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

Businesses have responsibilities.

To customers, of course. To shareholders and investors, absolutely. But also to employees, to society, and to the planet itself.

More and more businesses are realising the importance of these responsibilities. They are making their work more sustainable. But there is a long way to go. Climate change is still happening. Inequality still exists.

I want Nokia to be at the very forefront in addressing these urgent challenges. Not only through the technology we create, but through the values we represent, and the working practices that we employ across the breadth of our operations.

In order to gauge our progress, we benchmark ourselves against the globally-recognised standards of the United Nations’ Sustainable Development Goals and assess our performance against the advanced level principles of its Global Compact.

This work is grouped into four areas: improving lives with technology, protecting the environment, conducting business with integrity, and respecting our people, and these activities are underpinned by our collaborations with other key stakeholders.

Improving lives with technology

We create the technology to connect the world. That connection took a huge step forward at the end of 2018 when the first commercial 5G networks went live in the U.S. and Korea.

Greater connectivity will soon usher in the Fourth Industrial Revolution, which promises stellar gains in productivity and economic growth. But not only that: the technology that will revolutionize factories and workplaces will be of equal use in healthcare, in efficient agriculture, in smart power production.

In other words, across the entire infrastructure of a healthy and sustainable society.

We are determined that these gains should not just be limited to certain countries or communities. They should be universal benefits.

Crucial to this aspiration is our work with Non-Governmental Organizations (NGOs). For example, in Indonesia we worked with the national Ministry of Health and UNICEF in order to deliver over 23 million vaccinations and 3 million anti-malaria bednets.

The number of people to have directly benefitted from our corporate community investments reached 1.4 million in 2018.
Protecting the environment
Like any type of infrastructure, connectivity can be resource-intensive. But that only makes it more important for companies like Nokia to reduce their environmental impact wherever possible.

We are investing heavily to make our portfolio the most energy efficient in the world. That investment is bearing fruit: our new radio networks use on average over 40% less energy than the ones they replace. And we have developed the world’s first commercially deployed liquid cooled base station, which could reduce CO₂ emissions by up to 80% when emitted heat is circulated around apartment buildings to utilise heat that would otherwise go to waste.

In addition, we have committed to decreasing our emissions from our own operations by 41% by 2030, compared to 2014 figures. We are on track to achieve this. In 2018 our facilities consumed less electricity and water, and emitted less greenhouse gas, than they did in 2017, and we are targeting further reductions in 2019.

Conducting business with integrity
This is the second year running that the Ethisphere Institute has ranked us among the World’s Most Ethical Companies. For us, ethics and integrity are not a ‘nice to have’ but a fundamental part of our business model.

At the core of this is our Code of Conduct, taken as training and acknowledged by every employee. It sets down our ethical business approach and explains how employees, suppliers and other stakeholders should contribute to it.

The Code requires all employees to follow five directives: obey laws and follow policies, be fair and honest, treat each other with respect, declare conflicts of interest and avoid appearance of impropriety, and report any concerns promptly. Alongside other tools, such as our Human Rights Due Diligence and Nokia Supplier Requirements, this allows us to set high standards of transparency, ensure cast-iron data security, mitigate the risks of misuse of technology, and maintain responsible supply chains.

Respecting our people
Telecommunications is a competitive sector. To succeed you not only need the best people – you need the best people to be empowered.

We have done well at this. Anonymous surveys show that our employees value both our culture and the direction of our business. Other metrics are equally pleasing: the number of paid hours that employees spent volunteering more than doubled in 2018. Our work on LGBT+ and diversity is also going well.

But there is still more to do, on gender diversity in particular.

Just 22% of our employees are women. The percentage of female leaders is even lower. This is not good enough and we are taking action to change it.

We run two career development programs for talented women. 35% of those who complete these schemes have moved on to higher level positions. In addition, we provide training for leaders and managers on unconscious bias; almost 1 000 employees received this training in 2018.

We also support Greenhouse – a professional women’s network – and StrongHer – an employee network that aims to create more opportunities for women across Nokia – among other initiatives.

Finally, I regret to say that a Nokia subcontractor lost his life in a fall last year. Any serious incident of this type is unacceptable. We will carry on trying to reduce accidents by providing best-in-class equipment, training and supervision to avoid accidents.

Technology plays a huge and increasing role in all our lives. For us, that means that we have a responsibility to act in a way that benefits people and the planet. Not just through our products and services but through our values.

These values have allowed us to be more ethical, trusted and transparent than ever before. We should all be proud of that – I certainly am, but we will also push forward to be even better.

Warm regards,

Rajeev Suri
Nokia President and CEO
Sustainability highlights in 2018

The challenges posed by climate change grew ever more pressing with the release of The Intergovernmental Panel on Climate Change (IPCC) report on global warming at 1.5°C, and we are pushing even more strongly ahead with our environmental programs and activities. In early 2019 we announced the first commercial liquid cooled base station site with the Finnish telecom operator Elisa. The solution can reduce CO₂ emissions by up to 80 percent and recapture wasted heat to feed into the heating system for the apartment building. This work is just one way to reach our science based long-term targets. Read more in the Protecting the environment section.

We continued to drive the dialog forward in business and human rights. In 2018, we undertook a Human Rights Impact Assessment (HRIA) of our business in terms of the most salient human rights risks arising from the potential misuse of the products and technology we provide. The HRIA was conducted by an external human rights expert and will help us identify areas for improvement. It will also provide preparation for the Global Network Initiative’s human rights assessment in the first half of 2019. Read more in the Addressing human rights section.

Our supply chain is long and complex, and we work with our suppliers in improving Environmental, Social and Governance (ESG) issues and promoting transparency and collaboration. We carry out audits and assessments, and in 2018, we had 74 percent (71 percent in 2017) of suppliers on EcoVadis with a satisfactory performance score. Although this is an improvement on 2017, we still have a lot of work to do to reach our 2020 target. 2018 was also the first year of active engagement with our suppliers on the efficient use of water. Furthermore, 100 percent of suppliers delivering high risk activities were covered by H&S maturity assessments. Read more in the Responsible sourcing section.

