGBTQ employees.

EQUAL! is an educational and support group for our employees who are lesbian, gay, bisexual, transgender or queer (LGBTQ) or who have family, friends, or colleagues who are lesbian, gay, bisexual, transgender or queer. 2017 was a year of expanded reach for EQUAL! through the internal employee social network with members roughly doubling in number, and expanded activities including:

- The LGBTQ awareness month content which included four company-wide events to raise employee awareness on best practices and LGBTQ terminology.
- Several LGBTQ employee testimonials published on the corporate blog.

### Equal opportunities for disabled employees

#### France - Mission Handicap

In France, the Mission Handicap program, designed in 2006 to better integrate disabled employees into the workplace, was established to meet the legal quota of 6% of disabled employees in French companies.

The program includes several action plans such as hiring activities, equipment adaptations, tool or facility accessibility, training of employees including managers and colleagues, as well as communication and awareness sessions for all employees. Nokia France reached a ratio of 4.5% of disabled employees by the end of 2017.

#### @talent Egal

We co-lead @talentEgal, a non-profit association gathering together Nokia, Safran, SII, Dassault Systèmes and several universities in France. @talentEgal helps disabled post-graduate students gain employment by providing them with training, internships, or other work experience. Learning on mentorship by partner's employees helps students reduce their self-censorship, improve their skills, and to be prepared for a successful occupational integration. Several of our employees accompany students and mentor them in developing their soft skills, their English skills, and their knowledge of the job market. In 2017, @talentEgal helped 57 disabled students.

#### Germany

Providing equal opportunities for disabled employees is a proven and professionally established commitment in Germany. Company and employee-elected representatives for severely handicapped employees work together to coordinate processes and actions for training and awareness, job postings, recruiting, working environment, and external partner cooperation. We have a sustainable implementation and a current disabled quota of 5%.

### Supplier Diversity

In March 2017, we were recognized as a WBENC (Women's Business Enterprise National Council) Top Corporation again, along with 50 of the 300+ WBENC Corporate members at the Summit & Salute event. WBENC's America's Top Corporations for Women's Business Enterprises is the only national award honoring corporations who are choosing to integrate policies and programs enabling growth and reducing barriers for women-owned businesses; increasing opportunity in new markets – both domestically and internationally; fueling innovation; and empowering communities through economic growth and job creation.

Throughout 2017 we emphasized diversity, and the empowerment of girls, women, and young people through a range of events at our locations. We continue to roll out our five-year plan on gender diversity. Read more online at [www.nokia.com/sustainability](http://www.nokia.com/sustainability).

“In 2017, we were proud to exceed our diversity target as 2 300 Nokia leaders and employees were given training on Gender Balance and Unconscious Bias. Participants left with the mission to become agents of change in our company armed with best practices, which they could immediately implement with their teams.”

Barry French

Chief Marketing Officer and Gender Balance  
Executive Sponsor, Nokia.



## Strengthening our health & safety performance

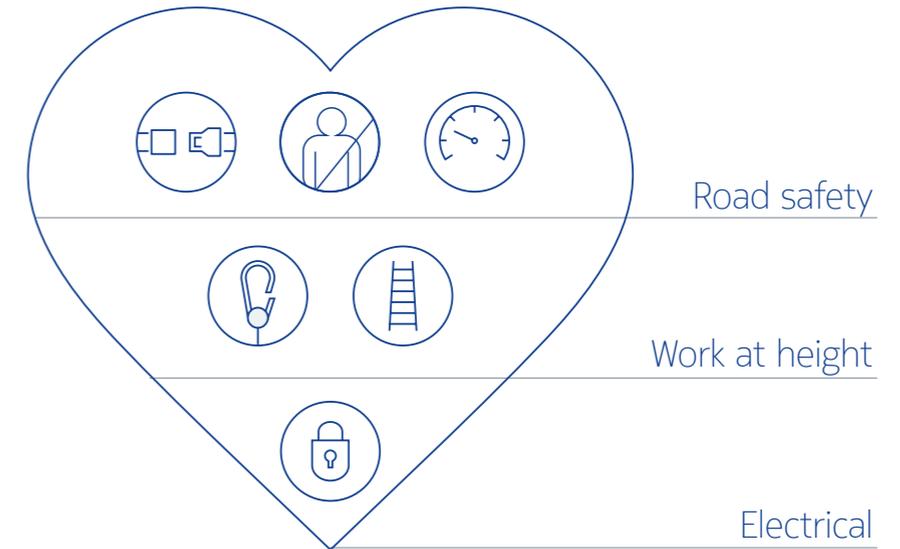
In our networks businesses, employees and contractors face inherent risks when installing and maintaining equipment and constructing base stations on behalf of our customers. We focus on ensuring that all our employees and contractors are aware of the risks related to their jobs and receive the necessary training and equipment to work safely, whether in the office or on site. We address job-related health and safety risks through training, analysis, assessments and consequence management.

We have put in place a wide range of programs to improve our health and safety performance and encourage reporting of near misses and dangerous incidents by employees and contractors.

### Addressing key risks through training, analysis, assessments, and consequence management

Health and safety is embedded within our Code of Conduct and is therefore included in our Ethical Business Training. In this training we emphasize the importance of identifying and avoiding risks, and reporting incidents. In addition, we run campaigns that focus on the key safety risks for our employees and contractors, and encourage open reporting of incidents and near misses by contractors and employees. In 2017, as part of the company-wide mandatory training modules, we introduced Making Tomorrow Safer training which encourages employees to consider their own safety in their daily work. It ensures there is a clear understanding of the Life Saving Rules and our H&S standards and their importance in the services for our customers, colleagues and suppliers to make tomorrow safer. 94% of our employees successfully completed the training in 2017.

In 2017, we continued to emphasize our non-negotiable rules called the Nokia Life Saving Rules, which include six simple safety rules related to our top risk areas: driving, working at height, contractor management, and electrical activities. Everyone working for or on behalf of our company, including our subcontractors and suppliers, must follow these rules as an absolute minimum.



Health and safety performance, as well as the compliance of our contractors, are critical factors in our overall performance. To ensure that our contractors understand how seriously we take these requirements, we have a formal consequence-management process that follows all fatal, critical, and high-potential incident investigations. Where a contractor does not fulfil our expectations, we instigate a tiered form of consequence that ranges from a warning to termination of contract. We analyze the root causes of incidents and high potential near misses, putting in place both corrective and preventive measures to prevent the occurrence of similar incidents.

We continue to conduct project readiness assessments to more closely review high-risk projects in each market. We conducted 512 reviews across all markets. The assessments are conducted with a team of key health and safety stakeholders and project team members, assessing project controls using a formalized process and assessment tool. Projects are scored and tracked to identify improvements as needed.

In addition to assessing project readiness, we also assess the maturity of our supplier base by conducting Health & Safety Maturity Assessments with high-risk suppliers (work at height, road safety, working with electricity). In 2017, 975 suppliers delivering high-risk activity were assessed by our H&S maturity assessment process and 81% of assessed suppliers met H&S compliant supplier status.

### All-inclusive organizational engagement

Group Leadership representatives sit on the committee that reviews our health and safety performance on a quarterly basis. These meetings are held in order to review all fatal and high-potential incidents. In addition, our senior leaders are increasingly involved in matters of safety through regular reviews and site tours. We aim to create a culture among our employees and contractors that identifies hazards and supports active risk prevention and action, so that we can significantly reduce the number of incidents that occur.

Our health and safety management system serves as a basis for our overall program and is an integral part of how we manage health and safety and is

certified with the internationally recognized OHSAS 18001 standard. In 2017, we underwent 21 external audits and achieved global recertification accredited by the third party, Bureau Veritas, covering activities within all four networks business groups, customer operations and supporting corporate functions. As of year-end 2017, site coverage was 46%. The percentage of employees covered by the certification is higher, as many of the non-certified sites are small ones with low employee numbers.

### Our health and safety performance

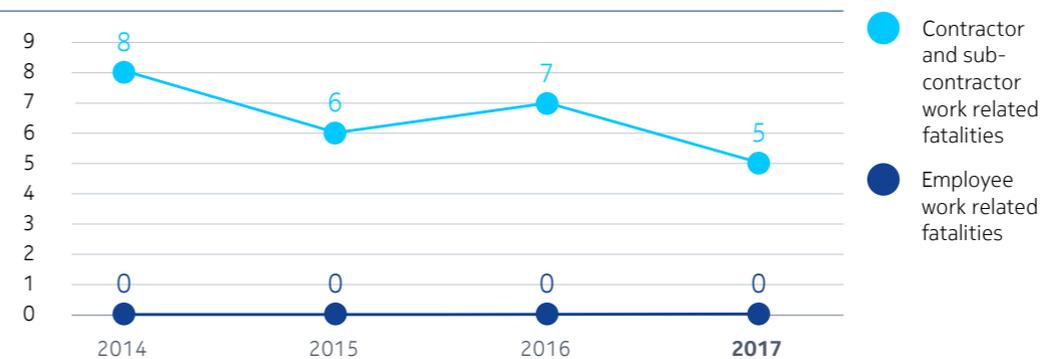
We formally evaluated 52 incidents that were Fatal, Critical or High Potential from 2017 in the Consequence Management Committee. Of those 52, we issued 31 yellow cards and six red cards. Of the 37 cards issued, 29 (78%) were not Critical or Fatal incidents, they were High Potential where no one was critically or fatally injured. The consequence management committee doesn't issue cards based on severity but rather considers the control the supplier has in place when deciding on the consequence. In

2017, there were four fatal incidents resulting in the deaths of five contractor/subcontractor personnel while carrying out work on our behalf. Four of the fatalities were related to road accidents and one was related to work at height. Any such serious incidents while carrying out work for Nokia are unacceptable.

Lost-time incidents of our employees decreased by 28% between 2016-2017 (41 incidents in 2017). It is however a positive sign of our safety culture that at the same time, reporting of near miss incidents by both employees and contractors increased by 38%, with 417 incidents reported in 2017.

As part of our drive to make Nokia a great, safe and healthy place to work, we also celebrated World Safety Day on 28 April 2017 across the company. Kicked off with a video message from our CEO, we held local events on 50 of our sites. Through our Healthier Together program we also kicked off the first health challenge Race around the world. 45 locations posted pictures and videos of the local events. See more at [www.nokia.com/sustainability](http://www.nokia.com/sustainability).

#### Work related fatalities



# Making change happen together

Creating shared value is paramount in achieving a more sustainable world. We can make a much bigger impact through cooperation and collaboration with others. We have to work together to make sustainable change.

# Highlights in 2017

g4g

greenlight for girls  
STEM events in 12 cities around the world

~7500

employee  
volunteering  
hours

Community investment  
contributions aligned with our three thematic priorities

96  
%

29

Universities  
supported through our University Donations program

UNESCO

Co-signed Letter of Cooperation on  
common objective of promoting gender  
equality, women's empowerment  
and leadership

# Our commitments, targets, and performance

Priority area	Material topic	Targets	Achievements 2017	Status
<b>Making change happen together</b>           	Corporate community investment	<b>2018</b> 100% of corporate community investment activities aligned with our group-wide strategy, business drivers and SDGs.	99.5% of our global and key regional programs were aligned with the three thematic priority areas. Across all contributions, 96% were aligned to the three thematic priorities.	 On-going - on track
		<b>2018</b> 100% of corporate community investment programs to be measured against a monitoring and evaluating system.	All identified global and key regional programs were measured against a monitoring and evaluation system by Corporate Citizenship methodology.	 On-going - on track

## Cooperating with others in our industry and beyond

To achieve our sustainability goals we collaborate closely with customers, suppliers, non-governmental organizations (NGOs), authorities, governments, industry peers, and other associations, not only working with them in achieving their sustainability goals, but also driving sustainability development through our products, solutions and business. Technology and its positive impact is a key enabler of sustainable development.

