Making change happen together

Collaboration is key to creating shared value that underpins the drive for a more sustainable society and world. Together, we can make a much greater impact on the social, environmental, ethical and economic challenges of our time.
Highlights in 2018

- **greenlight for girls**: STEM events in eight Nokia sites around the world
- **Over 33 universities**: supported through our University Donations program
- **Over 1,400,000 individuals**: reached by our community investment programs since 2016
- **99.8%**: of our community investment contributions aligned with our three thematic priorities
- **More than 2×**: employee volunteering hours compared to 2017
Making change happen together

We achieve the greatest positive impact through collaboration between industries, civil society, customer segments, employees and other stakeholders.
### 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>
</table>
| Making change happen together | Corporate community investment | 2018  
100% of corporate community investment activities aligned with our Group-wide strategy, business drivers and SDGs. | 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. | Not achieved |
| | | 2018  
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 in line with the LBG methodology. | Achieved |
In order to accelerate achievement of the United Nations Sustainable Development Goals, we understand that we cannot just concentrate on our own actions and challenges. We need to work with a broad range of other stakeholders that can bring their skills, knowledge and power to the table to help resolve the environmental, social and governance challenges the world faces and create opportunities for all.

We work with customers, suppliers, partners, industries, academia, non-governmental organizations, cities, governments and civil society, who all have an important role to play in making positive change happen.
Supporting our customers’ sustainability goals

We continued our work with our customers, both communication service providers and enterprise, in a number of key areas of sustainability including energy and resource efficiency, critical communication and disaster response, efficient manufacturing, supply chain transparency, modern slavery and community involvement.

Our greatest positive impact in the fight against climate change comes 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.

Our collaboration with the Joint Audit Cooperation (JAC) initiative, the association of some of the world’s largest telecom operators who work together with suppliers such as Nokia to assess and develop corporate responsibility implementation across the manufacturing centers of those suppliers.

The association has 17 operator members. In 2018, we carried out some audits based on JAC requirements and also signed up to be part of the ongoing JAC Academy initiative to further develop auditors’ knowledge of JAC’s requirements. More information can be found at jac-initiative.com. Our representatives also again participated in the annual JAC Forum in Shenzhen, China covering topics such as circular economy, responsible sourcing, and health and safety in the supply chain.

Connecting the unconnected

Today, Internet penetration is at 55 percent with more than three billion people still unconnected. These unconnected users exist both in emerging markets as well as in developed markets. In emerging markets, the average revenue per user (ARPU) is not high enough to cover the building and operational costs (i.e. economic reachability is difficult). In developed markets, there are hard-to-reach areas with small populations, such as archipelagos or...
Our Community Hosted Network solution is a revolutionary new product to address these issues. The solution addresses the cost structures surrounding base station installation and operation, and requires only any available public internet for backhaul connectivity. The base station is designed to be installed and maintained by a local user without prior telco experience. When the base station is powered on for the first time, it connects to a Cloud Operation Support System (OSS) that configures it to connect automatically to the operator network. The first commercial deployments of the solution were done in the first half of 2018 in Finland with local private LTE focused operator Ukkoverkot. During the summer of 2018, the team and Vodafone Hutchinson Australia conducted successful field trials in regional Australia, creating connectivity for local potato farmers to use LTE data and VoLTE as well as IoT connectivity to automated irrigation systems.

We also advocate for more urgency in connecting the unconnected through top level engagements in key international fora. For example our CEO continues to be active in the UN Broadband Commission; Nokia hosted a UN High Level Panel on Digital Cooperation in our own premises in Helsinki in March 2019. We contributed to the World Economic Forum (WEF) report “Our shared digital future” where along with other contributors (leaders from business, government, academia and civil society) we collectively acknowledge the need for shared goals and coordinated action to shape an inclusive, sustainable, digital future.