In 2018, around 304 200 (254 100 in 2017) lives were improved through our corporate community investment programs, and cumulatively between 2016–2018, around 1 426 600 people have already directly benefitted from our programs.
2.2 Sustainability highlights and challenges in 2018

Sustainability challenges in 2018

- In 2018, there was one fatal incident (four in 2017), resulting in the death of one (five in 2017) contractor/subcontractor employee while carrying out work on our behalf. The accident was related to work at height. 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 calls for increased supply chain transparency grew stronger and we must ensure we keep training and collaborating with our suppliers to avoid the types of labor issues and other related concerns explained in this report under the Responsible Sourcing section.

- In our own operations the share of landfilled waste increased significantly (from 20% to 52%) and we need to work hard to decrease this. Improvements in how we estimate waste for non-reporting sites is the main reason for this significant increase.

- In 2018, we had 15.3% women in leadership positions, disappointingly down from the 2016 baseline of 15.5%. We continue working, within our gender balance action plan, towards the 2020 target of increasing the percentage of women in leadership by 25%.
Our core business is connectivity and related activities, and we aim to deliver our technology in a responsible way, where purpose and sustainability are an integral part of how we operate and what we provide. We take the responsibility for the impact we have globally, both positive and negative, in order to make a positive difference in people’s lives and to the planet.

Our greatest impact in accelerating the realization of the United Nations Sustainable Development Goals (SDGs) remains in the development and delivery of our technology that connects people and things; improves lives by providing access to education; information, better healthcare, and opportunity; and may enable a safer, healthier planet. The technology we provide can create a more equitable society by connecting the unconnected.

Collaboration is paramount in creating the greatest impact on the sustainability challenges of our time. There is power in joining together to create shared value. No single company, organization or government can solve the challenges alone, but technology and connectivity will continue to play an ever-increasing role in creating a better world for all.

### Our sustainability priorities and impacts

**Create and deliver technology solutions and products that connect people and things.**

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. This is the core of our business.

<table>
<thead>
<tr>
<th>Our priorities</th>
<th>Improve people’s lives</th>
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<tr>
<td></td>
<td>Create and deliver technology solutions and products that connect people and things.</td>
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</tr>
<tr>
<td></td>
<td>and healthier lives on a cleaner planet. This is the core of our business.</td>
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</tbody>
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**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.

- 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)
Global macro trends impacting our sustainability approach

Key global macro trends that impacted our sustainability approach in 2018 were identified as technology with a purpose, the growing demands for improved privacy, data security and protection against cybercrime, the need for business integrity, transparency and ethical behavior, the fight against climate change and sustainable use of natural resources, and the importance of attracting and retaining talent. New developments during the year such as societal changes have further emphasized a number of these trends and the importance in our sustainability work.

The human potential of technology

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

Our technology expertise, breadth of portfolio and ability to connect people and things puts us in an excellent position to play our part in addressing today’s global challenges with the UN Sustainable Development Goals as our North Star.

Our customers’ networks served 6.1 billion subscriptions worldwide by the end of 2018. Connectivity in itself enables increased productivity and potential for economic growth. Nokia Bell Labs have looked at the elements that combined to make earlier major gains in productivity growth possible and concluded that four physical networked technologies, all widely diffused and working together, made the difference in the past. The technologies were in energy, transportation, health and sanitation, and communication networks. Digitalization will play a key role in reducing poverty, increasing industrial efficiency, improving human well-being in an equitable way, reducing environmental damage and provide better methods of managing scarce resources.

Privacy and data security

As the digital transformation of life touches everyone and changes the way we live, work and play, the potential risks of these massive changes and the use of technology are in constant discussion. Over 2018, there has been more debate on automation and the changing nature of jobs, the use and potential misuse of AI and the impact on society of smart devices when everything and everyone is connected.

In 2018 we have seen growing concerns around the issue of privacy as the amount of sensitive and personal data grows exponentially on networks. As more IoT and smart devices become connected, data and cyber security concerns increase. Debate has increased on the vulnerability of information systems, data fraud and theft, breakdowns in critical information systems and the misuse of technology. Technology designed to mitigate these risks and thwart those who misuse technology is a necessity. Our design for privacy, security solutions and due diligence processes to avoid misuse help to ensure the benefits of the technology will be enjoyed by all.

High ethics and transparency

Development in many countries is restricted by corruption, unethical behavior, and a lack of respect for human rights and acceptable labor conditions. Increased regulation on the need for greater transparency are growing. Non-financial sustainability reporting requirements continue to increase. Our unyielding integrity is our most important asset. By upholding our high standards of integrity internally and in our supply chain, we can make a positive difference.

Climate change and the sustainable use of natural resources

Climate change and its effects remain the biggest global challenge. During 2018 concern about the likelihood and impacts as well as the urgency and magnitude of the needed actions became even more evident. 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 design products and services that are more energy efficient, encouraging the use of renewable energy, and helping our customers and other industries reduce their impact.
Our sustainability priorities and impacts

2.3

Societal changes
Increasing urbanization and aging will put pressure on existing infrastructure and create demand for new solutions. At the same time, economic and political polarization and nationalism (countries increasingly focusing on their own interests) will challenge all – economic, social and environmental aspects of sustainability. Connectivity and technology can help manage and solve societal challenges and enable freedom of expression and opinion when technology is used for its intended purpose.

Attracting and retaining talent
Attracting, keeping, and motivating the best talent is key to business success and the market for skilled employees in our business remains extremely competitive. We continue to build a motivational corporate culture that provides equal opportunity and fosters innovation and continuous learning. A company that leads in profit with purpose will attract new talent as sustainability becomes one of the key criteria for potential employees.

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 and legal requirements, our Code of Conduct, both macro and market trends, international sustainability frameworks, our value creation analysis and the UN Sustainable Development Goals. We look at our activities in terms of the shared value that we can create to maximize positive impacts and minimize negative ones.