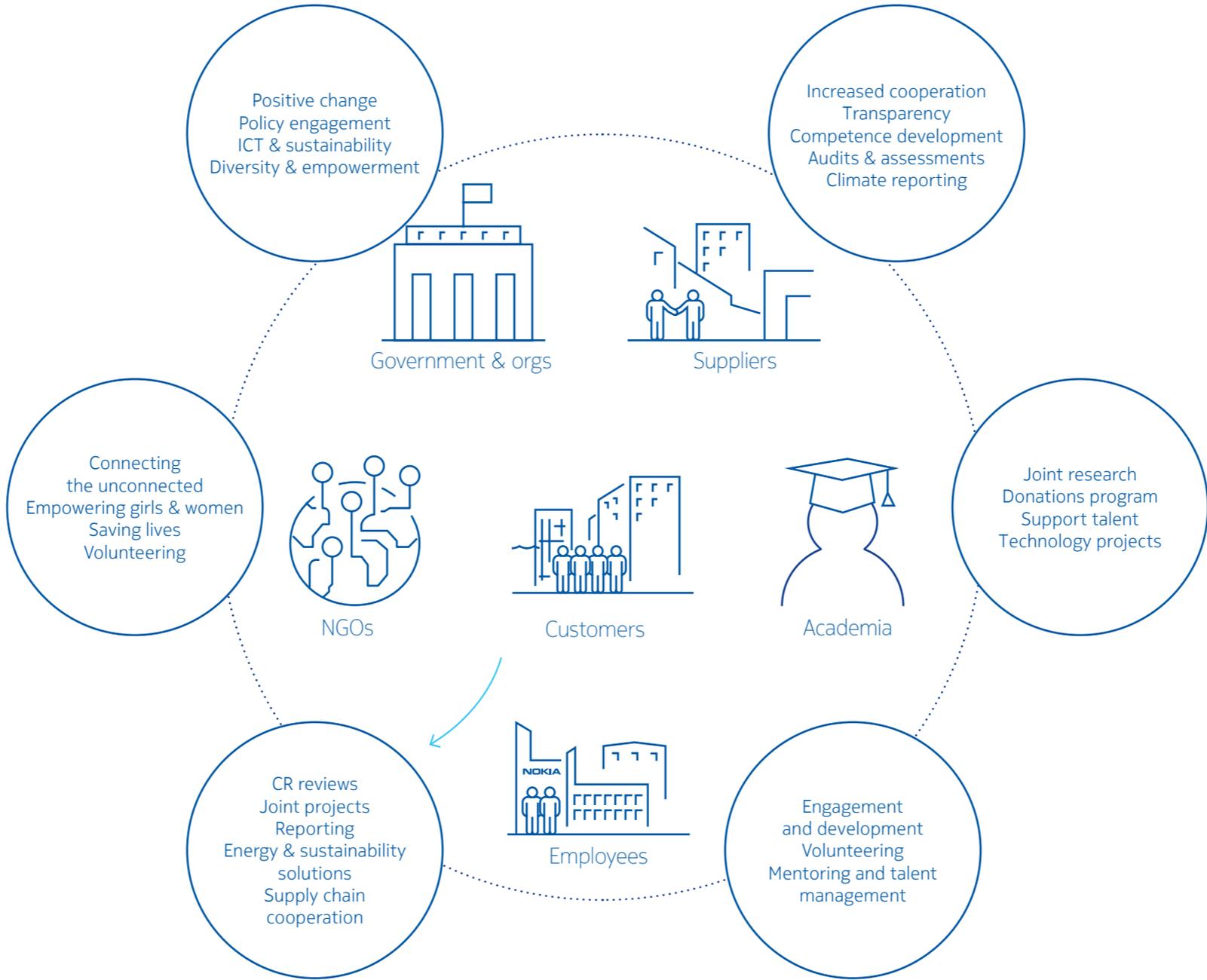
As part of our 46 short and long-term targets set in 2017, we have included a number of targets related to our collaboration with various stakeholders. For example, we set four clear targets related to our work with NGOs. One of them is ambitious target of reaching 2 million beneficiaries through our community investment programs by 2025. Besides measuring and evaluating all programs with an external body, we have aligned the programs with the group strategy, business drivers, and SDGs.



In 2017, we remained a member of the United Nations Global Compact, Global e-Sustainability Initiative, CDP supply chain program, Global Network Initiative, Climate Leadership Council, Digital Europe, Responsible Mineral Initiative (formerly Conflict-Free Sourcing Initiative), GSMA Humanitarian Connectivity

Charter and several standardization and university cooperation groups. We have further structured engagement with the World Economic Forum, the Broadband Commission, and ITU Telecom World, amongst others.

# Making change happen together



## Supporting our customers' sustainability goals

We work closely with our customers in a number of key areas of sustainability, from energy efficiency to supply chain management, from community involvement to human rights.

We have the greatest impact in the fight against climate change through the products we supply to our customers, helping them reduce their carbon footprint with more energy efficient products. For more information see section 4.5 under Protecting the environment. We also offer a range of products, software and services that enable more efficient delivery of the end-user services our customers offer to their customers.

In responsible sourcing, we cooperate with our customers to drive improvements in all aspects of supply chain management, sharing best practices and audits and assessments, with an aim to achieve greater transparency and a more sustainable supply chain.

For example, in 2017, we continued our collaboration with the Joint Audit Cooperation (JAC) initiative. JAC is an association of telecom operators that aims to verify, assess and develop corporate responsibility implementation across the manufacturing centers of important multinational suppliers of the ICT industry. Currently, the association members number 16 major telecoms service providers with operations around the world. For more information on JAC found visit <http://jac-initiative.com>.



### Making a difference together

Wherever possible, our local and regional teams try to support our customers by participating in charitable or emergency activities. For example, we provided our LTE technology in balloons to help Project Loon, AT&T and T-Mobile enable emergency LTE connectivity to the U.S. territory of Puerto Rico where some 3.4 million people were recovering from the devastation of hurricane Maria. An early FCC communications report showed that 95.2% of cell sites were out of service in Puerto Rico after the hurricane.

Although Project Loon is an experimental technology designed to extend internet connectivity to rural and remote areas, this is the second time we have played

a part in disaster recovery to restore communication services with this out of the box thinking. Earlier in 2017, balloons were floated over Peru to deliver basic internet services to thousands of people affected by widespread flooding.

We work closely with our customers to connect the unconnected and bring the benefits of technology to all people, to bring efficiency to industries, and to minimize any potential misuse of technology while maximizing the positive use. Read more in the Improving Lives chapter and the Human Rights section of this report.

# Collaborating with NGOs

Being part of the solutions to today's global challenges is our duty, and we are doing so by connecting the unconnected, empowering women and saving lives.

Our three overarching themes and main pillars of our community investment approach are aligned with our corporate strategy, business drivers, and sustainable development goals. We aim to collaborate with our partners to achieve long-term sustainable positive change in these three areas.

1. We connect the unconnected by bringing the benefits of our technology, which for example provides improved access to education and health care, to the most vulnerable areas in the world.
2. We work with NGOs and others to empower and encourage women and girls into ICT and STEM in order to make a measurable change to the current situation, where there is a distinct lack of women in ICT. Empowering women has been proven to enhance world peace. It is also a known fact that women are highly underrepresented when it comes to the use of digital technologies.
3. Our technologies are part of the solution to build resilience and response to worldwide challenges and natural disasters. With our new solutions we can connect people to better health care and greater opportunities.

## Corporate Community Investment | Our CCI mission



### Connect the unconnected

In cooperation with our partners, create network solutions and platforms to:

- Connect the unconnected
- Bring benefits of our technologies, such as access to education



### Empowering women

- Empower women and girls with skills to participate and join the connected world
- Attract women and develop their careers in the ICT business and STEM

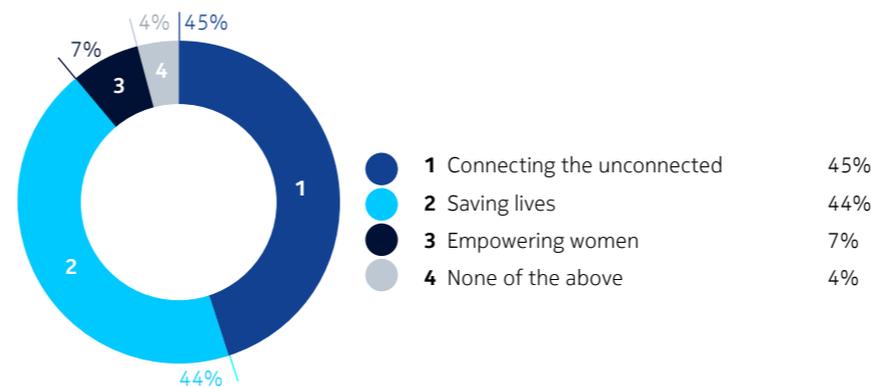


### Saving lives

Our technologies and employees are part of the solution

- To build resilience and response to worldwide challenges and natural disasters
- To connect people to better health

## 96% of Nokia's community investment contributions were aligned to the three thematic priorities



2017 was the first full year under the new Corporate Community Investment (CCI) strategy and governance. Accordingly all corporate level NGO programs were implemented in line with the new approach, and sanctioned by our Donations Committee. As a result, in 2017 we rolled out 17 programs at the global level. These programs included a new Unicef program on digital learning in Kenya, a continuation of the Myanmar early education program with Save the Children, and pre-selection of a greenlight for girls program for 2018.

We also launched the new internal global volunteering guidelines and updated the SOP for charitable sponsorships and donations. In 2017, total employee volunteering hours were around 7 500. We further continued our cooperation with Corporate Citizenship and London Benchmark Group (LBG) on impact measurement, benchmarking, and data analysis of our community investment programs.

We have set a challenging target of improving the lives of 2 000 000 people over the period 2016 to 2025 through our corporate and key regional community investment programs, focusing our action on our three themes. In 2017, around 254 100 lives were improved and cumulatively between 2016–2017 around 1 122 400 people have already benefited from our programs. The calculations are based on the number of direct beneficiaries.

In 2017, we invested EUR 6.8 million in communities around the world, representing a 36% increase in contributions from 2016. The increase is largely



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due to our increased ability to track contributions made at a local level. 96% of the contributions were provided as cash, 4% as employee time and a minor share as in-kind non-cash resources. Both global and regional contributions covered 40% of the total spend, and the remaining 20% came from local markets. Altogether these programs directly supported 62 organizations, which had a broader impact on 181 organizations.

99.5% of the global and key regional contributions supported our three themes and when the

local programs are included, 96% of our total contributions were aligned to the three thematic priorities. Most contributions in 2017 were classified under the “Connecting the unconnected” theme.

Key programs and achievements in 2017 are described below. For further information on all our corporate community investment programs visit and bookmark [www.nokia.com/en\\_int/about-us/sustainability/making-change-happen-together/community-investment-and-ngos](http://www.nokia.com/en_int/about-us/sustainability/making-change-happen-together/community-investment-and-ngos).

## Unicef and Nokia in Indonesia

Commencing in January 2017, we partnered with Unicef to support the modernization of community health services in Indonesia through new technology. We contributed to a huge vaccination campaign that involved the deployment and prototyping of an innovative mobile platform called RapidPro to transform the provision of care.

RapidPro helps caregivers, community health workers and other health providers to improve access to and delivery of effective and efficient care. This platform has helped to provide key information, such as immunization reminders directly to 6 000 caregivers of newborn babies. Read more at [www.nokia.com/en\\_int/about-us/sustainability/making-change-happen-together/community-investment-and-ngos](http://www.nokia.com/en_int/about-us/sustainability/making-change-happen-together/community-investment-and-ngos)

“UNICEF’s core goal is to deliver sustainable results for every child by supporting governments to fulfil their responsibilities in child rights. Our vast network means we can take successful approaches from one place in the world and adapt them to meet challenges elsewhere, helping to drive results for children on a global scale. The private sector is a crucial partner in resolving development problems, and can play a major role by leveraging its resources, expertise and business models to improve children’s lives all over the world.”

Marja-Riitta Ketola, Executive Director of UNICEF Finland

## Save the Children and Nokia in India

Since 2014, we have worked with Save the Children in India to implement social protection programs and reduce the impact of natural disasters on vulnerable children and their families. We have helped to increase the resilience and capacity of children and their communities to reduce disaster risk and provide relief and rehabilitation when disasters hit, by creating critical infrastructure and raising awareness of disaster risk reduction. The task force groups formed in each village under the project have responded to both major emergencies such as the Bihar floods and the Vardha Cyclone, and daily risks such as fire accidents in the slums.

Through the disaster preparedness and mitigation program, we have reached our target to implement disaster management plans in each of the targeted 350 villages across five states: Bihar, Tamil Nadu, Andhra Pradesh, Delhi, and Rajasthan.

This year, with Save the Children we supported the district magistrate’s office South East Delhi to develop and launch a mobile application that raises awareness about welfare schemes amongst vulnerable communities in the slums of South East Delhi. The application connects communities in slums in South East Delhi area to government schemes by making people aware of various schemes, and enabling community members to find out their eligibility for the schemes through a simple screening process. So far, 1 897 applications have been filed through the mobile app.



The partnership has also rolled out Save the Children’s Child Sensitive Social Protection initiative (CSSP) which aims to reduce the vulnerability and poverty of children. Read more about our work with Save the Children at [www.nokia.com/en\\_int/about-us/sustainability/making-change-happen-together/community-investment-and-ngos](http://www.nokia.com/en_int/about-us/sustainability/making-change-happen-together/community-investment-and-ngos).