**Smart Agriculture as a Service**

The Nokia Worldwide IoT Network Grid (WING) is a managed service that helps telecom operators go to market quickly and enable improved economic and social opportunity. It has been created as a service that can help operators and enterprises enter the world of IoT or further grow their existing IoT offerings. Smart Agriculture as-a-Service provides subscription-based access to regional climate and pest data for farmers to mitigate risks, thus improving the possibility for greater crop yield. Nokia delivered a smart farming solution to one large customer to increase farm production, reduce spoilage and reduce energy use and optimize operations costs. The solution provides a single view into all farm assets (agriculture / livestock) as well as reduced energy consumption in farm operations.

For more information visit networks.nokia.com/services/wing.

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.
Our work with non-governmental organizations continued in 2018 based on our three key pillars of connecting the unconnected, empowering women, and saving lives.

In 2018 our Corporate Community Investment (CCI) program was covered large programs on corporate and regional level and smaller volunteering-based initiatives locally. As per the London Benchmark Group (LBG) methodology, we also calculated our university donations as part of our total CCI contributions. You can read more on our university donations in Collaboration with universities, cities, and other industries.

Corporate level programs
Our corporate level community investment approach is aligned with our corporate strategy, business drivers, and the UN Sustainable Development Goals. We aim to look at programs that have a long-term impact and create a sustainable platform for the future in the target communities. Firstly, connectivity can bring greater access to education, health services, disaster relief, and business and market opportunities to the underserved communities of the world. Through our technology and its inherent benefits, we aim to connect the unconnected.

Secondly, we believe that empowering women and girls by enabling and encouraging opportunities to experience the world of ICT and STEM will provide the basis for a grassroots change to the current gender diversity in ICT and other industries that recognize the full capabilities of the other 50 percent of the world’s population. Finally, the technology solutions we create and deliver can play an ever-increasing role in responding to global challenges and natural disasters, and building resilience in the most vulnerable places and communities.

In 2018 we had five large programs under the corporate level approach. These programs were the Unicef programs on mHealth in Indonesia and on digital learning and connecting schools in Kenya, the finalization of the long-term early education program in Myanmar with Save the Children, as well continuation of greenlight for girls’ program across multiple countries and the Dreams program for young people in Finland.

You can read more on cases on pages 156–157.

Our total CCI impact
Our collaboration with Corporate Citizenship and London Benchmark Group (LBG) on impact measurement, benchmarking, and data analysis of our community investment programs was continued for 2018.

In 2018, we invested EUR 6.5 million in communities around the world, representing a 5 percent decrease in contributions from 2017. The decrease is largely due to multi-year partnerships in which funding was provided in previous years. 89 percent of the contributions were provided as cash, 11 percent as employee time and a minimal share as in-kind non-cash resources.

The key regional (India and China) contributions covered 38 percent of the total spend, corporate
26 percent, university donations 23% and the remaining 12 percent came from local markets.

99.8 percent of the global and key regional contributions supported our three themes and when the local programs are included, 95 percent of our total contributions were aligned with the three thematic priorities. Most contributions in 2018 were classified under the Connecting the unconnected theme.

As output of the projects, we are proceeding well with our 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 2018, our programs had around 304,200 direct beneficiaries. Since 2016, already around 1,426,600 people have benefited from our programs. As type of impacts received, in 2018, our programs supported over 10,000 people to develop new skills or personal effectiveness and contributed to an improvement in the wellbeing or quality of life of over 57,000 people.

Volunteering

Guidance for all employees on volunteering is provided through our Volunteering guidelines and is further enhanced with our standard operating procedure (SOP) on charitable sponsorships and donations. In 2018, our employees contributed around 18,500 hours of volunteering in paid working time, significantly up from 7,500 in 2017. We see there is still a good deal of room to increase the number of hours, as the corporate guidance allows two days a year per an employee when and where possible. On the other hand, we do not have currently a global system in place to track all employee volunteering hours, so the reported time figure is likely under representative.

In 2019 we look forward to encouraging and supporting more local programs around the world where our employees volunteer. We will continue with select large signature programs, but also look at engaging and supporting our employees in their giving back to their communities.