In 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 by Nokia Responsibility Council, Board of Directors, and by external sustainability experts. We plan to make the
Based on the outcomes of the assessment and review, we concentrated our efforts on the benefits of connectivity and sustainable products, and 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.

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, the process as well as key business and sustainability drivers, visit our website.
Our impact and influence on sustainable development throughout the value chain

We have a long and complex value chain where we are able to positively influence sustainable development in many ways. For more on our impact and influence on our value chain visit our website.

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’s 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 report. 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.

We were one of the first companies to join. The Upright Project, which looks at value creation analyses and methodologies with several companies and organizations.

In the Upright model, the negative and positive value creations with monetary values are analyzed and shown in five main dimensions: economic, environmental, health, social and knowledge. Each of these dimensions is divided into several impact areas.

The conclusions for the 20 impact areas, shown in the chart on the next page, are from The Upright Project, and estimations are based on public data and various assumptions. For example, in the economic area, the values of paid salaries and taxes are based on reported euro values, and in the environmental area, the Nokia reported GHG emissions, water usage and waste figures are converted by Upright into euro figures using sources such as the Kering E P&L, carbon tax country-specific pricing, and global water tariff averages.

The analysis was completed by The Upright Project in early 2018 and reviewed by both the Nokia Responsibility Council and the Board. Based on the analysis our main impacts were shown to be related to our network technology. It brings major net positive impact through knowledge creation (information infrastructure and related innovations), economic benefits and job creation throughout the value chain. Moreover, the project showed that in environmental issues, the positive impact of communications technology exceeds the negative impacts of our own operational activities, for example, by enabling other industries to become more energy efficient.

It is generally a challenge to value impact and then convert it into euro equivalents. The approach of the Upright Project was to grasp the scale of different impacts rather than try to measure each one accurately.

We have a long and complex value chain where we are able to positively influence sustainable development in many ways. For more on our impact and influence on our value chain visit our website.
9 main impacts found for Nokia by Upright value creation model

**€ billion equivalents 2016**

- **Economy**
  - Scarcity of human capital (-3)
  - Internal and upstream emissions (0.2)
  - Product use GHG emissions (2.3)

- **Environment**
  - GHG saving potential from energy efficient products (0.9–2.5)
  - Water (<0.1) saving potential from connectivity
  - GHG saving potential from connectivity (0.9–2.5)

- **Health**
  - Proactive ethics improvements in the industry

- **Social**
  - Internal and partner training

- **Knowledge**
  - Information infrastructure (6–17)

- **Innovation**
  - Downstream economic value (6–17)

### Negative

- **Jobs** (3.6)

### Positive

- **Taxes** (0.5 + VAT)

Note that this is a rough estimation by The Upright Project based mostly on public data, assumptions and conversions to euro equivalents. Chart is based on data available from 2016. The idea is to grasp the scale of different impacts rather than measure each one accurately.
In 2018, 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 has also been presented to our Board of Directors and the leadership team.

In 2018 we reviewed our SDG approach using the Practical Guide on Integrating the SDGs into Corporate Reporting, developed by the UN Global Compact and GRI (published in August 2018). As described in the Guide we have:

- defined priority SDGs, related targets and report content
- set business objectives and targets accordingly
- implemented/continue implementing defined actions
- collected, analyzed and reported activities and performance related data

We have also reviewed other best practices such as GRI and UN Global Compact SDG Compass when reporting on the SDGs. In 2018 our SDG reporting was recognized as the best in Finland’s independent annual sustainability report competition.

During the year we also renewed our commitment to the Finnish Commitment2050 (Sitoumus2050) program and reported the progress of our target to connect the next billion. Read more about the program at www.sitoumus2050.fi/en.

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.

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.

In addition to the analysis of the 17 SDG Goals, we have also identified the most material of the 169 SDG Targets for Nokia. These key targets have been incorporated into sections of this report where we address our performance against the Targets.
Our approach

Environment

19

Together

Key data

Assurance


In 2018 we delivered products and services that brought secure innovations and connectivity for public safety, mission-critical communications, and healthcare 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 42–53.

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 GSMA, 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 2018, 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 54–82.

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 2018, 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 54–82.

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 and Respecting our people in everything we do. At the end of 2018, we had around 101,000 people globally, while through our supply chain of some 14,000 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 120–146 under the Respecting our people section.

In 2018 we emphasized key areas in human rights, ranging from freedom of expression, through to increased dialog on combating 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 26–29 under the Conducting business with integrity section.

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 2018, 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 2018, see the Making change happen together section on pages 146–164.

To see more examples of how we can support all 17 SDGs visit our website.
Our sustainability targets and performance

The table on the following page provides the status of our 39 long- and short-term targets, linked to our most material topics. It includes a short description of the related performance and achievements for each. We also specifically set and received acceptance of the targets including 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 2018, of the 39 short-term and long-term targets:

- 10 targets for 2018 were achieved and 5 were not achieved.
- 15 of the 24 longer term targets were ongoing/on track, while 4 were ongoing/not on track and 2 were achieved and 3 not achieved.
- 4 of these targets were not achieved as the Digital Health products business was divested.
- We also set 10 new targets for 2019 and beyond.
### Our commitments, targets, and performance