### greenlight for girls (g4g)

In February 2017, Nokia and greenlight for girls launched their partnership across three cities in Finland. By inspiring more girls to choose a career in Science, Engineering, Technology and Mathematics through interactive workshops, the partnership aims to increase the number of female leaders in STEM fields. After a successful launch, the events spread across Europe, Australia, the U.S., Africa and Asia. In 2017, successful events were held in Athens, Espoo,

**Other corporate programs in a nutshell – 8 programs ongoing, 3 new, 8 others committed**

Program / NGO	Country/ies	Thematics	Status
Save the Children	Myanmar	Connecting the unconnected – education & Saving lives	Construction of 60 Early Childhood Care and Development centers across Myanmar, kindergarten program established. Approximately 25 000 children have enrolled in education. Software developed in collaboration to connect groups to central data.
HundrED – innovative learning	Finland 100 – global	Connecting the unconnected	Innovation for education events began in September in: Finland, U.S., UK, Japan, Russia, Australia, South Africa, Qatar, China and Singapore.
CodeBus Africa	10 African countries	Empowering women	CodeBus Africa’s continent-wide tour empowering youth through creative coding workshops came to an end on 27 May 2017
Anita Borg	Global	Attract women into STEM	Collaboration and event participation with the diversity team in two events
Rails Girls – Summer of Code	Global	Attract women into STEM	Sponsoring an open source coding camp in July–Sept 2017
Greenlight for Girls	Finland, France, China, USA	Attract women into STEM	Athens, Espoo, Tampere, Oulu, Paris, Canberra, Krakow, Brooklyn & Queens, Nigeria, Bangalore, Brussels, Shanghai
Junior Achievement	Finland, Israel, Canada, USA	Connecting the unconnected	STEM finals held in June, final report on winners and innovation results made at the end of July
Dreams	Finland	Connecting the unconnected – digital literacy	Dreams event held in Espoo in May with 1 000 student participants with partner companies and collaboration companies, school year successful with more than 100 Dreamster visits
Other (8 projects)	Global	Various	Seasonal Festive Campaign, Responsible summer job, and Mentorship program run by Human Resources, WWF Green Office certification run by Workplace Resources, Children's Hospital equipment delivered during the year with our customer Elisa, Junior Achievement European Round Table run by Government Relations.
CHONGGU (Internet classroom)	China	Connecting the unconnected	China CSR team lead
NEW – Vodafone agriculture program		Project with customer	Managed by our sales team for Vodafone

Tampere, Oulu, Paris, Canberra, Krakow, Brooklyn & Queens, Nigeria, Bangalore, Brussels, and Shanghai.

Through this first year of partnership, 1 810 girls have already directly benefited. Having attended the workshops, 90% of the girls stated that they would now consider a career in STEM. For those who volunteered to help run the events, the partnership enabled 635 people to give back to their community. On the next page, see the summary table of other corporate community programs, including eight programs ongoing, three new programs, and eight others we have committed to.

### Take a step, change a life

In 2017, our annual festive internal charity campaign was combined with our third Healthier Together challenge. “Take a step, change a life” ran from 6 December 2017 to 6 January 2018, and had a very different motivation from the previous challenges. The goal was simple – by joining one of the four charity teams we could dedicate our steps to support the chosen charities. Not only did we count steps for this challenge, but we also had the opportunity to collaborate with colleagues from the YOUnik gamification project, an innovative and inspiring game linked to diversity and inclusion, which brought over 2 million Onicoins to all the charities. Together we took over 187 million steps across 67 countries,

and with the addition of the Onicoins donations via the YOUnik game, each charity was rewarded.

### Engaging with our communities

Our Locations Development teams are strongly involved in humanitarian, environmental, and solidarity initiatives where we operate. The projects span a wide range, from environmental clean-up to blood donations, from clothing/toy drives to tutoring and comforting sick or under-privileged children, and many more countless gestures to support those in need.

We are visibly strengthening our involvement in initiatives which further support the top three priorities of our corporate community investment (CCI), through activities that:

- Empower women and girls in STEM
- Connect the unconnected: extending the service grid, and the knowledge to use it
- Save lives by promoting connected health programs.

Following the unveiling of this new program, we are noticing more and more projects involved in encouraging young people to consider a technical career, particularly girls, who are conspicuously absent from the scientific landscape. Other educational initiatives included introducing children to the world of computer coding; giving inspirational conferences on the wonders of a career in science;

and basic tutoring for those in dire need, to teach them skills that will allow them to imagine a future beyond poverty.

Location Development made a significant contribution to our corporate community investment mission by creating the Corporate Social Responsibility (CSR) award in 2017, to recognize exceptional achievements in CSR, and to encourage responsible behavior throughout our locations in the future. To go even further, we seek to distinguish our locations who not only drove a wide variety of corporate responsibility initiatives, but announced a high proportion of employees involved in these activities, demonstrating the strongest engagement of their employees: They truly embody the Care value of our company-wide Drive, Dare, Care mission.

## India

Our partner NGO, Digital Empowerment foundation held a press briefing on 20 November, concerning our joint project on improving livelihood opportunities for the weaver cluster in Kanchipuram in the state of Tamil Nadu in the south of India. The project is called Kanchiloom and leverages digital technology to enhance core skills of the weavers, facilitates financial inclusion by connecting weavers to various central and government schemes, and eventually aims to connect the weavers directly to the market place through e-commerce.

## China

Between June and September 2017, Nokia Shanghai Bell worked with the Shanghai Chonggu Charity Youth Development Centre to improve access to computer resources in China's least developed provinces. In these areas, many village schools lack computer classrooms and the ability to connect to the internet, which results in reduced access to educational resources. Through the donation of six Internet Classrooms, 6 392 students and teachers in rural and remote schools are now able to access the internet and have reported increased knowledge of how to navigate the internet. Being able to access the internet provides these students with crucial opportunities to engage with a world that increasingly exists on, or utilizes, digital platforms. Our local employees also gave their time to support the project.



To ensure the long-term viability of the project, we will continue to revisit the schools to examine the quality and maintenance of the computers, as well as to provide updated training to the teachers using the classrooms.

Going forward with all our NGO cooperation, we will develop our large signature programs under our three key themes, adding value through the use

of technology, and building on shared value. For more details and case examples of our NGO-related programs see [www.nokia.com/en\\_int/about-us/sustainability/making-change-happen-together/community-investment-and-ngos](http://www.nokia.com/en_int/about-us/sustainability/making-change-happen-together/community-investment-and-ngos).

## Working with governmental and multi-lateral organizations

We strongly believe in the power of collaboration by working with industry partners and engaging with policy makers, international and multi-lateral organizations, civil society and academia, to help transform towards a digital economy and society. We believe digital technology can strongly contribute to reaching the 17 United Nations Sustainable Development Goals (SDGS).

### Our approach to government

**Our Code of Conduct** provides guidance on how we deal with government officials. Our policy is not to participate in the political or electoral process through direct donations to political groups, but to protect our interests through lawful and transparent advocacy with government.

We build and maintain relationships with our most important governmental stakeholders and ensure they understand our strategy and positions. We contribute to key policy debates fostering a connected society and the adoption of new technologies around the world. We share our

opinions and recommendations with policy makers, governments, trade associations, international organizations, and industries to promote the opportunities of a connected world for all.

We engage with international bodies, governments and government officials at multiple levels and in a variety of ways: as a business providing goods and services, as a concerned citizen petitioning to protect our interests, as a taxpayer, and as a private sector participant providing jobs and economic opportunities in many host countries around the world. When interacting with governments, agencies and officials, we follow high ethical standards and act in a transparent manner. Special requirements apply to our interactions with governments and state-owned enterprises, including, for example, procurement, lobbying, entertainment, hospitality, disclosure and record-keeping rules as defined in our standard operating procedures.

We are honest, truthful, and accurate when dealing with governments, and we follow Nokia policies and procedures, and any applicable laws in our dealings with government officials.

Our corporate guidelines for dealing with government officials include that we ensure that government officials, when requesting information from Nokia, have a right to such information and that we have a right to deliver such information, that we conduct due diligence to verify that all information provided is current, accurate and complete, conditions and limitations for offering hospitality and entertainment to government officials.

Our guidelines for dealing with government officials always apply, regardless of the employee's role and the purpose or frequency of interaction. The basic guidance for interaction with a government official is laid down in our Code of Conduct. This applies also for interactions with employees of state owned companies and other governmental customers. Every Nokia employee has an obligation to be aware of the Code and to act accordingly.

### Our work with the World Economic Forum

In 2017, we continued our collaboration as a partner of the World Economic Forum (WEF). The WEF is an international organization for public-private cooperation committed to improving the state of the world. The Forum engages the foremost political, business, and civil society leaders from all walks of life to shape global, regional, and industry agendas and create positive change in the world. The Forum strives in all efforts to demonstrate entrepreneurship in the global public interest while upholding the highest standards of governance with moral and intellectual integrity.

Our President and CEO, Rajeev Suri is a member of the Steering Committee of the Digital Communications Governors and of the Stewardship Board of the WEF Health initiative. He and members of our global leadership team, have made important contributions to the Forum by sharing their expertise on the advancement of digital technologies such as 5G, Internet of Things, Artificial Intelligence and Blockchain to improve the state of the economy while empowering citizens on

issues such as: access and adoption of the internet (Internet for All program), access to health care, gender parity, and the Fourth Industrial Revolution. On this topic, Mr. Suri shared his views [on the Forum's blog](#) ahead of Davos 2018 entitled: The Fourth Industrial Revolution will bring a massive productivity boom.

We also work with the Forum to address gender balance in the workforce. Our Executive Vice President and Chief Marketing Officer, Barry French, is a member of the Steering Committee of the Gender Parity Initiative and contributed on the publication of the “Accelerating Gender Parity in the Fourth Industrial Revolution: An Agenda for Leaders to Shape the Future of Education, Gender and Work” with our StrongHer as a global best practice to empower women globally across the company. Read more on [Accelerating Gender Parity in the Fourth Industrial Revolution](#).

### Leadership at the United Nations Broadband Commission for Sustainable Development

The International Telecommunications Union (ITU) and the United Nations Educational, Scientific, and Cultural Organization (UNESCO) set up the Broadband Commission for Digital Development in response to UN Secretary-General Ban Ki-Moon's call to strengthen UN efforts to meet the Millennium Development Goals (MDGs). The Commission was established in May 2010 with the aim of boosting the importance of broadband on the international

policy agenda, and expanding broadband access in every country as key to accelerating progress towards national and international development targets. It defines practical ways in which countries — at all stages of development — can achieve this, in cooperation with the private sector.

Following adoption of the UN's Sustainable Development Goals in September 2015, the Commission was re-launched as the Broadband Commission for Sustainable Development to showcase and document the power of ICT and broadband-based technologies for sustainable development.

As a UN Broadband Commissioner, our President and CEO actively engages to discuss how to connect the unconnected and advance the Sustainable Development Goals through technology. In 2017, our CEO chaired the [Working Group on the Digitalization Scorecard](#). The associated Working Group report provides insights on how to ensure digitalization policy and regulatory readiness in sectors such as education, health care, e-government, agriculture, and transportation. He also co-chaired with the Novartis Foundation the Working Group on Digital Health. This working group prepared recommendations on how to make digital health care a reality, providing policy recommendations on how to use technology to achieve the best quality medical care in all parts of the world and launched the report: [“Digital Health: A call for Government Leadership and Cooperation between ICT and Health”](#).

We also contributed to the “The State of Broadband 2017: Broadband Catalyzing Sustainable Development” report published by the ITU annually to provide a global snapshot of broadband network access and affordability, with country-by-country data measuring broadband access against key advocacy targets set by the Commission in 2011. The report can be found [here](#).

### UNESCO MOU

Our CEO Rajeev Suri and UNESCO Director-General Irina Bokova have signed a Letter of Cooperation confirming the common objective of promoting gender equality, women's empowerment, and women's leadership. The renewal of this LoC was well expected by StrongHer as together with UNESCO, we would:

Take a multidisciplinary approach that favors the equal participation of women in decision-making and leadership processes in all domains Cooperate to implement partnerships and learning programs to promote the equal representation and participation of women and men in the professional world, through partnerships with other entities such as universities, social networks, companies, or others Provide external visibility for our company and StrongHer as a key change agent helping bridge the gender gap in ICT. Tweet [here](#).

## The G20

The Group of 20 (G-20) is a leading forum of the world's twenty largest economies. Political leaders discuss key issues in the global economy, set common policy agendas and adopt recommendations. The mandate of the G-20 is to promote global economic growth, international trade and financial market regulation. Members of G20 (sorted by GDP) include: USA, China, EU, Japan, Germany, France, Brazil, UK, Italy, Russia, Canada, India, Australia, Mexico, S. Korea, Indonesia, Turkey, Saudi-Arabia, Argentina, and S. Africa. The G20 economies together account for approximately 80% of world trade, 85% of the gross world product, two-thirds of the world population and approximately half of total world land area.

The B-20 or Business 20, convenes global business leaders advising the G-20 members and policy members on key economic issues from an industry perspective. It mirrors the G-20 structure, it is run by yearly 'Presidencies', with several engagements throughout the year and culminating into a B-20 Summit adjacent to the G-20 Summit, where business stakeholders present recommendations to policy makers and political leaders.

In 2017, Germany took over the G-20 Presidency and our government relations team was active through our work on the B-20. Our President and CEO Rajeev Suri became the co-chair of the newly-created B-20 Germany Digitalization taskforce as well as the B-20 Germany Business Advocacy Caucus. For the

first time, a B20 task force has been formed with a dedicated focus on digitalization. An opportunity for Nokia to help shape the industry vision on digitalization and associated policy recommendations towards political leaders.

Read more on the [Digitalization Policy Recommendations](#) and [an interview with our CEO](#).

In 2017, we became an official Partner of the United Nation and International Telecommunications Union (ITU) EQUALS Global Partnership to promote awareness, building political commitment, and leveraging resources and knowledge. EQUALS partners seek to achieve digital gender equality and through this, to improve the livelihoods of millions around the world.

Our CEO, Rajeev Suri, has been committed to gender equality in the tech industry: "At Nokia, our ambition is to have a gender balance that reflects the world around us. Achieving that ambition will require the skills of policymakers and the active engagement of societies to build a long-term talent pipeline by helping to bring more women into Science, Technology, Engineering and Mathematics, and the commitment of leaders and managers everywhere." [www.equals.org/partners](http://www.equals.org/partners).