Engaging with our communities on the ground

2018 was an active year for our Location Development teams around the world. In addition to their operational responsibilities, our employees invested volunteer hours, during their working time, into humanitarian, environmental, and local solidarity...
7.5

Examples of local volunteering

<table>
<thead>
<tr>
<th>Location</th>
<th>Project description</th>
</tr>
</thead>
<tbody>
<tr>
<td>India, Bangalore</td>
<td>Bio-diversity Survey &amp; Lake Clean up - Madiwala Lake conservation project. On World Wetlands Day 2018 Nokia and WWF India launched the conservation and management plan for Madiwala Lake in Bangalore, in collaboration with Karnataka Forest Department (KFD) and Lake Development Authority (LDA) - towards the cause of Wetlands for a Sustainable Urban Future. Nokia Bangalore volunteers were involved in these activities.</td>
</tr>
<tr>
<td>Poland, Krakow</td>
<td>Lego workshops were organized in one of Krakow’s child care homes to teach children programming through play and to inspire them to become interested in technology.</td>
</tr>
<tr>
<td>China, Nanjing</td>
<td>Nanjing TC participated in the international events of ITU – “Girls in ICT Day”, opening its door to female students from Nanjing University of Posts and Telecommunications. The students visited Nanjing R&amp;D office and lab, enjoyed technology demos and face-to-face communicated with female models.</td>
</tr>
<tr>
<td>France, Paris</td>
<td>Through our presidency of the @talentEgal association, we mentored disabled students to help them graduate and find employment.</td>
</tr>
<tr>
<td>China, Qingdao</td>
<td>Qingdao is a city with large population. Hospitals are short of blood for most of the year. We contribute blood every year for local hospitals badly in need of blood to save lives.</td>
</tr>
<tr>
<td>Germany, Ulm</td>
<td>Engagement to support integration for refugees. Buddy helps for example to deal with bureaucracy in Germany, explain different questions.</td>
</tr>
</tbody>
</table>

initiatives, in addition to the time taken for these activities on personal time.

Whether offering basic material aid – food, clothing, books, toys - or social support – tutoring for underprivileged children, fun outings for orphans, wellness visits to the elderly – our location employees have demonstrated that they are always willing to take time to make every person feel connected.

Our Location Development actively supported our Corporate Community Investment mission by continuing our CCI/CSR (Corporate Social Responsibility) award in 2018, to underscore the importance which our company attributes to helping those in need. To take our sustainable achievements to the next level, we give particular distinction to our locations that not only lead several corporate responsibility initiatives, but also record the number of volunteers and beneficiaries. We do this so that we will be able to fully recognize their efforts and try to raise the bar of our involvement next year. Some of our key programs and related achievements in 2018 are summarized here. More information on our corporate community investment programs can be seen at our website.
Case 1: Early Childhood Care and Development in Myanmar with Save the Children

Since 2015, Nokia has supported Save the Children in Myanmar to improve access and quality of pre-school education, especially for the most marginalized children in remote areas of the country. Through this partnership, communities, as well as local and national authorities, have been supported to further develop and increase access to Early Childhood Care and Development (ECCD) services. Over the past two years, Nokia and Save the Children have also developed and deployed a mobile-based app to overcome challenges in collecting and sharing important data from ECCD centres. Read more at www.nokia.com/about-us/sustainability/making-change-happen-together/community-investment-and-ngos.

Case 2: Connecting the unconnected and empowering girls in Kenya with Unicef

We have been working with Unicef in Kenya since the beginning of 2018 to enable equitable access to quality education for children in Northern Kenya. This is being done by providing schools in remote locations with access to the internet, digital educational content in line with the new school curriculum and teacher training workshops to build capacity on how to effectively use the digital content and related hardware in schools.