<table>
<thead>
<tr>
<th>Priority area</th>
<th>Material topic</th>
<th>Targets</th>
<th>Achievements 2018</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improving people’s lives with technology</td>
<td>Connecting People and Things</td>
<td><strong>2022</strong> Helping our customers to connect the next billion measured by the number of subscriptions in Nokia radio customers’ networks and by the number of fixed network lines shipped to our customers.</td>
<td>At the end of 2018 the radio networks we delivered to our customers served around 6.1 billion subscriptions worldwide, compared to around 5.5 billion at the end of 2016. ✅ Assured</td>
<td>Ongoing – on track</td>
</tr>
<tr>
<td></td>
<td>Sustainability-related products and services</td>
<td><strong>2018</strong> 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 saves lives.</td>
<td>Since the target was set in 2016, we have established three kits out of which one was partially funded by GSMA. In 2018 one in the Philippines for the exclusive use of the Red Cross, an earlier one in Germany for Rapid response cases, and one as a spare kit in case of replacements, new developments and for remote support.</td>
<td>❌ Achieved</td>
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<td><strong>NEW target 2019:</strong> Establishment of a global rapid response team that can quickly respond in case of disasters.</td>
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<td></td>
<td><strong>NEW target 2019:</strong> Establishment of further international relationships with rescue forces and potential funds, so that Nokia Saving Lives can be deployed in a similar mode to other teams as done for the Philippine Red Cross.</td>
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<td></td>
<td><strong>2025</strong> 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.</td>
<td>In 2018, our corporate and key regional community investment programs had around 304,200 direct beneficiaries. Since the baseline, already around 1426600 people have benefitted from our programs. ✅ Assured</td>
<td>Ongoing – on track</td>
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## Our commitments, targets, and performance

### Priority area: Improving people’s lives with technology

<table>
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<tr>
<th>Material topic</th>
<th>Targets</th>
<th>Achievements 2018</th>
<th>Status</th>
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<tbody>
<tr>
<td>Sustainability-related products and services</td>
<td><strong>2018</strong> Ensure participation of all Nokia employees in corporate health programs to reduce the incidence of cardiovascular disease.</td>
<td>In the first half of 2018, as a continuation of our three employee wellness challenges in 2017, we organized a “Relay for Health” step challenge globally, with over 1200 employees participating. In 2018 Nokia divested its dedicated health device business and therefore discontinued the follow-up of this measurement, though we continue to roll out a successful employee wellbeing program.</td>
<td>Not achieved</td>
</tr>
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<td></td>
<td><strong>2020</strong> Support the extension of remote patient monitoring of chronic diseases by rolling out patient care solutions using Nokia devices to over 100,000 patients.</td>
<td>As Nokia sold its dedicated health devices business in 2018, this target was discontinued. We continue to supply network solutions to the healthcare industry.</td>
<td>Not achieved</td>
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<td></td>
<td><strong>2020</strong> 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.</td>
<td>As Nokia sold its dedicated health devices business in 2018, this target was discontinued. We continue to supply network solutions to the healthcare industry.</td>
<td>Not achieved</td>
</tr>
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<td></td>
<td><strong>2020</strong> Ensure integration of data from smart health devices into all major electronic health records accessible to doctors.</td>
<td>As Nokia sold its dedicated health devices business in 2018, this target was discontinued. We continue to supply network solutions to the healthcare industry.</td>
<td>Not achieved</td>
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## Our commitments, targets, and performance

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<th>Material topic</th>
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<tbody>
<tr>
<td>Protecting the environment</td>
<td>Product energy efficiency and GHG emissions</td>
<td><strong>2030</strong> GHG reduction of 75% compared to the 2014 baseline (scope 3, use of sold products) (This target is accepted by Science Based Target initiative).</td>
<td>Scope 3 emissions included in SBT are on target. Assured</td>
<td>Ongoing – on track</td>
</tr>
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<td></td>
<td></td>
<td><strong>2018</strong> Achieve at least 25% utilization of renewable electricity, compared to total purchased electricity.</td>
<td>27% of our total purchased electricity was from renewable sources. Assured</td>
<td>Achieved</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>NEW target 2019</strong>: At least 30% utilization of renewable electricity, compared to total purchased electricity.</td>
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<td></td>
<td></td>
<td><strong>2018</strong> Achieve a facility electricity usage reduction of 3%, compared to 2017 level.</td>
<td>Electricity consumption across our facilities decreased by 3% as compared to 2017. Assured</td>
<td>Achieved</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>NEW target 2019</strong>: Facility energy usage reduction of 3%, compared to 2018 level.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Energy use and GHG emissions in own operations</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Priority area</td>
<td>Material topic</td>
<td>Targets</td>
<td>Achievements 2018</td>
<td>Status</td>
</tr>
<tr>
<td>--------------</td>
<td>---------------</td>
<td>---------</td>
<td>-------------------</td>
<td>--------</td>
</tr>
<tr>
<td>Protecting the environment</td>
<td>Energy use and GHG emissions in own operations</td>
<td><strong>2018</strong>&lt;br&gt;GHG emission reduction of 1.8% from facilities, compared to 2017 level (Scopes 1+2).</td>
<td>GHG emissions from facilities decreased by 18% as compared to 2017.  ✔ Assured</td>
<td>✔ Assured</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>NEW target 2019</strong>: GHG emission reduction of 3% from facilities, compared to 2018 level (Scopes 1+2).</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Energy use and GHG emissions in supply chain</td>
<td><strong>2020</strong>&lt;br&gt;180 suppliers setting emission reduction targets.</td>
<td>In 2018, 187 of our suppliers had emission reduction targets in place via CDP Supply Chain program. ✔ Assured</td>
<td>✔ Assured</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>2018</strong>&lt;br&gt;90 dedicated one-to-one reviews with suppliers, collaborative emission reduction projects.</td>
<td>Due to delays in CDP’s assessment cycle in 2018 for all of its clients, the 2018 reviews were postponed to 2019.</td>
<td>✗ Not achieved</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>NEW target 2019</strong>: 90 dedicated one-to-one reviews with suppliers, collaborative emission reduction projects.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Priority area: Protecting the environment

#### Material topic: Waste and water in own operations

<table>
<thead>
<tr>
<th>Targets</th>
<th>Achievements 2018</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2018</strong></td>
<td>Reduce the water use in our facilities by 2% compared to 2017.</td>
<td>✓ Assured</td>
</tr>
<tr>
<td><strong>NEW target 2019</strong>:</td>
<td>Reduce the water use in our facilities by 1% compared to 2018.</td>
<td>Assured</td>
</tr>
<tr>
<td><strong>NEW target 2019</strong>:</td>
<td>Recycle at least 60% of facility waste.</td>
<td>Achieved</td>
</tr>
<tr>
<td><strong>NEW target 2020</strong>:</td>
<td>Recycle at least 75% of facility waste.</td>
<td>Achieved</td>
</tr>
</tbody>
</table>