At the Partnership, we have led important debates on women's access and adoption of connectivity, digital skills, and the advancement of women in leadership positions.

## Other selected activities

### Nordic & gender

We participate in the global debate to enhance understanding on gender equality and its limitations on the ability of individuals, businesses, and communities to thrive. On October 2017, Nokia participated on the Barbershop Conference in Copenhagen, organized by the Ministry for Foreign Affairs of Iceland to share best practices promoting gender equality. The event connects to the HeForShe campaign, a solidarity campaign for the advancement of women initiated by UN Women. Its goal is to achieve equality by encouraging men and boys as agents of change and take action against negative inequalities faced by women and girls. It is also a part of the Nordic Prime Ministers Initiative, The Nordic Gender Effect, a flagship project that responds to the increased international interest in Nordic gender equality policies.

### U.S. & gender

We have also been highly involved in activities that relate to gender equality in the US by collaborating with government officials and other private sector leaders. In 2017, we participated on the Telecommunications Industry Association (TIA) Diverse Digital Workforce panel and discussion with other members of government and industry. A related interview of Driving Diversity into the Technology workforce can be found [here](#).

### Latin America and technology for good

Connecting the unconnected is also an important pillar of the collaboration we have with governments and multi-lateral organizations. We are highly engaged with the Inter-American Development Bank and its education efforts to government officials around the region on the power of the digital economy. As such, we contributed to the Bank's online course (MOOC) - Opportunities and Challenges of the Digital Economy in Latin America, to highlight the importance of connecting the unconnected, the social and economic benefits of IoT, and the importance of gender parity in technology access and adoption. Join the MOOC [here](#).

### Our Policy Positions on selected topics

#### 5G

To ensure timely deployments of 5G infrastructures and services, policy frameworks must be adapted and be 5G ready. We see three priorities for policy makers:

#### Making more spectrum available

Modernizing rules to incentivize and facilitate the deployment of telecom infrastructure  
Ensuring new business models and services can flourish with appropriate policy frameworks on data flows, net neutrality, privacy and security.

As stakeholders are redefining themselves and actively exploring new business models driven by digitalization, policy work to foster digitalization is also needed beyond the telecom sector. Read more [here](#).

### Trade

We believe in a free digital trade agenda. Supply chains are global and complex and free trade would allow technology to reach people everywhere and provide its benefits to all corners of the world without unnecessary costs and barriers. We support preserving the WTO's international trade regime. We promote a digital trade agenda as well as international digital cooperation in policy development. Read more [here](#).

## Collaboration with universities, cities, and other industries

Our work with academic institutions ranges from collaborative research, training programs, and events that foster innovation, to supporting talent and continuous learning. In addition, our University Donations Program enhances collaboration between the world's leading experts from universities around the world with the aim of promoting scientific exploration, talent, and knowledge creation.

In 2017, we supported 29 universities through the University Donations program, including open donations to the Finnish Aalto University, Technical University of Tampere, and the Universities of Helsinki and Oulu. European universities were also supported in Germany, Sweden, France, Greece, UK, and Ireland through topical donations.

In China, we supported, among others, the Beijing University of Post and Telecom, Beijing Jiao Tong. In addition, Yonsei University was supported in Korea, and the University of Tokyo in Japan.

In the U.S., we supported the University of California in Berkeley, San Jose State University, the University



of Washington Seattle, the University of Texas at Austin, MIT, the University of Missouri, Georgia Institute of Technology, and New York University.

### Opening doors to students of St.Petersburg Telecommunications University

In Russia, we successfully launched our university project for 2017-2018 academic year for the

students of St. Petersburg State University of Telecommunications named after Prof. Bonch-Bruевич. The project includes free-of-charge education for bachelor's and master's undergraduates.

To be accepted at the Nokia University the students pass through tests to evaluate their technical knowledge. The training course lasted for two

semesters, from November 2017 until April 2018. The graduates obtain appropriate certificates.

The project was implemented in cooperation with our training center. Teachers at the training center carry out technical seminars, while our employees could volunteer to organize training in business operations.

### Working with cities

Cities today account for just 2% of the earth’s surface, while more than half of the earth’s population live in those cities. Some estimates suggest this will rise to two-thirds of the world’s population living in cities by 2050. New technologies, solutions, and innovation are needed that will deal effectively and efficiently with the challenges of this mass urbanization.

We are already today helping cities around the globe, such as Chattanooga (U.S.), Dubai (United Arab Emirates), Jeddah (Saudi Arabia), Cape Town (South Africa), Auckland (New Zealand), Sendai (Japan), and Bristol (UK) to build more effective shared network infrastructures. Cities are already using advanced digital technology and IoT to make their environments smart, safe and sustainable. Their advanced infrastructures deliver comfortable and convenient public applications that support innovation, economic growth, and social development.

We continued our work with cities around the world in 2017. For example in Bristol (UK), we continued to contribute to the Bristol Is Open (BIO) initiative, providing solutions for smart and sustainable cities, including consulting services and network and

infrastructure support. In addition, our application ecosystem program ng Connect brought an extensive range of additional applications, ideas and companies into the BIO development program, by making the Nokia founded IoT Community for cross-industries collaboration accessible to BIO.

In 2017, we also signed new agreements with other cities. In May 2017, at the Transform Africa Summit in Kigali, we announced collaboration with the local company SRG and the government of Rwanda to deploy smart city technology to improve the lifestyle and social sustainability of its citizens.

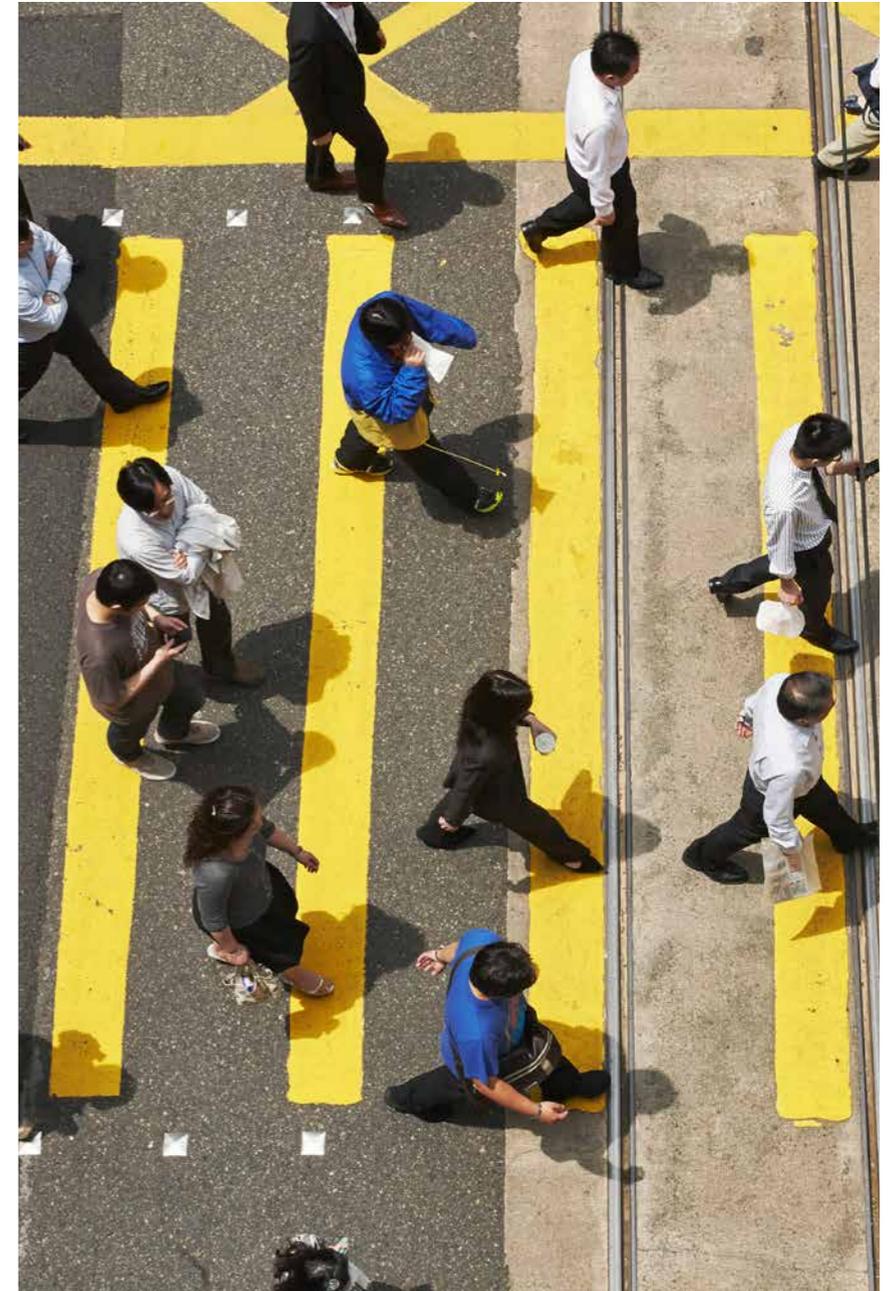
As part of the Dubai Future Accelerators program, we also signed a memorandum of understanding with the Dubai Police to make roads safer using IoT.

For more information on how technology can improve the lives of people in cities around the world, see <https://networks.nokia.com/smart-city>.

For more examples of our work with cities see [www.nokia.com/en\\_int/about-us/sustainability/improving-peoples-lives-with-technology/digital-life](http://www.nokia.com/en_int/about-us/sustainability/improving-peoples-lives-with-technology/digital-life)

### Enabling other industries through digitalization

We are privileged to have worked with many customers on digital transformation projects. Over time, these projects have become replicable use cases that can be leveraged by other large enterprises across a variety of industries. Our solutions help industries become more efficient, safer, more secure, and more sustainable.



Public safety customers need solutions ranging from robust broadband infrastructure to rapidly deployable systems for disaster recovery and temporary coverage. Our latest innovations to our extensive service range are **Nokia Ultra Compact Network** and **Nokia Integrated Operation Center**. We also bring industry-specific applications and devices with our **Nokia Group Communications**, which includes push-to-video (PTV) capabilities.

In 2017, we announced our work with Skyguide to modernize the mission-critical communications network that is at the heart of Switzerland's air traffic control system. Transportation infrastructure is critical for a strong and sustainable economic environment in any country or region. Ensuring safety is still the main concern, while improving efficiency of operations. We work with transportation companies around the world to provide efficient, secure communications networks.

Preparing industry for its next revolution will see major transformation that will have a positive impact on global sustainability challenges. From more efficient and sustainable natural resource management to improved production, manufacturing, and delivery of the services and goods people will require. The 4th industrial

revolution will also help ensure more ethical practices in industry and greater safety of those working in it. 5G will be one of the key enablers of this industrial shift, with its flexibility, reliability, and lightening speed. In 2017 for example, as part of joint research with Bosch corporation to show how 5G is used to instantly stop machinery from operating when an alarm is triggered. Learn more about **connected automation**.

Industry 4.0 is bringing significant change. 3D printing, automation robots, digitalization, and connectivity are just some of the advances that will transform industry. In early 2018, we created the Conscious Supply Network concept that looks beyond just industry to the overall supply chain. As a result, we announced our Conscious Factory in a Box. The Conscious Factory fits into an end-to-end supply network and provides full transparency to each step in the supply chain process. Read more **here**.

We also work with power utilities to provide secure, reliable, field-proven communication solutions to enhance control and automation of remote operations for improved efficiency and safety. Our smart grid solutions drive greater energy efficiency, reliability, and safety, while supporting existing operational traffic. More information **here**.

# Key data and reporting principles

The sustainability data presented in the following pages relates to Nokia Group, including Nokia's Networks business, Nokia Technologies and Group Common and Other Functions. Before the data tables we describe the data reporting principles.

# Data reporting principles

## Scope and boundaries

The sustainability data presented in this report relates to Nokia Group, including Nokia's Networks business, Nokia Technologies and Group Common and Other Functions. Data is covering the calendar year 2017 and where available, trend data since year 2014. Information dating back to 2003 is available on our [website](#).

On 2 November, 2016, we achieved 100% ownership of Alcatel Lucent. We use the term "Comparable combined company" when in the data trend reporting we refer to information including combined Nokia Group and former Alcatel Lucent data prior to the acquisition of Alcatel Lucent in January 2016. Other newly acquired companies will be included in the reporting scope when they have been legally consolidated and integrated into Nokia systems. Nokia Group data is excluding Discontinued operations, which refer to the sale of the Devices and Services Business in 2014 and the sale of the HERE Business in 2015. Exceptions to this scope for certain indicators are specified in data table notes. The most typical exception is that data for some indicators covers only Nokia's Networks business groups, which at the end of 2017 covered 89% of net sales of the Nokia Group continued operations.

## Adjustments and comparability

### Adjustments to due structural change

Historical performance data for years 2014–2015

is provided with two different scopes. The Nokia Group data covers Nokia as it was during 2014–2015. The comparable combined company data aims to provide a more meaningful historical comparison of the consolidated Nokia Group with Alcatel-Lucent. Therefore, 2014–2015 sustainability data from both legacy companies has been recalculated and combined for indicators where this was possible with the same definitions.