By providing technical expertise and financial support, Nokia has worked with Unicef to establish a plan to extend internet connectivity to remote, disadvantaged and unconnected schools and maximise the impact of the Kenyan government’s investment in the tablets. In 2018 the piloting process began, following approval from the Kenyan Government. For more information visit www.nokia.com/about-us/sustainability/making-change-happen-together/community-investment-and-ngos.

Case 3: greenlight for girls (g4g)

We again rolled out programs around the world in order to encourage young women and girls into STEM subjects. Read more under our Diversity section.

Case 4: 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.


Case 5: Projects with Digital Empowerment Foundation in India

As a telecommunications technology leader, Nokia is committed to improving people’s lives through connectivity. We launched our flagship CSR project Smartpur with our partner NGO Digital Empowerment Foundation. The project aims to create a sustainable ecosystem where community members can leverage digital tools to bring efficiency to daily lives, transparency in governance, economic prosperity for households and ease of access to various government services and information. There are five key areas of development under the project – health, education, livelihood, governance and finance – to build a holistic, digitally integrated village. Read more at www.nokia.com/about-us/sustainability/improving-peoples-lives-with-technology/connectivity.

Project Kanchiloom was launched in 2017 with our partner NGO, Digital Empowerment foundation. This project concentrates on improving livelihood opportunities for the weaver cluster in Kanchipuram in the state of Tamil Nadu in the south of India. The project leverages digital technology to enhance the core skills of the weavers, facilitates financial inclusion by connecting weavers to various central and state government schemes, and eventually aims to connect the weavers directly to the market place through e-commerce.
Case 6: Improving education opportunities in China

Ninglang is a poverty-stricken county in Yunnan province, located in western China. Ninety-eight percent of Ninglang is mountainous terrain, populated by minorities with their own languages and dialects. As of today, there are still more than 40,000 people living in extreme poverty in the region, with an income of less than RMB 10 (USD 1.5) per day. Potatoes are the main food all year round for the people living in the Ninglang mountain regions and for the first time in 2018 when our employees visited they saw a reliable water source in one village where previously rain and snow were collected to provide water for the villagers.

For the last 16 years Nokia Shanghai Bell employees have been helping the people of Ninglang through focused educational support. The employees have built a hope school, provided long-term sponsorship to some classes, built internet classrooms, sent employee volunteers to teach local children as well as online distance learning classes run by our employees.

We have had 300–400 employees paired up with 300–400 underprivileged students (mainly girls), providing basic financial support (RMB 800 per year) to them to complete basic education. Cumulatively, our employees have contributed more than 5,000 hours of volunteer work to help the people of Ninglang.

In 2018, we donated towards building a smart classroom for Xiao Liangshan primary school, to build a playground in the NSB hope school, provided smart management training to county leaders, and had two employees working on the frontline in Ninglang. Our program of employees supporting Ninglang children in need and volunteer programs are ongoing.

We also support an Internet Classroom against Poverty program with the NGO Zhonggu, in other areas in China. For more information on those programs visit www.nokia.com/about-us/sustainability/making-change-happen-together/community-investment-and-ngos.

Case 7: Season’s Greetings campaign

In 2018, we again held our annual festive internal charity campaign from mid-December to mid-January. Three charities were chosen by the Corporate Responsibility team and a voting competition was opened to all of our employees to cast their votes for their favorite charity target. The three chosen programs were:

- Red Cross Disaster Relief Fund, which provides funds, materials such as tents, blankets, food, and professionals in disaster situations around the world.
- Oxfam Refugee Crisis Appeal which will provide clean water, sanitation and essential supplies to hundreds of thousands of Rohingya refugees in Bangladesh.
- Plan International’s Digital Gender Divide program, which builds up young people’s work-related skills and capacities in Uganda and Ethiopia.

Despite the holiday season, the charities received over 3,400 votes from employees in more than 100 countries. The votes were calculated via an external voting platform and each charity will receive the proportion of the total budgeted donation funds based on the percentage of votes they received. We will be reporting on how the money was used in next year’s Sustainability Report.
Working with governmental and multilateral organizations

We believe in the power of collaboration by working with industry partners and engaging with policy makers, international and multilateral 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 governments

We build and maintain relationships with 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 in an open and transparent way with governments, legislators, trade associations, international organizations, and customers and partners to promote the opportunities of a connected world for all.