#### Material topic: Waste and water in supply chain

<table>
<thead>
<tr>
<th>Targets</th>
<th>Achievements 2018</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2018</strong></td>
<td>Deployment of non-carbon related projects with suppliers.</td>
<td>✓ Achieved</td>
</tr>
<tr>
<td><strong>2018</strong></td>
<td>Deployment of non-carbon related projects with suppliers.</td>
<td>✓ Achieved</td>
</tr>
</tbody>
</table>

In 2018 we conducted a Water Assessment Program with 150 suppliers engaged and assessed via CDP Water Program. In addition we also conducted a pilot study for recycled materials content among our components suppliers.
## Our sustainability targets and performance

### Conducting business with integrity

<table>
<thead>
<tr>
<th>Priority area</th>
<th>Material topic</th>
<th>Targets</th>
<th>Achievements 2018</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Conducting business with integrity</strong></td>
<td>Ethical Business Practices and Corporate Governance</td>
<td><strong>2020</strong> Employee/Line Manager engagement on importance of ethics and compliance. 75% favorable answers targeted.</td>
<td>Progress of this target is measured with a question in our anonymous employee survey (CCT) &quot;Does your line manager periodically talk with you and your team members about the importance of ethics and compliance?&quot; In 2018 77% (72% in 2017) of responding employees gave a favorable response.</td>
<td>Achieved</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>2030</strong> Employee/Line Manager engagement on importance of ethics and compliance. 85% favorable answers targeted.</td>
<td></td>
<td>Ongoing - not on track</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>2018</strong> Ethical Business Training (EBT) completion: 95%.</td>
<td>The training was completed by 95% of Nokia employees. Assured</td>
<td>Achieved</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>2020</strong> EBT completion: 98%.</td>
<td></td>
<td>Ongoing - not on track</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>2030</strong> EBT completion: 100%.</td>
<td></td>
<td>Ongoing - not on track</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>NEW target 2020 (to replace the 2020 and 2030 targets):</strong> Ethical Business Training (EBT) completion: 95%.</td>
<td></td>
<td>Ongoing - not on track</td>
</tr>
</tbody>
</table>
## Our commitments, targets, and performance

<table>
<thead>
<tr>
<th>Priority area</th>
<th>Material topic</th>
<th>Targets</th>
<th>Achievements 2018</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Conducting business with integrity</strong></td>
<td>Privacy and Data Security</td>
<td><strong>2020</strong>&lt;br&gt;Our aim for 2020 is that Nokia be recognized as an industry leader in security and privacy. This will be assessed through external benchmarking.</td>
<td>Protection of critical information ecosystems on target level, 95% of identified critical and high audit findings closed. Employee engagement with security culture program clearly above targets.</td>
<td>Ongoing - on track</td>
</tr>
</tbody>
</table>
## Our commitments, targets, and performance

<table>
<thead>
<tr>
<th>Priority area</th>
<th>Material topic</th>
<th>Targets</th>
<th>Achievements 2018</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conducting business with integrity</td>
<td>Labor conditions / suppliers and partners</td>
<td>2020 Comprehensive supplier sustainability risk mitigation (90% of suppliers assessed with Satisfactory Sustainability Score and 100 on-site audits conducted per year).</td>
<td>74% suppliers achieved a satisfactory EcoVadis score (71% in 2017) and we conducted 75 on-site audits (72 in 2017). <strong>Assured</strong></td>
<td>Ongoing - not on track</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2020 Establish supplier worker empowerment program (enabling trainings on NokiaEDU and Worker Tollfree Helpline).</td>
<td>Nokia Ethics Helpline enables capturing supplier grievance. Channel is communicated to suppliers at Suppliers Corporate Responsibility Workshops.</td>
<td>Ongoing - on track</td>
</tr>
<tr>
<td></td>
<td>Materials traceability and conflict minerals</td>
<td>2018 Achieve full traceability to the smelters in our supply chain and their conflict-free status [Mobile Networks].</td>
<td>97% of our suppliers have achieved full visibility into the smelters in our supply chain. 84% of smelters identified as part of Nokia’s supply chain were validated as conflict-free or are active in the validation process. <strong>Assured</strong></td>
<td>Not achieved</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2020 Achieve full traceability to the smelters in our supply chain and their conflict-free status [Nokia Group].</td>
<td></td>
<td>Ongoing - on track</td>
</tr>
</tbody>
</table>

(The same percentages are valid both for Mobile Networks and Nokia Group.)
## Our sustainability targets and performance

### Our commitments, targets, and performance

<table>
<thead>
<tr>
<th>Priority area</th>
<th>Material topic</th>
<th>Targets</th>
<th>Achievements 2018</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conducting business with integrity</td>
<td>Health, Safety, and Wellbeing</td>
<td>2018 100% of all suppliers delivering high-risk activity to be assessed using Nokia H&amp;S Supplier Maturity Assessment Process.</td>
<td>100% of suppliers delivering high risk activities were covered by H&amp;S Maturity Assessments. Assured</td>
<td>Achieved</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2020 50% of suppliers delivering high risk activity to meet or exceed “H&amp;S preferred supplier” status.</td>
<td>We are first focusing on getting 100% of suppliers to “compliant”-level (score 3/5; 89% of suppliers in 2018) Assured and concentrating then gradually to “preferred”-level (score 4/5).</td>
<td>Ongoing - on track</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2030 100% of supplier delivering high risk activity to meet or exceed “H&amp;S preferred supplier” status.</td>
<td>We have an active program ongoing, please see comments on 2018 and 2020 targets.</td>
<td>Ongoing - on track</td>
</tr>
</tbody>
</table>
## Our commitments, targets, and performance