For longer term historical development, please see previous Nokia and Alcatel Lucent sustainability reports on [www.nokia.com/people&planet](http://www.nokia.com/people&planet).

### Adjustments due to methodology change

When adjustments have been made compared to earlier reports, they are specified in data table notes.

## Assurance

Our selected indicators have been assured by an independent auditor of Nokia, PricewaterhouseCoopers Oy. The indicator selection is done based on our materiality analysis, target setting and specific stakeholder needs. Please see more information on Independent Practitioner's Assurance Report on [page 175](#).

## Data collection

The data published in this report is collected through various internal and external reporting systems and consolidated on an annual basis for sustainability reporting purposes.

## Environmental data

We have an internal document Environmental Data Handbook, where we have documented for example data boundaries, data collection methodologies, used tools, and emission factors. Below we explain key information from the Handbook.

## Resource utilization

Energy data covers stationary and mobile sources combustion of fuels and consumption of electricity, heat, and cooling in facility operations, as well as combustion of fuels in the marine fleet.

Water data covers withdrawal of water from municipal sources in facility operations and the share of recycled water, which is recycled both for sanitary purposes and for irrigation.

Waste generation covers hazardous and non-hazardous waste generated in facility operations. In addition, we report separately packaging waste, which is reused in our distribution hubs operated by service providers, and the amount of equipment collected at the end-of-life.

Energy, water, and waste consumption data is typically collected from facility-level responders, obtained from invoices or metered data. For facilities with no data availability, usage is estimated employing annual intensity factors based on kWh/m<sup>2</sup> (electricity and natural gas), m<sup>3</sup>/employee (water) and kg/employee

(waste), as calculated from the reporting sites, thereby accounting for 100 percent of Nokia facilities. These estimation procedures accounted for less than 2% of electricity usage, less than 1% of natural gas usage, 42% of waste generation and 32% of water use, when compared to total usage, respectively.

Waste data is collected from vendors, but it is not as accurate as energy and water data, as waste vendors often report amounts based on number of waste bins emptied and average weight for waste type, instead of weighing each container.

Utilized waste includes waste that has been either reused, recycled, or the energy from it has been utilized. Non-utilized waste has been either sent to a landfill or incinerated without energy recovery. Composting of biowaste is recorded under recycling.

The definitions for what is reported under hazardous and non-hazardous waste have been made on a global level to keep corporate reporting simple. E.g. all discarded batteries and electric & electronical waste (WEEE) are reported globally under hazardous waste, although only different sub-categories of WEEE are defined hazardous in different countries. The actual waste treatment is always done according to local legal requirements.

Reported waste data is rounded to hundreds metrics tons. We ensure the total waste amount rounds correctly and summed sub-metrics match the total. This might lead to small rounding exceptions with the sub-metrics.

For some facilities, November and December consumption has been estimated as the invoices detailing actual usage remain outstanding at the time of reporting. This can cause restatements for the data in the following year once measured data is available.

### Our carbon footprint

Nokia approach to measuring greenhouse gas emissions follows the Greenhouse Gas (GHG) Protocol ([www.ghgprotocol.org](http://www.ghgprotocol.org)) developed by the World Resources Institute (WRI) and the World Business Council for Sustainable Development (WBCSD). We use the following three standards: The Greenhouse Gas Protocol, A corporate accounting and reporting standard; GHG Protocol, Scope 2 guidance, An amendment to the GHG Protocol corporate standard and thirdly Corporate value chain (Scope 3), Accounting and reporting standard, Supplement to the GHG Protocol corporate accounting and reporting standard.

The GHG Protocol defines three scopes of CO<sub>2</sub>e-emissions:

- **Scope 1** – direct emissions, from sources owned or controlled by the company
- **Scope 2** – indirect emissions, from the consumption of purchased electricity, heat, and/or steam. As per GHG Protocol Scope 2 Guidance - An amendment to the GHG Protocol Corporate Standard, published in 2015, we report both location-based and market-based Scope 2 emissions from 2014 onwards.

- **Scope 3** – indirect emissions, as a consequence of the activities of the company, but from sources not owned or controlled by the company.

### Greenhouse gases

We report the emissions as CO<sub>2</sub>e as per GHG Protocol's guidance. GHG Protocol is including six groups of greenhouse gases related to the Kyoto Protocol: Carbon dioxide (CO<sub>2</sub>), Hydrofluorocarbons (HFCs), Methane (CH<sub>4</sub>), Nitrous oxide (N<sub>2</sub>O), Perfluorocarbons (PFCs), Sulphur hexafluoride (SF<sub>6</sub>). CO<sub>2</sub> equivalent (CO<sub>2</sub>e) is the universal unit of measurement to indicate the global warming potential (GWP) of each of the six greenhouse gases, expressed in terms of the GWP of one unit of carbon dioxide.

### Operational boundaries

We use the “operational control” approach for setting organizational boundaries for our GHG emissions inventory.

### Scope 1 emissions

Direct CO<sub>2</sub>e emissions from Nokia facilities include GHG emissions resulting from the combustion of oil and gas within Nokia facilities, along with minor direct releases of GHGs associated with refrigerant leakage from facilities' cooling systems, fire suppression system utilization, and R&D/manufacturing activities. Emissions are calculated by using most recent emission factors published by United States Environmental Protection Agency EPA.

Direct CO<sub>2</sub>e emissions from our mobile fleet are tracked by obtaining information from country-specific leasing suppliers, which are consolidated into one system. Emissions calculation is based on actual driven mileage and official CO<sub>2</sub> emission value per km of each car make and model. Applicable emission factors are sourced from car manufacturers. In the case that the distance traveled is not available from the leasing supplier, the budgeted annual mileage in the leasing contract is used for calculation. Direct CO<sub>2</sub>e emissions from our marine fleet are calculated based on the fuel type and fuel usage of marine vessels. Alcatel Lucent Submarine Networks maintains a listing of all owned vessels with associated fuel consumption. All GHG estimation procedures are based on individual vessel assessments.

### Scope 2 emissions

Indirect CO<sub>2</sub>e-emissions include emissions from purchased electricity, heating, and cooling. As per GHG Protocol definitions, the location-based accounting method quantifies scope 2 GHG emissions based on average energy generation emission factors for defined locations, including local, subnational, or national boundaries. In our case, location-based emission factors are obtained from EPA eGrid for the U.S. and from the International Energy Agency (IEA) for all other countries.

The market-based accounting method quantifies scope 2 GHG emissions based on the emissions emitted by the generators from which the reporter

contractually purchases electricity bundled with instruments, or unbundled instruments on their own. In our case, applicable market-based residual emission factors are employed for sites located in Europe (obtained from DE-DISS project), United States and Canada (obtained from Green-e). Those sites that purchase certified renewable electricity are assigned an emission factor of zero based on the quantity of green energy employed. If supplier specific emission factors are not available, location based emission factors are applied.

GHG emissions associated with purchased steam and heat are calculated employing the applicable USEPA emission factor, which is based on the assumption that natural gas was used to fuel a boiler exhibiting an efficiency of 80%.

GHG emissions associated with purchased chilled water and cooling are calculated employing the same country emissions factors as electricity, based on an assumed efficiency of 100%.

Emissions avoided due to the purchase of renewable energy are calculated by comparing the carbon loading difference (tCO<sub>2</sub>e) between the residual versus the location-based values. Renewable electricity covers different tracking instruments. Over the years, most widely used have been RES-E Guarantee of Origin certificates in Europe and Green-e RECS certificates in the U.S. In addition, Nokia has purchased smaller amounts of supplier specific instruments.

### Scope 3 emissions

For relevant scope 3 categories the calculation methodology for estimating emissions is described. For non-relevant scope 3 categories, an explanation is provided.

1. Purchased goods and services: emissions are reported based on data collected with CDP Climate Survey from Nokia's biggest suppliers, representing 53% of total purchase spend in 2017 (27% in 2016). In 2017 we used a hybrid method for the second time, using emissions allocated for Nokia by the suppliers and also intensity based (GHG/€) allocation, where allocated emissions were not available or allocation was not reliable based on different internal quality measures. Collected data is then multiplied to cover 100% of spend. Some suppliers reported not only their Scope 1+2 emissions, but also Scope 3 emissions, so data partly covers emissions beyond Tier 1. Suppliers providing transportation services for products are excluded as "emissions from transportation and distribution" are reported in a separate scope 3 category. 2017 disclosure is based on the latest CDP data representing suppliers' year 2016 emissions. We recognize that this emission category includes a lot of uncertainty, as suppliers have different qualities in their own reporting and in allocating emissions to Nokia, and due to the extrapolation Nokia does for data to represent 100% of Nokia spend.
2. Capital goods: the relevance of emissions from this category to be included in the Scope 3 inventory is assessed each year, as capital goods

- purchases vary from year to year. The threshold for inclusion is 0.5% of total Scope 1+2+3 emissions. Emissions from capital goods are based on financial data on property, plant, and equipment additions during the reporting year and estimated by using the GHG Protocol Scope 3 Evaluator tool.
3. Fuel and energy related activities not included in Scope 1 and 2: not presently being assessed, because emissions are by calculation less than 0,1% of total Scope 3 emissions.
  4. Upstream transportation and distribution: Data includes emissions from inbound and outbound logistics. Data is based on the top 17 (13 in 2016, 5 in 2014–2015) logistics supply partners (LSP) delivery data (tonne-km) and transportation mode. EPA's latest CO<sub>2</sub>e emission factors were used to (re)calculate 2014-2016 emissions for both Nokia Group and Combined comparable company. Nokia changed reporting from pay weight to real weight in 2016 and due to feasibility, no recalculation was done for past values for weight. Upstream emissions include emissions from transportation paid by Nokia. We call this category typically also "CO<sub>2</sub> from logistics" or "CO<sub>2</sub> from transport".
  5. Waste generated in operations: not presently being assessed because emissions are by calculation less than 0.1% of total Scope 3 emissions.
  6. Business travel: emissions are reported for business air travel, which has the biggest impact out of business travel modes. Travel information is obtained from our assigned Travel Agencies. Supplied data includes distance travelled, delineated by flight distance ranges and cabin class. Data from travel agencies is consolidated in a system which is used to calculate emissions from air travel. Emissions factors are obtained from EPA.
  7. Employee commuting: 2015–2017 emissions are reported based on a worldwide survey conducted at fALU in December 2015. Since no employee commuting survey has been conducted for the combined Nokia company, the results of the previous survey were prorated, based on 2017 Nokia headcount. 2014 Nokia Group commuting values were calculated with the old methodology, based on a survey conducted in Nokia in 2010.
  8. Upstream leased assets: not presently being assessed as leased vehicles and facilities are presently assessed in Scope 1 emissions.
  9. Downstream transportation and distribution: not presently being assessed as the share of transportation and distribution paid by the customers is so small that emissions of this category were below 0.5% of total Scope 3 emissions.
  10. Processing of sold products: not considered relevant because processing is not required for sold Nokia products.
  11. Use of sold products: The calculation formula is following:  $\sum$  [total lifetime expected uses of products (hours) X number of products sold in reporting period X products power consumption (kW) X emission factor for electricity (kg CO<sub>2</sub> / kWh)]. Data covers products from Nokia's Network business groups. Product use time varies between 6 and 15 years, depending on the products. Energy use calculations are based on product group specific standards, e.g. by ETSI, wherever standards have been published. Total product coverage is over 80%, in 2017 over 90%. Calculations are so far based on assumption that all products are powered by grid electricity. Emission factor used is IEA's latest world average CO<sub>2</sub> -emission factor.
  12. End-of-life treatment of sold products: not considered relevant. Based on an LCA done by Nokia for a typical Nokia mobile network product (urban base station site in Europe), the use-phase accounts for over 84% of global warming potential, production (supply chain and own operations) for 14%, logistics for 2% and end-of-life treatment rounds to 0%. Furthermore, former Alcatel-Lucent reported a very small negative value for the end-of-life treatment associated with the recycled materials in their products. End-of-life treatment emissions are not significant either in other Nokia product categories.
  13. Downstream leased assets: not presently being assessed because emissions are by calculation less than 0.1% of total Scope 3 emissions.
  14. Franchises: not applicable, as Nokia does not have franchises.
  15. Investments: not applicable, as this category is designed primarily for private financial institutions.
- Reported emission data is rounded to hundred metric tons. We ensure the total Scope 1, 2 and 3 amount rounds correctly and summed sub-metrics match the total. This might lead to small rounding exceptions with the sub-metrics.

Year-of-year comparison calculations for all environmental data are done with non-rounded values.

### Social data

Year-end headcount is as published in financial reporting. It should be noted however that the other social data presented in the tables represent only employees included in Nokia's central HR databases, which differs from the total headcount value as follows: in 2017 a total of 3 055 employees were not included in the central HR database (1 669 in 2016 and 735 in 2015 scope: Nokia Group, Continuing operations).

Hiring and attrition rates are calculated against the average at month-end permanent headcounts. Number of new employee hires includes "Hire, Rehire & Convert from Contractor/External transactions activity".

Employees with permanent contracts include internal employees not having data indicating employee is on "fixed term" contract or a trainee.

