

NOKIA IN 2017

A person is riding a longboard skateboard barefoot in a modern, open-plan office. The office has high ceilings with exposed steel beams and large windows. In the background, other people are working at desks, and a person is walking with a laptop. The overall atmosphere is casual and modern.

NOKIA

Creating the technology to connect the world



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This is Nokia

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

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

We have combined global leadership in mobile and fixed network infrastructure with the software, services and advanced technologies to serve customers in approximately 130 countries around the world. We are driving the transition to smart, virtual networks and connectivity by creating one single network for all services, converging mobile and fixed broadband, IP routing and optical networks, with the software and services to manage them. Our research scientists and engineers continue to invent new technologies that will increasingly transform the way people and things communicate and connect including 5G, ultra broadband access, IP and Software Defined Networking ("SDN"), cloud applications, Internet of Things ("IoT"), as well as security platforms, data analytics, and sensors.

Through our six business groups, we have a global presence with operations in Europe, the Middle East & Africa, Greater China, North America, Asia-Pacific, India, and Latin America. We also have research and development ("R&D") facilities in Europe, North America and Asia, and at the end of 2017, we employed approximately 103 000 people.

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

Countries of operation

~130

Number of employees as of December 31, 2017

~103 000

R&D investment in 2017

EUR 4.9bn

Organizational structure and reportable segments

We have organized our networks-oriented businesses into five business groups: Mobile Networks, Fixed Networks, Global Services, IP/Optical Networks, and Nokia Software (together the “Networks business”); and have kept our driver of future innovation and licensing, Nokia Technologies, as a separate, sixth business group. For descriptions of our business groups, refer to “Business overview—Networks business” and “Business overview—Nokia Technologies”.

We have four reportable segments:

(i) Ultra Broadband Networks, comprised of the Mobile Networks and the Fixed Networks business groups, (ii) Global Services, comprised of the Global Services business group, (iii) IP Networks and Applications, comprised of the IP/Optical Networks and Nokia Software business groups (all within our Networks business), and (iv) Nokia Technologies.

On February 1, 2018, we announced that we would rename our Applications & Analytics business group as Nokia Software, effective immediately, to better reflect our strategy and focus on building a strong, standalone software business. In this annual report we refer to Nokia Software throughout the document.

Additionally, we report the results of other business activities that are not reportable segments within Group Common and Other, such as our undersea cables business, Alcatel-Lucent Submarine Networks (“ASN”), and our antenna systems business, Radio Frequency Systems (“RFS”), in aggregate. Both ASN and RFS are being managed as separate businesses. We are continuing the strategic reviews of both businesses. Refer to Note 4, Segment information, of our consolidated financial statements included in this annual report.

Our reportable segments and business groups

Ultra Broadband Networks

IP Networks and Applications

Global Services

Nokia Technologies

Mobile Networks

Higher quality and more reliable mobile broadband experiences

IP/Optical Networks

Massively scalable networks securely connecting everyone and everything to the cloud

Global Services

Helping customers navigate through complexity to transform their business

Nokia Technologies

Technology designed to bring the human family closer together

Fixed Networks

Using intelligent access to create networks that are faster, better, smarter

Nokia Software*

Intelligent software platforms optimizing and automating network performance

* As of February 1, 2018 the Applications & Analytics business group was renamed Nokia Software.

Key data

Net sales 2017

EUR 23.1bn

Dividend per share 2017

EUR 0.19

Gross margin 2017

39.5%

Net cash as of December 31, 2017

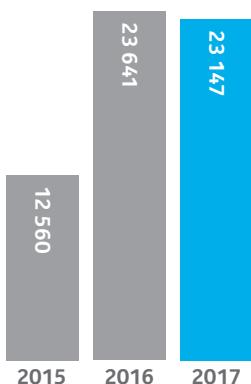
EUR 4.5bn

The following table sets forth summary financial and non-financial information for the years ended December 31, 2017 and December 31, 2016 for our Continuing operations. This data has been derived from our consolidated financial statements, which are included in this annual report.