<table>
<thead>
<tr>
<th>Priority area</th>
<th>Material topic</th>
<th>Targets</th>
<th>Achievements 2018</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respecting our people in everything we do</td>
<td>Employee satisfaction, Engagement and Development</td>
<td><strong>2020</strong> Sustained focus on CEO-sponsored Nokia Culture Principles.</td>
<td>In 2018 we continued to measure the favorability of employee perceptions with an anonymous employee survey (CCT). The two CCT target question scores (company direction = 80 percent, culture direction = 79 percent) remain in the green, albeit the average for % favorability for these two CCT target questions was 2% down from 2017. <strong>Assured</strong></td>
<td>Ongoing – on track</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>2020</strong> 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.</td>
<td>Nokia Location Development (LD) is the global program aiming for every location to be recognized locally as Employer of Choice and Hub of Innovation. LD covers location specific improvement actions. Locally, volunteers from each Nokia organization team up as one team to make it happen, The Location Head is the project leader. The program focuses on: Local Attractiveness, Local Best Employee Experience and Engagement, Ensuring One Nokia culture across Business Group and across functions locally.</td>
<td>Ongoing – on track</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>2020</strong> Foster the spirit of employee volunteerism across the company and increase their engagement.</td>
<td>Guidance to all employees on volunteering is provided through our Volunteering guidelines. In 2018, our employees contributed around 18 500 hours of volunteering in paid working time, significantly up from 7 500 in 2017. In 2019 we look forward to encouraging and supporting more local programs around the world where our employees volunteer.</td>
<td>Ongoing – on track</td>
</tr>
</tbody>
</table>
## Our commitments, targets, and performance

<table>
<thead>
<tr>
<th>Priority area</th>
<th>Material topic</th>
<th>Targets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respecting our people in everything</td>
<td>Employee satisfaction, Engagement and Development</td>
<td>2018 Introduction of the renewed Employee Engagement model with</td>
</tr>
<tr>
<td>we do</td>
<td></td>
<td>increased frequency and depth.</td>
</tr>
<tr>
<td></td>
<td>Diversity, inclusion and anti-discrimination</td>
<td>2020 Increasing the percentage of women in leadership by 25 percent</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(baseline 2016).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Achievements 2018</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initiative was cancelled. No new engagement model is going to be introduced.</td>
<td>Not achieved</td>
</tr>
<tr>
<td>In 2018, we had 15.3 percent women in leadership positions, down from the 2016 baseline of 15.5 percent. We continue working, within our five-year gender balance action plan, towards the 2020 target.</td>
<td>Assured</td>
</tr>
</tbody>
</table>

Ongoing - not on track
## Our commitments, targets, and performance

<table>
<thead>
<tr>
<th>Priority area</th>
<th>Material topic</th>
<th>Targets</th>
<th>Achievements 2018</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Making change happen together</td>
<td>Corporate community investment</td>
<td>2018 100% of corporate community investment activities aligned with our Group-wide strategy, business drivers and SDGs.</td>
<td>In 2018, 99.8% of the global and key regional contributions supported our three strategic CCI themes and when the local programs are included, 95% of our total contributions were aligned to the three thematic priorities. The CCI themes are aligned with our business drivers and SDGs.</td>
<td>Not achieved</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2018 100% of corporate community investment programs to be measured against a monitoring and evaluating system.</td>
<td>All identified global and key regional programs were measured against a monitoring and evaluation system in line with the LBG methodology.</td>
<td>Achieved</td>
</tr>
</tbody>
</table>
Managing sustainability

Sustainability and corporate responsibility issues are reviewed regularly at all levels of the company. We have built strong governance structures and processes to manage good ethical business practices and corporate responsibility.

Our sustainability governance

Nokia Board of Directors

- Annual review of sustainability activities and feedback

Board Committees*

- Audit committee
- Personnel committee

Nokia Group Leadership Team (GLT) chaired by the President and CEO

- Reviews and approves sustainability related policies, strategy, targets, performance and the annual sustainability report
- Other topic specific reviews and feedback when needed

Committees with GLT participation*

Responsibility Council

- Defines strategy and assesses materiality
- Ensures cross-functional alignment and advocacy
- Quarterly meetings

Corporate responsibility extended team

- Develops framework to outline our priorities, targets, and policies
- Helps implement processes and activities to achieve environmental and social targets

Subject-matter experts within business units and all our employees

- Ensure responsibility across the business
- Respect our values and our Code of Conduct

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.

Our Code of Conduct provides our requirements and guidance for all employees. The Code is supported by policies and management systems related to responsibility issues. Our aim is to ensure that social and environmental matters are considered in everything we do. Our key corporate responsibility policies are regularly updated and can be found online.

The highest decision-making body in our company after the General Meeting of shareholders is the Board of Directors. In 2018, the Board of Directors reviewed our corporate sustainability status including targets, performance, achievements, and challenges as well as the results of our value creation analysis. The Board of Directors also approved the Corporate Community Investment and University donations budgets for the year 2019, and had cybersecurity/information security, ethics & compliance and privacy updates.

The Board of Directors Review of Nokia 2018 Annual Accounts also includes non-financial information which was also reviewed by the Board of Directors’ Audit Committee. The Audit Committee also received an annual update on conflict minerals, ethics & compliance, and internal audit and controls reviews. The Board of Directors’ Personnel Committee*

* See more about the main committees with sustainability related roles in the text above and in the following page.
received culture, demography, and diversity updates, and reviewed the results of the Nokia Culture Cohesion Tracker survey in 2018.

The Nokia Group Leadership Team is chaired by the President and CEO. The Leadership Team reviews and approves sustainability-related policies, strategy, targets, performance, and the annual sustainability report and reviews also other sustainability-related topics when needed. Nokia governance meetings and committees where Group Leadership Team members participate and where sustainability-related topics are frequently reviewed include, for example, the Compliance meeting, the Security meeting, the Diversity Steering Committee, the Sponsorship and Donations Committee, and Human Rights Due Diligence governance council.

In 2018, our Chief Marketing Officer in Marketing and Corporate Affairs was responsible for corporate responsibility at the executive management level. During the year, corporate responsibility-related topics were reviewed during CMO management team monthly meetings.

More information about our corporate governance practices is available in our annual reports and on our website.