The definition of Line Manager is a manager with one or more subordinates. Nokia's executive management board is the Group Leadership team.

Training and education data is obtained from the NokiaEDU department, which covers former Nokia

Academy and ALU University. Training provided for externals is not included in the employee-related numbers but reported separately. One training day includes seven training hours. Average number of all training hours per employee also includes training arranged by Business Groups or external parties, and training records approved by a Line Manager.

Mobility data is obtained from HR department's databases and includes long-term assignments.

Occupational health and safety data is obtained from the Health, Safety, Security and Environment (HSSE) department and the indicator name defines, whether the data covers Nokia employees and or contractors and sub-contractors. Cut-off day of incident reporting is in early January. There can be some cases, especially from contractors, reported after the cut-off day. Nokia's HSSE organization puts most effort on prevention of critical and fatal incidents and we realize lost-time incidents data may not be as accurate as the aforementioned data.

Community investments are including contributions as cash, value of time and value of in-kind. In 2016-2017 cash has represented minimum 95% of the total contributions. Number of beneficiaries includes beneficiaries from corporate and key regional programs. Related to monetary contributions, in addition to global and regional, since 2017 we are able to track also local programs.

### Ethics data

Data on reported concerns and investigations are obtained from the Business Integrity Group (formerly Ethics and Compliance Investigation (ECI) team) as recorded in the Case Management Tools, and included to the best of the team's knowledge.

### Supply chain data

Data on audits and supplier assessments is obtained from Procurement Quality Office. The EcoVadis platform is utilized in metrics related to EcoVadis assessments and the CDP platform related to climate change management. Conflict-free smelter information is reported through Conflict Minerals Reporting Template (CMRT), consolidated to Master Template and compared against Responsible Mineral Initiative's (formerly Conflict-Free Sourcing Initiative) audit programme lists.

# Environmental data

	2014		2015		2016	2017	YoY (2016–2017)	2017 data assured	Notes
	Nokia Group <sup>1</sup>	Comparable combined company <sup>2</sup>	Nokia Group <sup>1</sup>	Comparable combined company	Nokia Group <sup>1</sup>	Nokia Group <sup>1</sup>			
<b>Greenhouse Gas Emissions</b>									
<b>Total GHG Scope 1 (Direct emissions from facilities and mobile sources) (metric tons CO<sub>2</sub>e)</b>	<b>9 300</b>	<b>124 400</b>	<b>18 500</b>	<b>177 300</b>	<b>189 200</b>	<b>143 500</b>	<b>-24%</b>	●	17, 28
<i>Emissions from Nokia facilities</i>									3
Emissions of GHGs from fuel combustion in facilities (stationary and mobile sources)	4 200	36 300	2 400	32 300	34 000	33 600	-1%	●	4, 17
Emissions from Hydro-Fluoro-Carbon (HFC) refrigerants	5 100	5 700	3 400	6 200	1 000	400	-61%	●	17
Emissions of GHGs from manufacturing, R&D and product development	-	100	-	500	33	0	-100%	●	5
Emissions from fire suppression system losses	-	1	-	400	1	0	-100%	●	5
<i>Emissions from Nokia fleet</i>									
Emissions from fuel combustion in car fleet	-	-	12 700	44 900	36 300	34 300	-6%	●	7
Emissions from fuel combustion in marine fleet	0	82 261	0	93 000	117 900	75 200	-36%	●	8
<b>GHG Scope 2 (Indirect emissions from purchased electricity and heat), Market-based (metric tons CO<sub>2</sub>e)</b>	<b>188 200</b>	<b>554 600</b>	<b>155 200</b>	<b>502 000</b>	<b>465 700</b>	<b>446 900</b>	<b>-4%</b>	●	17, 25, 28
Emissions from purchased electricity	178 500	539 500	145 800	486 600	451 700	423 400	-6%	●	17
Emissions from purchased cooling	3 400	3 400	3 100	3 100	3 300	12 000	265%	●	
Emissions from purchased heating	6 300	11 700	6 300	12 300	10 700	11 500	7%	●	
<b>GHG Scope 2 (Indirect emissions from purchased electricity and heat), Location-based (metric tons CO<sub>2</sub>e)</b>	<b>239 600</b>	<b>599 800</b>	<b>219 300</b>	<b>559 900</b>	<b>519 400</b>	<b>482 800</b>	<b>-7%</b>	●	6, 17, 25, 28
Emissions from purchased electricity	229 900	584 700	209 900	544 500	505 400	459 300	-9 %	●	17
Emissions from purchased cooling	3 400	3 400	3 100	3 100	3 300	12 000	265%	●	
Emissions from purchased heating	6 300	11 700	6 300	12 300	10 700	11 500	7%	●	

# Environmental data

	2014		2015		2016	2017	YoY (2016–2017)	2017 data assured	Notes
	Nokia Group <sup>1</sup>	Comparable combined company <sup>2</sup>	Nokia Group <sup>1</sup>	Comparable combined company	Nokia Group <sup>1</sup>	Nokia Group <sup>1</sup>			
<b>Total Scope 1 and 2 GHG emissions, Market-based (metric tons CO<sub>2</sub>e)</b>	<b>197 500</b>	<b>679 000</b>	<b>173 700</b>	<b>679 300</b>	<b>654 900</b>	<b>590 400</b>	<b>-10%</b>	●	17, 25
<b>Total Scope 1 and 2 GHG emissions, Location-based (metric tons CO<sub>2</sub>e)</b>	<b>248 900</b>	<b>724 200</b>	<b>237 800</b>	<b>737 200</b>	<b>708 600</b>	<b>626 300</b>	<b>-12%</b>	●	17, 25
<b>GHG Scope 3, Indirect emissions (metric tons CO<sub>2</sub>e)</b>	-	-	-	-	<b>45 601 000</b>	<b>42 660 700</b>	<b>-6%</b>		19
Emissions from purchased goods and services	2 700 000	-	2 500 000	-	1 725 900	1 428 500	-17%		9, 10
Emissions from upstream transportation and distribution	292 600	404 200	133 400	221 300	268 400	298 500	11%		9, 28
Emissions from capital goods	196 600	375 700	220 500	462 400	408 700	499 900	22%		
Emissions from business air travel	62 000	135 600	55 000	112 100	113 300	98 000	-14%		11
Emissions from employee commuting	70 000	185 700	83 500	159 000	154 700	135 800	-12%		12, 18
Emissions from use of sold products	-	41 210 000	-	-	42 930 000	40 200 000	-6%	●	9, 24, 26
<b>Total Scope 1, 2 and 3 GHG emissions, Market-based (metric tons CO<sub>2</sub>e)</b>	-	-	-	-	<b>46 255 900</b>	<b>43 251 100</b>	<b>-6%</b>		19, 25
<b>Total Scope 1, 2 and 3 GHG emissions, Location-based (metric tons CO<sub>2</sub>e)</b>	-	-	-	-	<b>46 309 600</b>	<b>43 287 000</b>	<b>-7%</b>		19, 25
<b>GHG intensities and miscellaneous GHG information</b>									
Total Scope 1 and 2 GHG emissions per net sales (metric tons/€ million), Market-based	17	N/A	14	26	28	26	-8%		17
Total Scope 1 and 2 GHG emissions per net sales (metric tons/€ million), Location-based	20	N/A	19	28	30	27	-10%		17
Car fleet CO <sub>2</sub> e/vehicle km	-	-	-	150	139	139	0%		
Emissions avoided due to purchased renewable electricity	57 000	62 200	68 300	72 700	100 300	90 000	-10%		17

Environmental  
data

	2014		2015		2016	2017	YoY (2016–2017)	2017 data assured	Notes
	Nokia Group <sup>1</sup>	Comparable combined company <sup>2</sup>	Nokia Group <sup>1</sup>	Comparable combined company	Nokia Group <sup>1</sup>	Nokia Group <sup>1</sup>			
<b>Biologically sequestered carbon</b>	0	0	0	0	0	0			13
<b>Other air emissions (metric tons)</b>									
Ozone Depleting Substances (ODS), as ODP	0,02	0,03	0,03	0,04	0,01	0,00	-93%		17
Criteria air pollutants	-	56,9	-	53,3	53,7	54,3	1%		17
Volatile Organic Compounds (VOC) emissions	-	1,5	-	1,4	1,4	1,4	-5%	●	14, 17
NO <sub>x</sub>	-	28,1	-	25,9	26,3	26,0	-1%		17
SO <sub>x</sub>	-	2,1	-	3,4	2,4	4,3	78%		17
Total Particulate Matter (PM) emissions	-	2,2	-	2,1	2,1	2,2	5%		17
Other criteria air contaminants	-	22,9	-	20,5	21,4	20,4	-5%		17
<b>Energy consumption</b>									
<b>Energy consumption in Nokia facilities (GWh) (1 GWh = 3 600 GJ)</b>									28
Electricity, total	448	1 225	414	1 138	1 091	1 039	-5%	●	17
Heating, total	28	51	28	54	47	51	7 %	●	
Cooling, total	6	7	6	6	6	24	275%	●	
Fossil gas, total	23	166	12	149	138	154	-4%	●	
Fossil oil, total	0,4	23	0,5	19	17	17	-1%	●	
Biofuel, total	6	6	6	6	3	0	-100%	●	

Environmental  
data

	2014		2015		2016	2017	YoY (2016–2017)	2017 data assured	Notes
	Nokia Group <sup>1</sup>	Comparable combined company <sup>2</sup>	Nokia Group <sup>1</sup>	Comparable combined company	Nokia Group <sup>1</sup>	Nokia Group <sup>1</sup>			
<b>Facilities' energy, total (GWh)</b>	<b>511</b>	<b>1 478</b>	<b>467</b>	<b>1 373</b>	<b>1 325</b>	<b>1 285</b>	<b>-3%</b>	●	17
Direct energy	29	195	19	174	180	170	-5%	●	17
Indirect energy	482	1 283	448	1 198	1 145	1 115	-3%	●	17
Renewable energy					213	209	-2%		17
Renewable electricity	200	225	206	228	213	209	-2%	●	17
Renewable electricity share of total electricity (%)	45%	18%	50%	20%	19%	20%	3%	●	17
Total energy per net sales (MWh/€ million)	43	N/A	37	52	56	56	-1%		
<b>Energy consumption in Nokia fleet (GWh)</b>									15
Marine fleet (Fossil oil use)	-	314	-	355	450	286	-36%		
<b>Energy consumption outside of Nokia (GWh)</b>									
Energy consumption of the sold products		78 500	-	-	81 770	77 760	-5%	●	9, 24, 26
<b>Water consumption</b>									
<b>Total water withdrawal (thousands m<sup>3</sup>)</b>	<b>1 070</b>	<b>2 993</b>	<b>787</b>	<b>2 623</b>	<b>2 681</b>	<b>2 305</b>	<b>-14%</b>	●	16, 17, 28
Total water withdrawal per employee (m <sup>3</sup> )	20	26	13	22	24	23	-4%		17, 18
<b>Water withdrawal by source (%)</b>									
Municipal water supply	100%	100%	100%	100%	100%	100%	0%		
<b>Recycled/reused water (thousands m<sup>3</sup>)</b>	<b>11</b>	<b>11</b>	<b>11</b>	<b>11</b>	<b>23</b>	<b>26</b>	<b>14%</b>	●	
<b>Recycling/reuse % of total withdrawal</b>	<b>1,0%</b>	<b>0,4%</b>	<b>1,3%</b>	<b>0,4%</b>	<b>0,9%</b>	<b>1,1%</b>	<b>33%</b>	●	17
<b>Total water use (thousands m<sup>3</sup>)</b>	<b>1 081</b>	<b>3 004</b>	<b>798</b>	<b>2 634</b>	<b>2 703</b>	<b>2 331</b>	<b>-14%</b>		17

# Environmental data

	2014		2015		2016	2017	YoY (2016–2017)	2017 data assured	Notes
	Nokia Group <sup>1</sup>	Comparable combined company <sup>2</sup>	Nokia Group <sup>1</sup>	Comparable combined company	Nokia Group <sup>1</sup>	Nokia Group <sup>1</sup>			
<b>Waste and recycling</b>									
<i>Waste and recycling within Nokia (metric tons)</i>									28
<b>Total waste</b>	<b>17 000</b>	<b>38 400</b>	<b>13 100</b>	<b>24 900</b>	<b>28 400</b>	<b>15 000</b>	-47%	●	
Reuse	1 600	1 800	2 200	2 300	2 200	1 500	-32%	●	
Recycle	12 200	29 400	8 200	17 200	20 100	8 200	-59%	●	17, 20
Energy recovery	2 400	2 400	1 800	1 800	3 300	2 300	-28%	●	20
Landfill	800	3 300	900	2 900	2 800	3 000	7%	●	
Incineration without energy recovery	0	1 500	0	700	0	0		●	17, 21
Total waste per employee (kg)	324	330	217	209	254	143	-44%		18
<b>Total non-hazardous waste</b>	<b>16 400</b>	<b>33 100</b>	<b>12 700</b>	<b>22 000</b>	<b>24 800</b>	<b>13 000</b>	-47%	●	
Reuse	-	-	-	-	2 200	1 500	-30%		27
Recycle	-	-	-	-	16 700	6 400	-62%		27
Energy recovery	-	-	-	-	3 200	2 300	-28%		27
Landfill	-	-	-	-	2 700	2 800	4%		27
Incineration without energy recovery	-	-	-	-	0	0			27