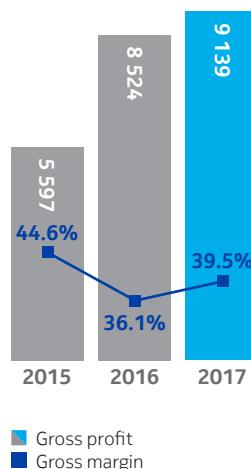
For the year ended December 31	2017 EURm	2016 EURm	Change
Net sales	23 147	23 641	(2)%
Nokia's Networks business	20 523	21 830	(6)%
Ultra Broadband Networks	8 970	9 758	(8)%
Global Services	5 810	6 036	(4)%
IP Networks and Applications	5 743	6 036	(5)%
Nokia Technologies	1 654	1 053	57%
Group Common and Other	1 114	1 142	(2)%
Gross margin	39.5%	36.1%	343bps
Operating profit/(loss)	16	(1 100)	–
Nokia's Networks business	1 711	1 943	(12)%
Ultra Broadband Networks	781	922	(15)%
Global Services	411	406	1%
IP Networks and Applications	519	615	(16)%
Nokia Technologies	1 124	579	94%
Group Common and Other	(248)	(350)	(29)%
Unallocated items ⁽¹⁾	(2 571)	(3 272)	(21)%
Operating margin	0.1%	(4.7)%	472bps
Financial income and expenses, net	(537)	(287)	87%
Income tax (expense)/benefit	(927)	457	–
Loss for the year	(1 437)	(912)	58%
Earnings per share (“EPS”), EUR diluted	(0.26)	(0.13)	100%
Average number of employees	101 731	102 687	(1)%
Net sales by region			
Asia-Pacific	4 228	4 223	–
Europe	6 833	6 410	7%
Greater China	2 516	2 654	(5)%
Latin America	1 279	1 458	(12)%
Middle East & Africa	1 907	1 872	2%
North America	6 384	7 024	(9)%
Total	23 147	23 641	(2)%

(1) Includes costs related to the acquisition of Alcatel Lucent and related integration, goodwill impairment charges, intangible asset amortization and other purchase price fair value adjustments, restructuring and associated charges and certain other items.

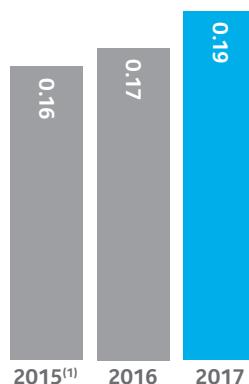
Net sales (EURm)



Gross profit (EURm) and gross margin (%)

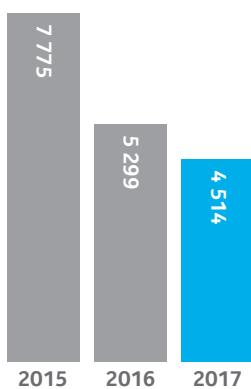


Dividend per share (EUR)

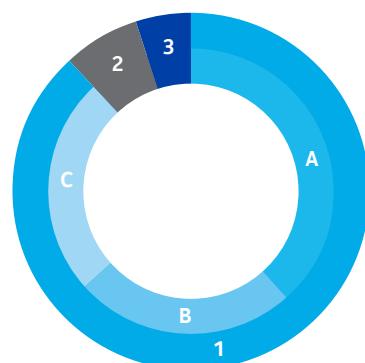


■ Gross profit
■ Gross margin

Net cash as of December 31 (EURm)

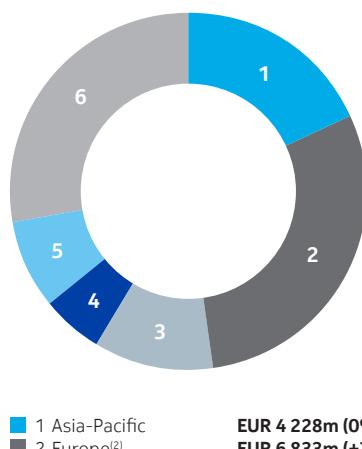


Net sales 2017 by business



■ 1 Nokia's Networks business EUR 20 523m (-6%)
 ■ 2 Nokia Technologies EUR 1 654m (+57%)
 ■ 3 Group Common and Other EUR 1 114m (-2%)
 ■ A Ultra Broadband Networks EUR 8 970m (-8%)
 ■ B Global Services and Applications EUR 5 810m (-4%)
 ■ C IP Networks EUR 5 743m (-5%)

Net sales 2017 by region



■ 1 Asia-Pacific EUR 4 228m (0%)
 ■ 2 Europe⁽²⁾ EUR 6 833m (+7%)
 ■ 3 Greater China EUR 2 516m (-5%)
 ■ 4 Latin America EUR 1 279m (-12%)
 ■ 5 Middle East & Africa EUR 1 907m (+2%)
 ■ 6 North America EUR 6 384m (-9%)

(1) We also paid a special dividend of EUR 0.10 per share in line with our capital structure optimization program announced on October 29, 2015.

(2) All Nokia Technologies IPR and Licensing net sales are allocated to Finland.

Year-on-year change is in parentheses.

Derived from our financial statements which were prepared in accordance with IFRS.