Risk and opportunity management
Sustainability aspects are also present in many of our key risks and opportunities which are analyzed, managed, and monitored as part of business performance 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 and those cover strategic, operational, financial and hazard risks. The most important risk factors, together with the principal factors and trends affecting our operations, are discussed in our 2018 annual report, our Form 20-F.

These include sustainability-related risks such as:
- risks related to product safety, product misuse, environmental accidents, health and privacy and security, including cybersecurity threats
- 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 tariffs and taxation, including tax disputes
- disruptions in our manufacturing, service creation, delivery, logistics, or supply chain, caused, for instance, by natural disasters, military actions, civil unrest, public health and safety threats (including disease outbreaks), many of which may be fueled by the adverse effects resulting from climate change.
The principles documented in the Nokia Enterprise Risk Management Policy, which is approved by the Audit Committee of the Board of Directors, 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.

Key risks and opportunities are reviewed by the Group Leadership Team and the Board of Directors in order to create visibility on business risks as well as to enable the prioritization of risk management activities. The Board of Directors’ role in overseeing risk includes risk analysis and assessment related to financial, strategy and business reviews, updates, and decision-making proposals. More information about the process please see page 93 of Nokia Annual Report 2018.

We systematically analyze sustainability-related opportunities. Our innovations hold the potential to change the way we live, from technologies that improve people’s lives to those that help reduce our environmental impact. In 2018, we further reviewed and aligned the risks and opportunities in our Enterprise Risk Management (ERM) system with our most material sustainability topics. We also reviewed the Task Force on Climate-related Financial Disclosure (TCFD) guidance related to climate-related risk disclosure and applied the recommendations in our publicly available CDP answers.

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 as well opportunities in these areas. Ethics also covers how we work with suppliers and partners and risks related to the misuse of our technology.

Transparency
Increased transparency is required by governments, investors and various other stakeholders and it also 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 these also have an impact on Nokia’s brand perception.
Our recognitions and awards

Based on our 2018 response, we were ranked at leadership level by CDP for our work on and disclosure of climate change data. We were also included in the leaderboard of the supplier engagement rating related to climate change. This was the first year that the CDP questionnaire was aligned with the recommendations put forth by the Task Force on Climate-related Financial Disclosure (TCFD).

In 2018, we were in the top 1 percent 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 received the Telecommunications Industry Association, TIA (previously QuEST Forum) 2018 Global Sustainability Award in the Network Equipment Category, for the second year in a row.

We were again included in the Euronext Vigeo Eiris indices, in the Europe 120, the Eurozone 120 and the Global 120 (both in June and December reviews).

Sustainalytics’ February 2018 ESG Rating of Nokia placed us among the top-rated technology hardware companies assessed by Sustainalytics.

In September 2018 we received a rating of AA on a scale of AAA-CCC in the MSCI ESG Ratings assessment.

We were honored by the Ethisphere Institute both in 2018 and in 2019 as one of the World’s Most Ethical Companies, owing to our strong compliance program, culture, and bold vision for the future.

We were listed in the DJSI Europe index. 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 decided not to answer the DJSI questionnaire in 2018 and 2019.

For more information on all our sustainability awards and recognitions visit www.nokia.com/about-us/sustainability/our-approach.
Our economic impact

Connectivity and access to the Internet has created enormous economic and social advantages for billions of people globally, enabling people to live better lives.

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 in the table. 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 Fourth Industrial Revolution, new technologies such as 5G, IoT, 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 42–53.

### Economic impact (Nokia Group)

<table>
<thead>
<tr>
<th>Stakeholder</th>
<th>Impact (EUR million)</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Direct economic value generated</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Customers</td>
<td>Net sales¹</td>
<td>13 574</td>
<td>23 614</td>
<td>23 147</td>
<td>22 563</td>
</tr>
<tr>
<td><strong>Economic value distributed</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Suppliers</td>
<td>Total purchases of goods and services</td>
<td>6 810</td>
<td>13 544</td>
<td>12 752</td>
<td>14 118</td>
</tr>
<tr>
<td>Shareholders</td>
<td>Dividends paid</td>
<td>512</td>
<td>1 501</td>
<td>963</td>
<td>1 081</td>
</tr>
<tr>
<td>Employees</td>
<td>Wages and benefits²</td>
<td>3 075</td>
<td>7 814</td>
<td>7 845</td>
<td>7 834</td>
</tr>
<tr>
<td>Creditors</td>
<td>Financial expenses paid (+), Financial expenses refunded (-)</td>
<td>195</td>
<td>273</td>
<td>531</td>
<td>233</td>
</tr>
<tr>
<td>Public sector</td>
<td>Income taxes paid (+)/ Income taxes refunded (-)</td>
<td>290</td>
<td>503</td>
<td>555</td>
<td>364</td>
</tr>
<tr>
<td>Communities</td>
<td>Community investments²</td>
<td>-</td>
<td>5</td>
<td>7</td>
<td>7</td>
</tr>
</tbody>
</table>

Group numbers include both continuing and discontinued operations. Discontinued operations refer to the sale of the Devices and Services business in 2014 and the sale of the HERE business in 2015.

¹ Net sales for Continuing operations in 2015 was 12 499 EUR million.

² Includes termination benefits and excludes social security expenses. 2016 and 2017 values are updated to reflect values as available in Nokia Annual Report on Form 20-F 2018.

³ Reporting with current methodology started in 2016. 2016 values include corporate and key regional contributions. 2017 and 2018 also include 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 2018, Nokia paid a total of EUR 364 million in direct income taxes (EUR 555 million in 2017), of which EUR 107 million was paid in Asia-Pacific and EUR 340 million in Europe, the Middle East, and Africa. The Americas region was in net tax receivable position of EUR 84 million. Following the acquisition of Alcatel Lucent, our 2018 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 we pay and collect 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 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 Cooperation 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 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, for example, 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.

Connectivity is beneficial in many ways and to many people and organizations. It has been shown to increase productivity and economic growth. 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 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. 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.