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. We do not participate in the political or electoral process through direct donations to political groups, but we protect our interests through lawful and transparent advocacy with relevant stakeholders.

We interact with governments and governmental bodies 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 more than 100 countries around the world.
The special requirements that apply to our interactions with governments and state-owned enterprises and their employees, including, for example, procurement, lobbying, entertainment, hospitality, disclosure and record-keeping rules are defined in our corporate guidelines and standard operating procedures.

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. Our standard operating procedure include, for example, 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. They also apply for interactions with employees of state-owned companies and other governmental customers. The basic guidance for interaction with a government official is laid down in our Code of Conduct. Every Nokia employee has an obligation to be aware of the Code and to act accordingly.

Industry cooperation

We are a member of industry and international associations and other initiatives and networks, representing the interests of the sector and striving for developments in the economy and society at a national, regional and global level.

More details of our activities with some of these industry and international associations can be found later in this chapter.

World Economic Forum

The World Economic Forum (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. Nokia is an active partner of the Forum with the engagement of our President and CEO Rajeev Suri and other executives. For example, in 2018 we initiated a project to analyze 5G socio-economic impacts at WEF and will provide a resource to drive it in 2019.

GSMA

The GSMA represents the interests of mobile operators worldwide, uniting more than 750 operators with over 350 companies in the broader mobile ecosystem, including Nokia. The GSMA also produces the industry-leading Mobile World Congress events held annually in Barcelona, Los Angeles and Shanghai. Nokia has joined MWC events for many years.

European industry associations

DIGITALEUROPE

A trade association representing digitally transforming industries in Europe and advocating for a regulatory environment that enables European businesses and citizens to prosper from digital technologies.

European Telecommunications Network Operators’ Association (ETNO)

A key policy group for European electronic communications network operators.

The European Round Table of Industrialists (ERT)

A forum bringing together chief executives and chairmen of major multinational companies of European parentage covering a wide range of industrial and technological sectors.

Nokia is an active member (observer in ETNO) in all three associations. Our Chairman of the Board of Directors, Risto Siilasmaa, is a member of the ERT forum and Nokia Senior Executive Markus Borchert is currently President of DIGITALEUROPE.

Other national industry associations

We are also a member of national industry associations in various countries. Some examples are the Technology Industries of Finland in Finland, CTIA and Telecommunications Industry Association (TIA) in the USA, The French Alliance of Digital Industries (AFNUT) in France and Bitkom in Germany.

Annual membership fees of the above-mentioned key memberships sum up to a total 1.5 million euros.

Cooperation in standardization

In addition to industry association -type of memberships Nokia takes an active part in the standardization of progressing digitalization. Our key memberships in this arena include 3GPP, ETSI, ITU, IETF, 5G-IA, 5G PPP and Linux Foundation.
You can read more on the scope of each association on our website.

A snapshot of our activities in 2018

**World Economic Forum**

In 2018, we continued our collaboration as a partner of the World Economic Forum (WEF). 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 Digital Economy and Society System. 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, IoT, and AI to improve the state of the economy while empowering citizens. We have contributed to WEF’s report “Our Shared Digital Future”, and to the creation of Responsible Digital Transformation – Board Briefing. In 2018, we joined the Partnering Against Corruption Initiative (PACI). PACI operates as a global platform centered on global principles for countering corruption and works to enable companies to maximize their collective impact in the fight against corruption.

Education is key to preparing future generations to thrive in a digitized world. This is why we support WEF’s Closing the Skills Gap 2020 project and within this framework we committed to focus on early education in Myanmar. Closing the Skills Gap 2020 is a global call for measurable commitments from leading companies to train, reskill and upskill the current and future workforce.