Business overview

A photograph of a modern office interior. In the foreground, a person is seen from the side, sitting at a desk and working on a laptop. The office has a minimalist design with a large window that looks out onto a cityscape. A whiteboard is mounted on a wall to the left, and a large, white, organic-shaped light fixture hangs from the ceiling. A digital display screen is mounted on a wall in the background. The overall atmosphere is professional and contemporary.

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Letter from our President and CEO



“We have a very talented and dedicated team across our organization; employee connectedness to our mission is strong; and that puts Nokia in the driver’s seat in the transition to 5G and in delivering further shareholder value.”

Net sales in 2017

EUR 23.1bn

Proposed dividend per share

EUR 0.19

Proposed dividends

EUR 1.1bn

2017 was a solid year of execution for Nokia, as we delivered on our financial commitments and gained momentum in driving forward all four pillars of our strategy.

With that progress, Nokia is in an excellent position for sharply improving its performance towards 2020 and for leading the transition to 5G that is underway.

Financial Highlights

Our Networks business net sales declined in line with our guidance and it posted an operating margin of 8.3%, which also met our guidance. Nokia Technologies had a strong year, with net sales and operating margin up 57% and 13 percentage points, respectively, compared to 2016, driven by higher licensing revenue that highlights the strength of our patent portfolio. We also closed the year on track to deliver EUR 1.2 billion in structural cost savings in full-year 2018.

Looking forward on the Networks side, we expect our market to decline again in 2018, although at a slightly lower rate than the market decline in 2017, given early signs of improved conditions in North America. For 2019 and 2020, we expect market conditions to improve markedly, driven by full-scale rollouts of 5G networks; and, as those rollouts occur, Nokia is remarkably well-positioned.

With our overall performance, Nokia’s Board of Directors will propose a dividend of EUR 0.19 per share for 2017, up 12% from our 2016 dividend. And, the Board is committed to proposing a growing dividend, including for 2018.

Customers

Customer recognition of Nokia’s work in leading the way to 5G was reflected in our healthy deal-win rate in 2017. This included our agreement with ALTÁN Redes in Mexico, a truly end-to-end project, which underlined the strength of our complete product offering.

We saw customer support for the progress in our cross-selling capabilities, with the multi-business-group opportunity share of Nokia’s deal pipeline standing at 36%. That is up substantially from 2016 and underlines how customers continue to respond favorably to the broad scope of our portfolio in preparation for 5G.

We also saw it in the market share we gained in 2017 in 4G/LTE and small cells; that is relevant, as the 4G/LTE installed base needs to be truly 5G ready. Now to the excellent execution in the four pillars of our strategy.

Strategy

In the **first pillar**, leading in high-performance end-to-end networks with CSPs, or communication service providers, our 5G readiness progressed on several fronts.

Let me start by saying that CSPs increasingly realize that, unlike 4G and previous generations of technology, 5G is very different. It is not just about radio but spans the full network: from mobile access, cloud core, and software-defined networking to backhaul, front haul, IP routing, fixed networks, and software.

In the face of fast-rising bandwidth and other performance demands, customers know they need to take an architecture-driven, end-to-end approach that Nokia offers, with a coordinated, holistic view across all elements of the network. And, the work is well underway. In early 2018, we announced an agreement to deliver 5G equipment to Japan's NTT DOCOMO, kickstarting what we think will be a year of 5G investment and trials with operators around the globe; followed potentially by some deployments towards the end of 2018, with meaningful deployments in 2019.

Mobile Networks broadened our focus into multiple areas of early 5G mobility use cases, including enhanced mobile broadband and ultra-reliable, ultra-low latency communications. As part of this, we introduced the 5G NR (New Radio) air interface standard to support 5G devices and services.

Fixed Networks launched its Intelligent Access Vision, aimed at making access networks faster, better and smarter. Faster is about bringing the most complete network access toolkit to the market, including copper, fiber, cable and fixed-wireless solutions; better, about delivering a gigabit to the home and throughout the home, as users also expect optimal connectivity in every corner of the home; and smarter, about removing complexity and making the network simpler and easier to manage. As part of that, we introduced our Software-Defined Access Network, or SDAN, solution to bring customers a set of cloud-native software, open hardware, automated operations and integration services. And, we capped all of that by winning the world's first major SDAN project in December, and we see more progress like that ahead.

Global Services accelerated development of its service offering and delivery capabilities by integrating artificial intelligence, machine learning and automation. It unveiled an enhanced Analytics Services solution, powered by our cloud-based cognitive services platform, AVA (Automation, Virtualized, Analytics). GS also announced our Multi-purpose Intuitive Knowledge Assistant, or MIKA, the world's first digital assistant for CSPs that gives engineers faster access to accurate answers through voice-dictated automated assistance. Further, it launched the industry's first global managed service for IoT, Nokia WING (worldwide IoT network grid), to help CSPs enter this market quickly.