# Environmental data

	2014		2015		2016	2017	YoY (2016–2017)	2017 data assured	Notes
	Nokia Group <sup>1</sup>	Comparable combined company <sup>2</sup>	Nokia Group <sup>1</sup>	Comparable combined company	Nokia Group <sup>1</sup>	Nokia Group <sup>1</sup>			
<b>Total hazardous waste</b>	<b>600</b>	<b>5 300</b>	<b>400</b>	<b>2 900</b>	<b>3 600</b>	<b>2 000</b>	<b>-44%</b>	●	
Reuse	-	-	-	-	<100	<50	-97%		27
Recycle	-	-	-	-	3 400	1 800	-47%		27
Energy recovery	-	-	-	-	<100	<50	-33%		27
Landfill	-	-	-	-	<100	200	104%		27
Incineration without energy recovery	-	-	-	-	0	0			27
Electronic waste from facilities	500	4 600	400	2 400	3 300	1 800	-47%		
Other hazardous waste	100	700	<50	500	300	200	-19%		
<b>Utilization rate %</b>	<b>95%</b>	<b>88%</b>	<b>93%</b>	<b>86%</b>	<b>90%</b>	<b>80%</b>	<b>-11%</b>	●	17
<b>Product end-of-life treatment (metric tons)</b>									9, 22
Weight of equipment returned from customers for recycling	1 710	3 120	1 670	3 620	2 450	2 580	5%		20
Weight of equipment returned from customers incinerated with energy recovery	90	90	90	90	140	120	-15%		20
Weight of equipment returned from customers sent to landfill	40	130	30	170	70	20	-75%		
Number of returned equipment items reused/remanufactured (no. of items)	15 900	75 900	24 100	109 300	85 800	68 000	-21%	●	
<b>Weight of packaging materials reused in distribution hubs (metric tons)</b>	<b>2 400</b>	<b>-</b>	<b>2 500</b>	<b>-</b>	<b>2 300</b>	<b>3 700</b>	<b>63%</b>		9, 23

## Environmental data

### Notes

“-” means we do not have data available for that particular year or scope. N/A means this metric is not applicable for that scope, e.g. there is no net sales counted for Combined comparable company for 2014 .

1. Values are including Nokia Group Continuing operations, i.e. excluding Discontinued operations referring to the sale of the Devices and Services business in 2014 and the sale of the HERE business in 2015.
2. Comparable combined company refers to information including combined Nokia Group and former Alcatel Lucent data prior to the acquisition of Alcatel Lucent in January 2016.
3. Former Nokia calculated facility Scope 1 emissions only for stationary fuel combustion and HFCs in 2014–2015.
4. Includes CO<sub>2</sub>e from all GHGs (CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O).
5. Includes non-combustion related CO<sub>2</sub>e from all GHGs listed in Reporting principles.
6. As an exception, 2014 combined company sub-metrics do not sum to total Scope 2 due to roundings.
7. 2015 Nokia Group value recalculated with a methodology aligned for combined company in 2016. See Reporting principles -chapter for more details.
8. 2014–2015 values recalculated to cover also vessels from ALDA Marine. See Reporting principles -chapter for more details.
9. Data covers Nokia's Networks business.
10. In 2016-2017 we used a hybrid method, using emissions allocated for Nokia by the suppliers and as new method, also intensity based (GHG/€) allocation. See Reporting principles -chapter for more details.
11. 2015 Nokia figures recalculated to be in line with updated emission factors from EPA. 2014 figure excludes Nokia Technologies. 2014 emissions are not directly comparable as Nokia Group emissions are calculated with emission factors from GHG Protocol library and former Alcatel Lucent values include other travel modes than air travel. 2017 data includes Nokia Group but not Comptel.
12. 2015 Nokia continuing operations figure recalculated to be in line with calculation methodology of 2016. 2014 continuing operations figure has not been recalculated, so it is not entirely comparable due to different methodology.
13. Biologically sequestered carbon (i.e. carbon dioxide emission from burning biomass/biofuels) and emissions from fermentation are not relevant for Nokia as we do not burn or fermentate biomass or biofuels on-site. We used biogas in fuel cells in one of our offices during 2014–2016.
14. VOC source is from fuel combustion. No significant quantities from solvents and halogenated hydrocarbon, so these emissions are not relevant and not consolidated.
15. Energy consumption is presented only for marine fleet, as energy consumption data from Nokia's vehicle fleet is not available.
16. No significant quantities of heavy metals discharges into water, indicator not relevant and not consolidated.
17. Reported number for 2016 has changed during 2017 reporting process due to better data quality of some parts of actual data from 2016. This updated data was received after 2016 reporting period and after 2016 data assurance.
18. Based on average headcount calculated from monthly site-specific headcount statistics from facilities database. This calculation procedure results in a different total headcount than the total headcount as of 31 December (disclosed in the Social indicators section of the report).
19. 2014–2015 total not counted due to missing comparable Scope 3 categories data.
20. Former Alcatel Lucent data included in Combined comparable company has a combined figure for waste recycle and energy recovery and it's reported under recycle.
21. 2014–2015 data, incineration without energy recovery-category includes data only from former Alcatel Lucent sites.
22. Former Alcatel Lucent data included in Combined comparable company includes product take-back, repairs and remanufacturing.
23. 2014–2016 data is available only for former Nokia sites, however excluding Nokia Technologies, which does not have significant distribution hubs. 2017 data includes more hubs than previously.
24. Calculation methodology was updated in 2016 for the combined company and due to labor intensity only 2014 Combined comparable company value was recalculated with the new methodology. World average IEA emission factor used includes GWP only from CO<sub>2</sub>, not other greenhouse gases. For 2017 measured data covered all product lines across Nokia's Networks business.
25. Nokia uses internally market-based (not located-based) values for example in target setting and if only one value is given without further definitions, it is the market-based.
26. Data for 2014 has changed due to better data quality.
27. As per change from GRI G4 to GRI Standards we started to report these values from 2017 onwards. We also added 2016 data for 2017 reporting.
28. 2014–2015 values for Nokia Group continuing operations recalculated with a methodology aligned for combined company in 2016. See Reporting principles -chapter for more details.

## Social, ethics, and management systems data

	2014	2015		2016	2017	YoY (2016–2017)	2017 data assured	Notes
	Nokia Group <sup>1</sup>	Nokia Group <sup>1</sup>	Comparable combined company <sup>2</sup>	Nokia Group <sup>1</sup>	Nokia Group <sup>1</sup>			
<b>Employment</b>								
Number of employees, year-end situation	55 399	55 718	105 228	100 875	102 761	2%		
Share of employees with full-time contract	98%	99%	99%	99%	99%	0%		
Share of employees with permanent contracts	95%	95%	-	97%	98%	1%		
Number of new employee hires	9 978	6 031	-	8 310	9 430	13%		
Rate of new employee hires, %	19%	11%	-	8%	10%	25%		
Total number of leavers	4 973	4 920	-	10 749	10 033	-7%		
Total attrition rate	10%	9%	-	11%	10%	-5%		
Attrition rate of voluntary leavers	6%	6%	-	6%	6%	-4%		
Percentage of open positions filled by internal candidates	-	38%	-	42%	59%	40%		17
Average length of service (in years)	-	-	-	11	11	0%		18
Number of long-term expatriates worldwide	-	-	-	477	397	-16%		
<b>Diversity &amp; Equal Opportunity</b>								
Share of women within workforce	20%	20%	22%	22%	22%	0%		
Share of female line managers	15%	15%	-	17%	17%	0%		
Share of women within senior management	13%	12%	-	14%	13%	-5%		
Share of women on the executive management board	0%	0%	N/A	17%	13%	-24%		
Share of women in the Board of Directors	22% (2 of 9)	25% (2 of 8)	N/A	25% (2 of 8)	30% (3 of 10)	20%		
Number of nationalities in the executive management board	5 (of 5)	4 (of 4)	N/A	8 (of 12)	8 (of 15)	0%		
Share of non-Finnish in the executive management board	80%	70%	N/A	92%	93%	1%		
Average age of employees at year-end	38	38	-	40	41	1 %		

## Social, ethics, and management systems data

	2014	2015		2016	2017	YoY (2016–2017)	2017 data assured	Notes
	Nokia Group <sup>1</sup>	Nokia Group <sup>1</sup>	Comparable combined company <sup>2</sup>	Nokia Group <sup>1</sup>	Nokia Group <sup>1</sup>			
<b>Training &amp; Education</b>								
Total amount of training days provided by Nokia EDU to employees	194 300	163 600	278 400	249 080	234 328	-6%		3, 4
Total amount of training days provided by Nokia EDU to customers and suppliers	-	61 500	-	110 995	119 795	8%		4
Average number of all training hours per employee	-	35	-	19	16	-16%		
Percentage of instructor-led training	45%	64%	55%	56%	46%	-18%		5
Percentage of web-based training	55%	36%	45%	44%	54%	23%		5
Training costs of employee by Nokia EDU, € million	35	31	-	54	49	-9%		6
Percentage of employees with Personal Development Plan (PDP) in place	68%	73%	-	76%	-	-		7, 8
Percentage of employees that completed a performance evaluation	99%	98%	-	90%	94%	4%		9
<b>Workplace Relations &amp; Employee Engagement</b>								
Share of employees responding to the engagement survey	94%	92%	N/A	20%	21%	5%		10
Employee engagement (percentage of favorability towards the company)	86	87	N/A	76	80	5%	●	10
<b>Occupational Health &amp; Safety</b>								
Near miss incidents reported (including contractors)	630	428	-	303	417	38%		
Lost-time incidents of employees	56	40	-	57	41	-28%		
Employee work related fatalities	0	0	0	0	0	0%	●	
Contractor and sub-contractor work related fatalities	8	6	-	7	5	-29%	●	
<b>Community investments</b>								
Total value of contributions (EUR million)	-	-	-	5,02	6,84	36%		
Number of direct beneficiaries	-	-	-	868 346	254 056	-71%	●	

## Social, ethics, and management systems data

	2014	2015		2016	2017	YoY (2016–2017)	2017 data assured	Notes
	Nokia Group <sup>1</sup>	Nokia Group <sup>1</sup>	Comparable combined company <sup>2</sup>	Nokia Group <sup>1</sup>	Nokia Group <sup>1</sup>			
<b>Ethics</b>								
Total number of concerns reported	272	225	558	637	678	6%		11
Fair Competition	-	1	7	2	5	150%		12
Intellectual Property & Confidential Information	-	9	36	51	31	-39%		
Conflict of Interest	-	14	31	34	55	62%		
Dealing with Government Officials	-	4	7	3	2	-33%		
Improper Payments	-	4	18	12	11	-8%		
Privacy	-	7	9	8	0	-100%		
Fair Employment (all HR related)	-	34	83	200	231	16%		
Controllership	-	58	100	119	71	-40%		
Guidance	-	68	141	120	141	18%		13
Wellbeing, Health, Safety and Environment	-	6	90	60	23	-62%		14
Human Rights	-	2	2	0	2	-		
Working with Suppliers	-	16	20	25	40	60%		
Trade Compliance	-	2	4	0	6	-		
Other	-	0	10	3	60	1900%		
Number of investigations by the Ethics & Compliance Office	152	124	257	228	257	13%		
Number of allegations substantiated with "cause found" after investigation	-	51	141	86	127	48%		
Number of employees given a verbal counselling related to Code of Conduct	-	32	54	11	13	18%		
Number of employees given a written warning on grounds of violation of Code of Conduct	7	18	38	40	45	13%		
Number of employees dismissed on grounds of a violation of the Code of Conduct	22	62	77	17	47	176%		

## Social, ethics, and management systems data

	2014	2015		2016	2017			Notes
	Nokia Group <sup>1</sup>	Nokia Group <sup>1</sup>	Comparable combined company <sup>2</sup>	Nokia Group <sup>1</sup>	Nokia Group <sup>1</sup>	YoY (2016–2017)	2017 data assured	
Share of employees who have completed the annual training on ethical business practises (Ethical Business Training) (%)	97%	98%	-	-	86%	-		15
<b>Management systems</b>								
ISO 14001 certified environmental management system, percentage of sites covered	94%	94%	-	39%	52%	33%		16
OHSAS 18001 certified occupational health and safety management system OHSAS 18001, percentage of sites covered	94%	93%	-	39%	46%	18%		16
ISO 9001 certified quality management system, percentage of sites covered	94%	94%	-	51%	61%	20%		16

## Social, ethics, and management systems data

### Notes

N/A means this metric is not applicable for that scope. “-” means we do not have data available for that particular year or scope.