In 2018 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 Sudan, Egypt, Ivory Coast, Cameroon, Senegal, Mali, Guinea-Bissau, Niger, Lebanon, the Philippines, Nepal, and India. Examples of customer projects can be found at www.nokia.com/sustainability.

According to the GSMA’s ‘The Mobile Economy 2019’ report, mobile continues to make a significant contribution to socioeconomic development around the world. In 2018 mobile technologies and services generated $3.9 trillion of economic value (4.6 percent of GDP) globally, a contribution that will reach $4.8 trillion (4.8 percent of GDP) by 2023 as countries increasingly benefit from the improvements in productivity and efficiency brought about by increased take-up of mobile services. Further ahead, 5G technologies are expected to contribute $2.2 trillion to the global economy over the next 15 years.

“The connectivity gap also continues to close: over the next seven years, 1.4 billion people will start using the mobile internet for the first time, bringing the total number of mobile internet subscribers globally to 5 billion by 2025 (over 60% of the population). This growth in connectivity is helping the mobile industry increase its impact across all the UN’s Sustainable Development Goals and is spurring adoption of mobile-based tools and solutions (for example, in agriculture, education and healthcare) that aim to improve livelihoods in low- to middle-income countries.”

Source: GSMA ‘The Mobile Economy 2019’
Innovation and sustainability

Technology innovation plays a key role in achieving a more sustainable planet and better, healthier lives for all people.

Nokia Bell Labs, the lead research arm of Nokia, is developing disruptive research for the next phase of human existence. It is renowned for its profound influence on the evolution of telecommunications and information technologies and consequently how people connect, collaborate, compute and communicate. For more information see www.bell-labs.com.

The Nokia CTO organization and Nokia Bell Labs Consulting continuously engage with customers, and through this and ongoing market and technology analysis, develop a long-term view of the most difficult problems to solve that will have the greatest impact on our lives.

In 2018, we held our Bell Labs prize competition for the fifth time, attracting the greatest creative minds to solve some of the greatest challenges for humankind. The year’s winners were chosen from among five submission entries comprised of six individuals, who were in turn drawn from a total of over 250 proposals from around the world. We created the Bell Labs Prize to help develop game-changing ideas in science, technology, engineering or mathematics with the potential to solve broader societal challenges that humans will face within the next ten years. Innovation is fostered throughout our organization. For more information visit www.nokia.com/innovation.

The Nokia Garage is an employee-centric innovation playground. The Garage is a place to make an innovation a reality. An idea has little value until it is realized. Using tools such as 3D printers, Arduino kits and software modeling programs, smartphone application simulators, and other tools, the Garage brings ideas closer to realization with fewer obstacles. The Garage approach fosters the startup spirit and enables intrapreneurship programs at Nokia. In 2018 we had Garages in Finland, France and Belgium, with more planned in other countries.

Open innovation
Open Ecosystem Network (OpEN) is a partner agnostic and technology independent, multi-purpose digital collaboration platform. This ecosystem-centric solution based on the principles of open innovation and data democracy was originally designed to enable ecosystem play across companies and industries. Nokia and partners are free to expose information on OpEN, ranging from public data such as innovation and sourcing challenges to confidential data such as product roadmaps and source codes, in a secure manner.

The information, which is exposed in public and private (invitation only) digital rooms, attracts the ecosystem to the platform, and enables them to discover new value propositions. Collaborating companies are able to increase product/feature throughput and achieve faster time to market through co-creation on the platform.

The platform is designed to support multiple plug and play applications enabling users to co-create new value on the bottom and the top line. Users are able to utilize tools of their choice (from Slack, GitHub to Office 365 and enterprise tools) to collaborate in front of corporate firewalls. Teams can call APIs, access sandboxes, and both virtual and physical test labs to prove their products in the network environment and have a direct business incubation link to the decision makers. Products born through co-creation can easily be monetized to the ecosystem via the marketplace.

We are the first co-founder of OpEN. Many other brands recognize the value proposition and are joining the opening up movement, exposing their data and bringing their ecosystems with them. This creates gravitas and a multiplying effect, providing the scale required to disrupt business as we know it today.

The OpEN platform has, for example, worked on co-creation of solutions to resolve sustainability-related challenges. OpEN kicked off collaboration with the new United Nations Technology Innovation Labs (UNTIL) with two challenges shared via OpEN.

UNTIL are designed to move humanity forward faster by using innovative technology to solve some of the world’s most pressing challenges. They utilize satellite data to deliver brilliant innovative solutions.
for world peace, health, ecology, education and sustainability in the spirit of the ESA and NASA mottos ‘for the benefit of all.’

Hack the Global Consumption aims to develop solutions and platforms which reduce the need for energy and/or reduce the levels of material consumption, and new economic and circular business model platforms.

OpEN looks at solutions which utilize AI, machine learning for prediction, personalization and easy transaction, trend and value analysis, as well as blockchain for adding trust, transparency and efficiency in value networks. For more information on OpEN visit www.open-ecosystem.org.

Innovation journey of liquid cooling

**Research**

Cases/examples:
- Orange trial
- Paris COP – flexi liquid cooled demo
- 2016-2017 waste heat reuse study
- 2013-2015 EU project OperaNet2 (energy efficiency research)

**Proof of concept**

Cases/examples:
- 2018 Singapore Airscale baseband hotel demo
- 2018 Nokia Quality Award
- 2017 Airscale 4G demo, MWC
- 2017 EEC Customer experience center
- 2017 Airframe demo, Las Vegas
- 2016 Flexi demo, Orlando

**Productization**

Cases/examples:
- 2019 MWC 5G Airscale and mMIMO
- 2018 World’s first liquid cooled 2G, 3G and 4G base stations in commercial operations in Elisa Finland network, Satakuntatalo Helsinki
- 2017 Satakuntatalo project kickoff

**Drivers**

- Cross functional cooperation
- Sustainability mindset & vision
- Internal entrepreneurship
- Passion and “sisu” to turn innovation into products
- Openness for collaboration

Read more on all of these topics at networks.nokia.com/5g