In our **second pillar**, expanding network sales beyond CSPs to select vertical markets, Nokia saw double-digit underlying sales growth compared to 2016. This reflects our confidence that the need for mission-critical, high-performance networks continues to grow as companies and public sector organizations everywhere digitize their operations.

In the segments we are targeting—spanning webscale companies, extra-large enterprises that use technology as a competitive advantage, and large players in transportation, energy and the public sector—we added almost 100 new customers in 2017, including Amazon, Fujitsu, and Philips.

Our IP/Optical Networks, or ION, business group was a key driver in our momentum in new vertical markets, which represented roughly 5% of Nokia's total sales in 2017. And, with our FP4, silicon-based routing products starting to ship, ION is well-placed to fundamentally improve our IP routing position with webscale companies in 2018 and beyond.

Letter from our President and CEO continued

In our **third pillar**, building a strong, standalone software business at scale, our Applications & Analytics (A&A) business group built Nokia's first dedicated software sales force and re-architected our software on a common foundation. We introduced several new products and services, including Nokia Smart Plan Suite, Nokia Session Border Controller and Nokia NetGuard Security Management Center, and we acquired Comptel to enhance our software intelligence and automation capabilities. In February 2018, we renamed A&A as Nokia Software, highlighting our longer-term ambitions for this business and the opportunities we see in helping CSPs and our select vertical markets improve the digital customer experience, implement innovative business models, and unlock new revenue opportunities.

In our **fourth pillar**, creating new business and licensing opportunities in the consumer ecosystem, Nokia did not miss a beat. Nokia Technologies signed several new patent licensing agreements and won patent arbitration awards with companies that included Apple, Blackberry, and Huawei. We advanced plans to develop our licensing business in new areas like automotive, and in geographies like China and India. We saw early progress in our brand licensing agreement

with HMD Global, which launched several Nokia-branded smartphones and feature phones that have achieved outstanding net promoter scores.

We also took the decision to stop development of the OZO virtual reality camera, as we focus Nokia Technologies' efforts on our licensing business and lowering costs. As part of that approach, in early 2018, we initiated a strategic review of our Digital Health business. We have a disciplined and pragmatic approach towards investing in new growth opportunities in Nokia Technologies. If we think a bet won't meet our criteria for becoming a meaningful business, we will move on quickly, and you see that in the actions we have taken.

Innovation

An important dimension to our strategy progress was the fact that 2017 was another year in which Nokia Bell Labs and all our business groups lived up to Nokia's innovation prowess.

Among our important product launches were 5G FIRST, which enabled early 5G testing and incorporates Nokia's AirScale radio platform and AirFrame technology, including massive MIMO Adaptive Antenna, Cloud Packet Core and mobile transport, to bring new capabilities to operators.

Just after 2017 closed, we introduced our end-to-end 5G Future X network architecture and ReefShark chipset for our radio portfolio. Together, these innovations provide significant differentiation for Nokia against the competition and enable full-scale commercial deployments of standards-based 5G networks, which we see happening towards the end of 2018 or early 2019.

And, we launched the most powerful internet routing platforms, powered by Nokia's new FP4 silicon, the world's first multi-terabit chipset that is many times faster and smarter than anything on the market.

People

In 2017, we strengthened awareness and understanding of our core cultural principles, which are summarized in the "Drive, Dare and Care" behaviors we put into place during the year.

It is especially pleasing to see Nokia employees' strong belief in our company's direction, as indicated by our internal Culture Cohesion Tracker survey, along with particularly good progress in reducing bureaucracy and hierarchies.

All of this progress is encouraging even as we continue to deepen our common culture and ways of working in all six of our business groups and in geographies across the world.

Sustainability and Corporate Responsibility

We also continued to do the right things the right way in delivering on our sustainability commitments, which are an important dimension to everything we do at Nokia.

Working with the Science Based Targets initiative, we set a long term carbon emissions reduction target of 75%; this target includes customer use of our products and forms the largest portion of our carbon footprint. We also set a science-based emissions reduction target of 41% for our own operations. Both targets are set for 2030 against a 2014 baseline. We track these annually and are progressing against both targets.

Nokia was also again ranked in the top 1% of suppliers assessed in 2017 as part of the EcoVadis scorecards, which measure corporate sustainability performance. We achieved excellent scores in environmental performance, sustainable procurement, and labor practices. And, we were again rated an industry leader in the Communications Equipment (“CMT”) sector of the Dow Jones Sustainability Indices (“DJSI”) and were awarded a “Gold” level by RobecoSAM in early 2018 for our sustainability performance.