1. Nokia Group values are including Nokia Group Continuing operations, i.e. excluding Discontinued operations referring to the sale of the Devices and Services business in 2014 and the sale of the HERE business in 2015.
2. Comparable combined company refers to information including combined Nokia Group and former Alcatel Lucent data prior to the acquisition of Alcatel Lucent in January 2016.
3. For the 2015 combined comparable figure, Nokia EDU covers legacy Nokia Academy and ALU University.
4. Nokia migrated to a combined Learning Management System early 2017 and did a lot of data cleansing back to previous years data, hence the 2016 value is somewhat updated.
5. Instructor-led is including virtual instructor-led training, which accounted for 21% of employee training in 2017, up 11% compared to 2016.
6. In addition to NokiaEDU (formerly Nokia Academy) costs, 2014–2015 costs include also Nokia Technologies overall training costs.
7. The 2016 figure covers only former Nokia.
8. In 2017 we updated our process and tool related to employee development tracking and we are not able to report a comparable value for personal development for 2017.
9. From 2017 onwards this process is called Annual Development Review
10. In 2016 Nokia switched away from the annual 2015 Employee Engagement Survey (EES) – an annual census style deployment – towards a more focused approach of the Culture Cohesion Tracker (CCT). The CCT has a drastically reduced volume of questions, so was deployed five times in 2016, and twice in 2017. In 2016, we used an average favorability of all CCT engagement questions as an indication of

our Employee Engagement favorability towards the company. From 2017 onwards, we followed favorability based on average of the following two target questions: “Overall, as a company, Nokia is heading in the right direction” and “Overall, Nokia’s culture is heading in the right direction”. Due to Nokia’s commitment to protecting employee anonymity during the electronic survey process, we cannot prove that each CCT round saw unique respondents; however, in 2017 we again continued to be more than satisfied that, while reaching an average of approximately 21% of the employee population over two survey rounds, we easily exceeded the necessary levels for statistical representation. Moreover, information from the CCT provides an accurate window into how our employees were experiencing cultural cohesion and engagement during another year of significant change.

11. All 2014 ethics numbers are excluding Nokia Technologies.
12. Grouping of enquiry types was different in 2014 and can be seen in Nokia’s People and Planet Report 2014, at [http://www.nokia.com/en\\_int/about-us/sustainability/downloads/report-archive](http://www.nokia.com/en_int/about-us/sustainability/downloads/report-archive).
13. Includes also category: Guidance-Investigation.
14. Category was called “Health, Safety & Labor Conditions” in 2015–2016.
15. There was no new ethical business training in 2016 for “legacy” Nokia employees. 90% of former Alcatel Lucent employees completed Nokia’s ethical business training in 2016.
16. Scope is Nokia’s Networks business (Comptel included for 2017 data). Multiple buildings on the same site are counted as one site. Excludes buildings classified as carparks, restaurants and warehouses. Covers year-end situation or as close to year-end as good quality data available. In 2016, the approach to certification of the two companies was very different. Nokia took the approach of implementing global management systems and certifying, under one certificate, almost all locations to the management system standard.

Former Alcatel Lucent held multisite certificates for these management system standards but did not cover all locations within those certifications. The management systems were merged and all current Nokia business operations and processes are in line with globally defined standards and processes. To ensure this, we have extensive internal assurance processes to monitor the implementation and compliance in key areas such as supplier assurance (see section Responsible sourcing for more information), health and safety high risk project control assessment, and we regularly report on progress. In addition to large offices, a portion of our headcount is distributed at multiple locations such as small sales, project, and field offices in customer premises, and in the majority of these facilities we have very little to no control over the building or space. After initial integration, the focus was on site consolidations and synergy savings which impact the coverage of the management systems until such time that the situation is more settled. In 2017 coverage was on an upward trend as many consolidations were completed, and we expect the coverage to continue to improve.

17. 2015–2016 data are not fully comparable due to methodology change. 2016 onwards data is from recruitment department.
18. Mobility data is covering long-term assignments. Data is excluding Alcatel Lucent Submarine Networks (ASN) and Radio Frequency Systems (RFS). Both ASN and RFS are being managed as separate businesses.

## Supply chain management data

	2014		2015		2016	2017	YoY (2016-2017)	2017 data assured	Notes
	Nokia Group <sup>1</sup>	Comparable combined company <sup>2</sup>	Nokia Group <sup>1</sup>	Comparable combined company <sup>2</sup>	Nokia Group <sup>1</sup>	Nokia Group <sup>1</sup>			
Number of Corporate responsibility (CR) on-site audits (focused on labor conditions and environment) against Nokia Supplier Requirements and SA8000	23	29	16	20	45	72	60%	●	3
Closure percentage of non-conformities identified at CR-audits, within audit closure target time	-	-	-	-	-	58%		●	
Number of on-site system audits against Nokia Supplier Requirements	25	56	24	45	39	47	21%	●	3
Cumulative number of valid Health & Safety Maturity assessments	-	71	-	59	382	975	155%	●	4, 6
Number of suppliers assessed on corporate responsibility in EcoVadis Sustainable Supply Management platform	107	297	155	376	306	274	-10%	●	
Percentage of active suppliers rated “satisfactory” or above on their assessment of sustainability by EcoVadis	-	-	61%	-	70%	71%	1%	●	
Number of suppliers assessed on their climate change impact based on their CDP reporting for Nokia	141	-	180	-	243	292	20%		
Number of suppliers that set GHG emission reduction targets (in CDP)	71	-	92	-	127	153	20%	●	
Number of suppliers participating in Nokia sustainability workshops and webinars	183	-	159	-	238	253	6%		
Number of management-level supplier employees participating in Nokia sustainability workshops and webinars	256	-	208	-	389	423	9%		
Share of smelters that have been validated as conflict-free or are active in the validation process (out of known smelters in Nokia’s supply chain), %	73%	-	83%	84%	84%	83%	-1%	●	5

## Supply chain management data

### Notes

1. Nokia Group values are including Nokia Group Continuing operations, i.e. excluding Discontinued operations referring to the sale of the Devices and Services business in 2014 and the sale of the HERE business in 2015. All supply chain management data, with exception of share of conflict-free smelters, covers anyhow only Nokia's networks business.
2. Comparable combined company refers to information including combined Nokia Group and former Alcatel Lucent data prior to the acquisition of Alcatel Lucent in January 2016.
3. Comparable company data includes former Alcatel Lucent on-site system audits done against Alcatel Lucent supplier requirements.
4. Comparable combined company values include data only from former Alcatel Lucent
5. 2015 Comparable combined company value counted as average from Nokia and former Alcatel Lucent figures
6. If supplier's evaluation result is satisfactory in H&S Maturity Assessment process, period between re-assessments can be longer than a year, based on our internal guidelines taking into account different risks.

# Financial data

	2014	2015		2016	2017	2017 data assured <sup>2</sup>
Financial data	Nokia Group	Nokia Group	Comparable combined company <sup>1</sup>	Nokia Group	Nokia Group	
Net sales (EUR million)	11 762	12 499	26 606	23 614	23 147	●
Operating profit/loss (EUR million)	1 414	1 697	2 887	-1 100	16	●
R&D expenses (EUR million) <sup>3</sup>	1 904	2 080	-	4 997	4 916	●

## Notes

Values are including Nokia Group Continuing operations, i.e. excluding Discontinued operations referring to the sale of the Devices and Services business in 2014 and the sale of the HERE business in 2015.

<sup>1</sup> Comparable combined company historicals reflect Nokia's operating and financial reporting structure, including Alcatel Lucent, and are presented as additional information as described in the stock exchange release published on 22 April, 2016. These values are non-IFRS.

<sup>2</sup> Included in the audited financial statements. Please see Auditor's Report from page 212 onwards in the "Nokia in 2017" Annual Report.

<sup>3</sup> Year 2016 R&D expenses restated as reported in 2017 "Nokia in 2017" Annual Report.

# Independent practitioner's assurance report

Our key sustainability indicators have been assured by an independent auditor, PricewaterhouseCoopers Oy.

# Independent practitioner's assurance report

To the Management of Nokia Corporation

We have been engaged by the Management of Nokia Corporation (hereinafter also "the Company") to perform a limited assurance engagement on selected Nokia Corporation's sustainability information for the reporting period 1 January 2017 to 31 December 2017 as set out in Nokia Corporation's People & Planet Report 2017 on the Company's website (hereinafter "the Selected sustainability information").

## Selected sustainability information

The scope of our work was limited to assurance over the information summarised below. The information covers Nokia Group (Continuing operations), as indicated in the People & Planet Report 2017. We have not been engaged to provide assurance on any information relating to prior reporting periods or to any other information in the People & Planet Report 2017.

### Environmental indicators:

- Scope 1 greenhouse gas (GHG) emissions, by sources (metric tons CO<sub>2</sub>e)
- Scope 2 GHG emissions, market-based and location-based (metric tons CO<sub>2</sub>e)
- Combined Scope 1+2 GHG emissions: 2017 emissions and progress against 2030 Science-based target
- Scope 3 GHG emissions: use of sold products (metric tons CO<sub>2</sub>e). 2017 emissions and progress against 2030 Science-based target

- Energy consumption within Nokia, by types of energy (GWh) and change to 2016 (%)
- Renewable electricity amount (GWh) and portion of total electricity consumption (%)
- Water withdrawal in facilities (m<sup>3</sup>) and recycling/reuse rate (%) and change to 2016 (%)
- Waste amounts by disposal methods (metric tons) and utilization rate (%), within Nokia
- Energy savings achieved in 2017 due to network modernization
- Voluntary product takeback: Number of returned equipment reused/remanufactured
- VOC emissions (metric tons)

### Social indicators:

- Number of work-related employee fatalities and number of work-related contractor and subcontractor fatalities
- Share of employees who have completed the annual training on ethical business practises (Ethical Business Training) (%)
- Number of Compliance Controls Framework reviews
- Employee engagement (share of favorability towards the company, %)
- Share of women within senior management (%)
- Number of leaders and employees trained on Gender Balance

### Improving people's lives indicators:

- Number of subscriptions Nokia's radio networks customers provided service for
- Number of lives improved through corporate and key regional community investment programs

### Supplier indicators:

- Number of suppliers delivering high-risk activity assessed by using Nokia Health & Safety Maturity Assessment Process and share of assessed suppliers meeting "H&S compliant supplier"-status (%)
- Share of smelters that have been validated as conflict-free or are active in the validation process (out of known smelters in Nokia's supply chain) (%)
- Number of suppliers that set GHG emission reduction targets (in CDP)
- Number of system audits against Nokia Supplier Requirements
- Number of in-depth on-site audits (focused on labor conditions and environment) against Nokia Supplier Requirements and SA8000 and share of closed non-conformities (%)
- Number of suppliers assessed on Corporate Responsibility in EcoVadis Sustainable Supply Management platform and share of suppliers with a satisfactory performance level (score ≥45/100) (%)
- Number of forced labor non-compliance instances found in supplier audits

## Management's responsibility

The Management of Nokia Corporation is responsible for preparing the Selected sustainability information in accordance with the reporting criteria as set out in the Company's own documented standards and GHG Protocol (hereinafter "the Reporting criteria"). The Management of Nokia Corporation is also responsible for such internal control as the management

determines is necessary to enable the preparation of Selected sustainability information that is free from material misstatement, whether due to fraud or error.

### Practitioner's independence and quality control

We have complied with the independence and other ethical requirements of the Code of Ethics for Professional Accountants issued by the International Ethics Standards Board for Accountants, which is founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality and professional behaviour.

PricewaterhouseCoopers Oy applies International Standard on Quality Control 1 and accordingly maintains a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

### Practitioner's responsibility

Our responsibility is to express a limited assurance conclusion on the Selected sustainability information based on the procedures we have performed and the evidence we have obtained. We conducted our limited assurance engagement in accordance with the International Standard on Assurance Engagements (ISAE) 3000 (Revised) "Assurance Engagements Other than Audits or Reviews of Historical Financial

Information". That standard requires that we plan and perform the engagement to obtain limited assurance about whether the Selected sustainability information is free from material misstatement.

In a limited assurance engagement the evidence-gathering procedures are more limited than for a reasonable assurance engagement, and therefore less assurance is obtained than in a reasonable assurance engagement. An assurance engagement involves performing procedures to obtain evidence about the amounts and other disclosures in the Selected sustainability information. The procedures selected depend on the practitioner's judgement, including an assessment of the risks of material misstatement of the Selected sustainability information.

Our work consisted of, amongst others, the following procedures:

- Interviewing senior management of the Company.
- Visiting the Company's Head Office as well as one site in Finland.
- Conducting a web conference with two sites in China and Canada.
- Interviewing employees responsible for collecting and reporting the Selected sustainability information at the group level as well as at the site level.
- Assessing how group employees apply the reporting standards and procedures of the Company.
- Testing the accuracy and completeness of the information from original documents and systems on a sample basis.

- Testing the consolidation of information and performing recalculations on a sample basis.

### Limited assurance conclusion

Based on the procedures we have performed and the evidence we have obtained, nothing has come to our attention that causes us to believe that Nokia Corporation's Selected sustainability information for the reporting period ended 31 December 2017 is not properly prepared, in all material respects, in accordance with the Reporting criteria.

When reading our assurance report, the inherent limitations to the accuracy and completeness of sustainability information should be taken into consideration.

Our assurance report has been prepared in accordance with the terms of our engagement. We do not accept, or assume responsibility to anyone else, except to Nokia Corporation for our work, for this report, or for the conclusions that we have reached.

Helsinki 21 May 2018  
PricewaterhouseCoopers Oy

Pasi Karppinen  
Authorised Public Accountant (KHT)

Sirpa Juutinen  
Partner, Sustainability & Climate Change