**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 to strengthen UN efforts to meet the Millennium Development Goals (MDGs). The aim was to boost the importance of broadband on the international policy agenda and expand broadband access in every country as a driver of progress towards national and international development targets.

The Commission was relaunched in late 2015 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.

**Nordic CEOs for a sustainable future**

Our CEO joined CEOs of some of the Nordic region’s largest listed companies in a common commitment to integrate the UN Sustainable Development Goals into their respective business strategies and create a forum for exchange of experiences and exploration of shared initiatives. The aim behind the initiative is to speed up the realization of the world’s most important “to do” list, achieving the UN SDGs. The initiative also creates a platform for Nordic prime ministers to engage directly with CEOs on how to move from sustainability as a compliance exercise to how to lead successful purpose-driven companies. A key objective is to explore ways to deliver more impact through collaboration. In summer 2018 some of the CEO representatives of the initiative met with the Norwegian Prime Minister to discuss how to accelerate achievement of the global goals.

For the latest information on the initiative go to www.nordic-ceos.com.

**EQUALS**

We have been 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, improve the livelihoods of millions around the world. More information www.equals.org/partners and on our activities in 2018 go to page 137 under our Respecting people chapter.
Other selected activities

**Digital4Development**

Digital technologies and services are enablers of sustainable development and can accelerate reaching development policy objectives such as job creation, gender equality, agriculture and food security, good governance and rule of law (e-governance), sustainable energy and climate change mitigation, (e-energy and e-climate change), and addressing the root causes of irregular migration. That is why we, along with SAP, Orange, Philips, SES and Ericsson set up the D4D coalition to promote digital infrastructure investments in developing countries (initially in Africa). The D4D coalition serves as a private sector platform to consult on and help shape European aid and investment into the digital sector.

**WSIS and ITU Telecom**

We join important fora of global exchanges on connectivity and sustainability. The World Summit on the Information Society (WSIS) Forum represents the world’s largest annual gathering of the ICT for development community. We participate and speak at the event. In September 2018 we also sponsored the ITU Telecom event in Durban, South Africa, and contributed to the discussions there.

**Latin America and technology for good**

Connecting the unconnected is also an important pillar of the collaboration we have with governments and multilateral 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.

**Digital Declaration**

Nokia joins global initiatives meant to confront global challenges created by digitalization. Nokia’s CEO signed a Digital Declaration joining a cross-industry movement of CEOs committed to act ethically in the digital era (respect the privacy of digital citizens; handle personal data securely and transparently; take meaningful steps to mitigate cyber threats; and ensure everyone can participate in the digital economy as it develops). The Declaration helps companies deliver what matters most to digital citizens, industry and governments. We are also a signatory of The Paris Call for Trust and Security in Cyberspace and of The Cybersecurity Tech Accord. With those initiatives, we want to contribute to improve the security, stability and resilience of the cyberspace.

**Board memberships in sustainability related organizations**

During 2018 Nokia employees were members of the board of directors of groups such as the Global Networking Initiative (GNI), Finnish Business and Society (FiBS) (vice chair) and the UN Global Compact Finland (founding board).
Collaboration with universities, cities, and other industries

We work with a broad range of academic institutions in areas such as collaborative research, training programs, innovation events, talent development and continuous learning. Our University Donations Program provides further opportunity to work with world-leading universities to further scientific exploration, develop talent, and share and create knowledge.

Through its Distinguished Academic Partner program, Nokia Bell Labs fosters intensive collaboration with the best and brightest minds from the world’s top universities and academic organizations to drive a vision of future human needs. We have created a global network of world-leading partners delivering disruptive innovation in technologies such as 5G technologies, AI, advanced materials, Industrial IoT. This network provides access to cutting-edge expertise to build our talent pipeline.

In 2018, Nokia Bell Labs launched new strategic initiatives with University of Cambridge in the UK and with Carnegie Mellon University (CMU) in the US, like research of AI and future 6G, or indirectly, like other sectors of society where the role of ICT will be high. Contributing to universities is a crucial component of our work exploring how technology can improve people’s lives. In 2018, we contributed EUR 1.5 million to 33 universities across the world to foster scientific innovation for this aim.