Looking ahead

With our 2017 performance, there is much to look forward to at Nokia.

Our strategy is working well; our customer relationships continue to grow and deepen; and we are taking meaningful steps to further strengthen our disciplined execution, including in our customer operations.

Our competitive advantages—from the strength of our innovation capacity to the scale and scope of our portfolio—give Nokia the capabilities to continue to live up to the rich legacy of our 153-year old company. And, that is why we are confident about our market prospects as we move forward.

We have a very talented and dedicated team across our organization; employee connectedness to our mission is strong; and that puts Nokia in the driver's seat in the transition to 5G and in delivering further shareholder value.

Rajeev Suri
President and CEO

Our role as a global technology leader

We create the technology to connect the world

We are shaping a new revolution in technology, where intelligent networks augment and aid our daily lives through sensing the world around us and providing the data and analytics needed to make choices that help society thrive. We are creating effortless, simple and dependable technology for IoT, ultra-broadband, cloud, IP interconnectivity and digital health.

We optimize performance to maximize value and customer satisfaction

We enable our customers to move away from an economy-of-scale network operating model to demand-driven operations by providing the easy programmability and flexible automation needed to support dynamic operations, reduce complexity and improve efficiency. As a result, our customers can fulfill end-user demands by provisioning services in real time while automatically making optimal use of networks assets.

We create disruptive solutions enabling market differentiation and competitive advantage

We believe that innovation is the foundation of everything we do at Nokia. We force the pace of change by pushing technology boundaries, challenging the status quo and working in open collaboration with customers and partners. Our research and development within Nokia Bell Labs creates a future path so that our customers can successfully navigate megatrends and challenges to expand and draw closer to their customers. It is through these efforts that Nokia grows and enhances its portfolio, introduces disruptive technologies and identifies new market opportunities for its customers.



Our values

We foster a culture of high-performance and high integrity, guided by our vision, brand and values. It is through our people and culture that we shape technology to serve human needs. Our pursuit of performance with integrity and sustainability—a culture that stems from our Finnish roots—is key to why our customers and partners choose to work with us.

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

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

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

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

Respect

Acting with uncompromising integrity, we work openly and collaboratively, seeking to earn respect from others.

Challenge

We are never complacent. We ask tough questions and push for higher performance to deliver the right results.

Achievement

We take responsibility, and are accountable for driving quality, setting high standards, and striving for continuous improvement.

Renewal

We constantly refine our skills: learning and embracing new ways of doing things, and adapting to the world around us.

Our commitments

What we do to design and deploy technology in the service of our customers and people:

We create the most sophisticated technology that is effortless and intuitive to use

We lead the relentless quest for gains in performance and agility, with technology that thinks for itself.

We solve your future needs

We help customers shape their futures based on a clear view of technology opportunities and constraints. We work closely with customers and partners to anticipate their priorities and guide their choices.

We obsess about integrity, quality, and security

We never compromise our values in the drive for business or technical performance. We pursue quality in all our products and processes, and design for security and privacy from the start.

Our strategy



We are rebalancing for growth, putting Nokia at the heart of unprecedented opportunities to create the technology to connect the world.

We have identified six global megatrends. These megatrends create massive technological requirements, impact our current and potential customers, change the lives of people, impact business operations on a global scale and provide opportunities for Nokia to diversify into new growth areas.

The megatrends we have identified are:

1. **Network, compute and storage:** Ever present broadband capacity coupled with a distributed cloud for ubiquitous compute and near infinite storage, allowing limitless connectivity and imperceptible latency as well as subscription-based and asset-less business models.
2. **Internet of Things:** In addition to people, trillions of things are connected to the internet, collecting unprecedented amounts of data in a private and business context.
3. **Augmented Intelligence:** Artificial intelligence combined with human intelligence transforms the collected data into actionable insights, fundamentally changing the way decisions are made by businesses, governments and individuals, resulting in time savings, less waste, higher efficiency and new business models.
4. **Human and machine interaction:** A range of new form factors that fundamentally transform the way humans interact with each other and with machines, e.g. voice-based digital assistance, gesture control, smart clothes, implantable chips, robotics and Augmented and Virtual Reality.
5. **Social and trust economics:** Ubiquitous connectivity, compute and storage, as well as technologies such as blockchain, enabling new business models based on sharing assets and distributed trust, allowing rapid scalability on a global level.
6. **Digitization and ecosystems:** Next level of digitization beyond content and information, digitizing atoms with additive printing in an industrial, consumer and medical context, fundamentally transforming entire supply chains and production processes by massive-scale automation.

These megatrends are driving new technology requirements. End-to-end networks are a central enabler, which create a multitude of opportunities for us. Nokia Bell Labs has developed a vision of a future network architecture that fulfills these requirements in a holistic way—the Future X network vision. This is our guide not just to how things will change, but also to what we need to do to meet the future needs of our customers and to address these megatrends and the inherent opportunities. The Future X vision encompasses the key domains of future networks: massive scale access, converged edge cloud, smart network fabric, universal adaptive core, programmable network operating systems, augmented cognition systems, digital value platforms and dynamic data security.

Simultaneously, driven by the megatrends and the resulting increasing relevance of networks, we are seeing a shift in who is investing in technology. Our primary market, comprised of communications service providers (“CSPs”), in which we have a leadership position, is very large in size, but expected to remain challenging with a limited estimated growth opportunity. However, the megatrends are increasing the demand for large high-performance networks in other key industries, which we define as our select vertical markets. Webscale companies—such as Google, Microsoft, and Alibaba—are investing in cloud technology and network infrastructure on an increasing scale. As other vertical markets such as transportation, energy, and public sector digitize their operations, they will also need high-performing mission-critical networks. The same is true for TXLEs—technically sophisticated companies, such as banks, that invest heavily in their own network infrastructures to gain a key competitive advantage. Consequently, we have identified attractive growth opportunities in new verticals outside our primary market with CSPs.

We are addressing both our primary CSP market and the newly identified growth opportunities in our adjacent market with our “Rebalancing for Growth” strategy. This strategy builds on our core strength of delivering large high-performance networks by expanding our business into targeted, higher-growth and higher-margin vertical markets. Our ambition is to grow the share of our revenue that is derived from outside the CSPs.

Our strategy continued

Our four pillars

Our strategy builds on our business portfolio and continued drive to create technology that serves people and includes the following four key priorities:

1. Lead



Lead in high-performance, end-to-end networks with CSPs

Nokia is a leader in this area today and we will use our main competitive advantage—a near 100% end-to-end portfolio that we can deliver on a global scale—to maintain our leadership while managing for profitability. We are focused on:

- establishing leadership in 5G by being first to market in the key advanced markets with key customers and achieving global technology and quality leadership;

- growing in managed services and systems integration and innovating in augmented intelligence, automation, and robotics to improve our delivery services;
- maintaining our leading market share in copper access, accelerating momentum in fiber access, successfully expanding in the cable market, and further developing new smart home solutions;
- leveraging our superior products and the next generation IP routing portfolio based on our FP4 chipset to grow in both edge and core routing, where we have a fully virtualized portfolio that is differentiated by performance, flexibility, security and quality;
- using our unique capability of offering optical and routing that work together, a capability that is increasingly becoming a customer requirement; and
- delivering cost savings and productivity improvements by realizing synergies and applying best practices across our entire portfolio to maintain the industry's most profitable networks business.

Over the next years, we intend to maintain our leading position with CSPs, while establishing ourselves as a credible and recognized player in our target vertical markets among enterprises. We strive to sustain and rebuild Nokia as a value-adding consumer brand, earning returns through licensing.

2. Expand

Expand network sales to select vertical markets

We expand into five select vertical markets with carrier-grade needs: webscales, TXLEs, transportation, energy, and public sector. As the world becomes more digital, the kind of massive, high-performance networks once used almost exclusively in telecommunications are now needed by other organizations. We have implemented a dedicated sales organization, a customer segmentation and a targeted portfolio and entry strategy to diversify our business and address this opportunity.

- Webscale customers will increasingly require high-performance networks to improve customer experiences and to expand their primary business models. For webscale companies we are focusing on an all-IP-led approach, providing IP routing and optical network infrastructure.
- For TXLE customers, we aspire to enter with technological disruptions, like the SD-WAN, and then expand further with the remaining portfolio.
- For transportation, energy, and public sector (“TEPS”) customers, we offer mission-critical networks, solutions for digitization and IoT, and industrial automation.

Our strategy continued

Our four pillars

3. Build



Build a strong standalone software business

With our existing software products, we are already today a strong player in the large and growing telecoms software market. Our ambition is to build on this foundation, strengthen our position in telecoms software, and address new customer segments, thereby creating a global software player that has a growth and margin profile like leading software companies. We continue to pursue this ambition along three priorities:

- Transform our go-to-market: We have established a dedicated software sales organization in the Nokia Software business group to work the specific sales cycles and dynamics in enterprise software and address more customers. On this basis, we will execute a new, differentiated go-to-market strategy and leverage alliance partners for software selling. We are streamlining and optimizing our services and delivery unit for a harmonized and efficient front to the customer and setting them up for growth. To strengthen our reach, we are establishing a new messaging for our software offering around Connected Intelligence and digitizing our go-to-market.
- Strengthen our portfolio and R&D set-up: We have complemented our portfolio with new products and the Comptel acquisition and structured it into four segments reflecting our customers' needs: Digital Operations, Digital Experience, Digital Networks, and Cognitive Intelligence. We will expand in these areas based on the Common Software Foundation, a cloud-native middleware component library. With continuing investment, we keep evolving this platform to enable effective and innovative cutting-edge development and accelerate our move towards DevOps and agile development. In our Emerging Products unit, we invest in new businesses and nurture them to scale.
- Diversify markets and business models: We are first expanding our scope within our CSP customers to address also the IT, marketing, sales, customer relationships domains besides the network domain. Gradually, we will also address other sectors with our existing and upcoming products and solutions. New business models, particularly Software-as-a-Service ("SaaS") offerings with subscription revenues to address general enterprises, will be crucial to achieve this. A strong business play around open source components will help to improve our offering and expand our reach as well.



4. Create

Create new business and licensing opportunities in the consumer ecosystem

In addition to renewing existing patent licenses on favorable terms, our aim is to add new licensees from the mobile industry, and we continue to expand patent licensing into new segments, such as automotive and consumer electronics. Besides this, we are exploring opportunities to license our unique technological capabilities in the domain of Virtual Reality.

Our brand licensing efforts are well underway—we see value creation opportunities in the mobile devices industry leveraging our strong Nokia brand. Our exclusive brand licensee for mobile phones and tablets, HMD Global, has already launched a comprehensive portfolio of new Nokia branded feature phones and smartphones.

Our leadership

Our diverse Group Leadership Team, spanning several nationalities, reflects the scope of our technological role—and our business ambition.

The Nokia Group Leadership Team is responsible for the operative management of Nokia, including decisions concerning our strategy and the overall business portfolio. The Chair and members of the Group Leadership Team are appointed by the Board of Directors. The Group Leadership Team is chaired by the President and Chief Executive Officer (the “President and CEO”).

Our Group Leadership Team comprises the following 15 members:



Rajeev Suri
President and CEO



Marc Rouanne
President of Mobile Networks



Federico Guillén
President of Fixed Networks



Igor Leprince
President of Global Services



Basil Alwan
President of IP/Optical Networks



Bhaskar Gorti
President of Nokia Software

Igor Leprince will step down from the Group Leadership Team as of March 31, 2018. Sanjay Goel was appointed President of Global Services and member of the Group Leadership Team as of April 1, 2018.

As of February 1, 2018 the Applications & Analytics business group was renamed Nokia Software.



Gregory Lee
President of Nokia Technologies



Kristian Pullola
Chief Financial Officer



Joerg Erlemeier
Chief Operating Officer



Hans-Jürgen Bill
Chief Human Resources Officer



Kathrin Buvac
Chief Strategy Officer



Ashish Chowdhary
Chief Customer Operations Officer



Barry French
Chief Marketing Officer



Maria Varsellona
Chief Legal Officer



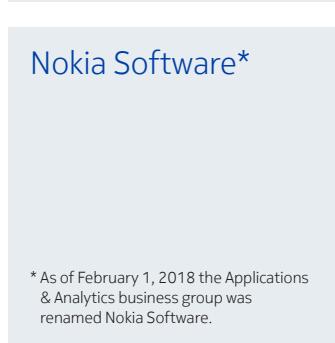
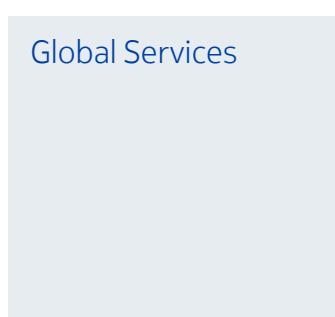
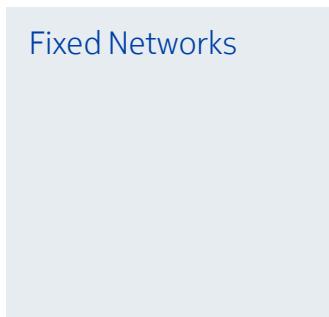
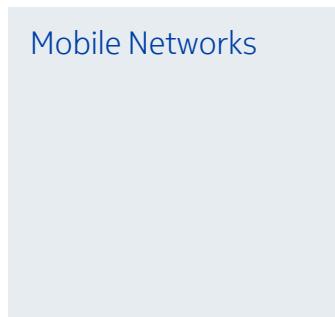
Marcus Weldon
Chief Technology Officer
and President of Nokia Bell Labs

Our businesses

We have two businesses: Nokia's Networks business and Nokia Technologies.