As an example, our donation to the Aalto University in Finland is enabling the development of technology to enlarge x-rays and subsequently reduce the time necessary to classify wrist injuries. We are also funding research at the University of Lancaster in
Collaboration with universities, cities, and other industries

the UK to explore the use of sound for memory augmentation to help people living with dementia. Within communications, our donation to the Stevens Institute is helping to explore the future of communication in the age of digitalisation by advancing our understanding of the potential connection between humans and machine devices.

- We collaborated with CMU’s CyLab to launch a new research initiative focused on building secure and privacy-respecting large city-scale IoT systems.

**Working with cities**

Cities are seeing unprecedented growth, bringing major challenges as they seek to remain sustainable, healthy and safe places for people to live and work. IoT offers new opportunities for cities to use data to manage traffic, cut pollution, make better use of infrastructure and keep citizens safe.

The competitiveness of cities and municipalities is increasingly dependent on the availability of technology. 5G, IoT, cloud computing, fiber and AI will bring high quality broadband services to address individual and business requirements. City and municipal governments see the need to transform their own telecom infrastructures to improve their internal processes, safety, security and resource efficiency and provide citizens and businesses with access to government and other services.

We are already working with cities across the globe to bring smart solutions and services to make these needs a reality. In 2018 we announced our cooperation with Hanoi, Vietnam, providing unified real-time management of all smart city assets and services. We joined forces with Smart City Capital, LLC to launch a joint program to help Canadian cities fund and reduce the risks associated with smart city initiatives.

In India, we announced cooperation with Indian operator, BSNL and a Smart Telecom Pole project, which provides connectivity and is integrated with smart LED lighting system, CCTV cameras, digital billboards and environmental sensors. This smart pole solution has been designed and built in India to support smart city initiatives.

We also introduced enhancements to our in-home Wi-Fi solution that maximize Wi-Fi performance and simplify network management. The new Wi-Fi solution expands our portfolio with meshed Wi-Fi gateways and beacons, delivers a new Wi-Fi Home Portal for service providers, introduces a mobile application for users and provides new software functions and analytics that improve network intelligence.

For more information on how technology can improve the lives of people in cities around the world, see networks.nokia.com/industries/smart-city.

**Industry and digitalization**

Our end-to-end portfolio of solutions and services, and the skills of Nokia Bell Labs provide the gateway to the next age of industry and the Fourth Industrial Revolution where human, machine and intelligence will connect like never before.

In the public sector we offer solutions that improve quality of life, emergency decision-making and response through ultra-broadband networks. We work with energy and utility companies to advance towards the next stage of automation, safety, efficiency and control of the most remote operations. We hyperconnected, safer and more sustainable transportation systems whether aviation, rail or road. And we work with multiple industries to drive improvements in automation and logistics. 5G, IoT and cloud computing will underpin a massive leap forward across all aspects of life.

In 2018 Nokia, ABB and Kalmar, part of Cargotec, successfully conducted industrial trials that leverage the low latency capabilities of 5G to support time-critical applications and enhance protection and efficiency in smart electricity grid and harbor automation. In India, we worked with BSNL, a leading telecom operator in India, to implement the next level of industrial automation, leveraging 4G LTE technology to enable greater operational efficiency at Nokia’s Chennai plant. The project aligns with the Indian Government’s Make in India program, which aims to promote excellence in manufacturing in the country. To address Industry 4.0, Nokia has applied a Conscious Supply Network concept at its factories leveraging digitalization, analytics, and robotics across the overall supply chain. In April 2018, we launched the industry’s first Edge Cloud data center solution for the 5G era, supporting industry automation and consumer applications. These are just a few examples of the work we do to make industry more efficient, smarter and more sustainable. For more information go to networks.nokia.com/industries.