Within these two businesses, we had six business groups in 2017: Mobile Networks, Fixed Networks, Global Services, IP/Optical Networks, and Nokia Software* (all within our Networks business); and Nokia Technologies. This section presents an overview of Nokia's Networks business and Nokia Technologies.

Networks business



Nokia Technologies



* As of February 1, 2018 the Applications & Analytics business group was renamed Nokia Software.

Networks business

Networks business

Market overview

Through our comprehensive end-to-end portfolio of products and services, we are addressing a market that encompasses mobile and fixed network access infrastructure, IP routing and optical networks as well as software platforms and applications.

We define our primary market as a network and IP infrastructure, software and CSP services market. We estimate that our primary market was EUR 103 billion in 2017. In addition, we have an adjacent market, including a vertical market that includes our Networks businesses expansion areas in both a customer and a product dimension.

The adjacent market includes customer segments such as webscale companies, energy, transport, public sector, and TXLEs. In the product dimension, this includes our traditional networking in addition to new solutions like Nuage Networks, SDN, Analytics, IoT, and Security. The adjacent market was estimated at EUR 23 billion in 2017.

Demand for our portfolio is driven by exponentially increasing growth in data traffic as people's lives and enterprises become ever more digitalized. This drives the demand for highly reliable networks for massive connectivity.

Competition

The competitors in our primary market are Huawei, Ericsson, and ZTE. We also compete with technology experts in some of our other market segments, such as Juniper Networks and Cisco in the IP networking and security segments, and Ciena, Adtran, and Calix in the optical networks and fixed access segments. Both the optical networks and the applications and analytics market segments are still highly fragmented.



Mobile Networks

Market overview

The primary market for our Mobile Networks business group includes technologies for mobile access, core networks and microwave transport. This encompasses access and core network technologies ranging from 2G to 5G licensed and unlicensed spectrum for both macro and small cell deployments. The primary addressable market for Mobile Networks was estimated at EUR 27 billion in 2017.

The adjacent market for Mobile Networks includes solutions for the public sector, TXLEs, and webscales, and drives expansion into domains such as LTE for public safety, private LTE and unlicensed radio access. The adjacent market, including verticals, was estimated at EUR 4 billion in 2017.

Business overview and organization

Providing connectivity is the core business of our Mobile Networks business group. Our Mobile Networks strategy focuses on maintaining the strong business that we have today, and prudently expanding it to new customer segments and technologies. To implement our strategy, and to become fast and agile in our execution, Mobile Networks introduced a new organizational structure and new ways of working in October 2017. We target to lead in high-performance mobile networks with communications service providers. In practice, we define leading with two indicators: customer feedback and return on investment.

Practically, we aim at being perceived as a leader in 5G, as well as providing the best value to our customers as they evolve their networks towards cloudification. As we move from 4G to 5G and transform our networks into a cloud-native environment, we aim to become a champion of DevOps and continuous delivery. 5G is more than a mobile access technology: the full potential of 5G is only achieved if every part of the network can perform to the same level, and for this we have developed our Future X network

architecture blueprint. The capacity, latency, agility, reliability and speed offered by this technology make it applicable to CSPs and other industry verticals.

We believe that 5G will change the way in which communications technology is used in virtually every sphere of life. As we move along the path towards making 5G a commercial reality, we aim to extend our leadership in LTE with a smooth evolution path comprising successive generations of 4.5G, 4.5G Pro and 4.9G offerings. Mobile Networks' rationalized portfolio, featuring the 5G-ready AirScale radio access, is setting the standard for scalability, openness, energy efficiency and multitechnology support ("Single RAN").

An important part of our focus is the transformation of service providers as they adopt cloud computing technologies to enable digitalization. Particularly on the Core networks side, there has been a continuous evolution from traditional monolithic products, passing through virtualization and now into a cloud-native network architecture. To support this transition, in 2017 Nokia launched the AirGile cloud-native core which is a full portfolio of network functions built to execute on the demands brought by the future 5G and IoT networks. A proof point of the maturity of the Telco Cloud market and of the leadership position that Nokia has achieved is the strong deal momentum that we have achieved, with more than 120 commercial cloud references with operators and enterprises across the world.

Competition

The mobile networks market is a highly consolidated market and our main competitors are Huawei and Ericsson. Additionally, there are two regional vendors, ZTE and Samsung, that operate with an estimated below 10% market share. As network infrastructure gets virtualized and cloudified, we expect IT companies, such as HP Enterprise and Cisco, to emerge in this field.

2017 highlights

- In 2017, Mobile Networks established a portfolio of enabling technologies that are central to the infrastructure, operations, software and services required in a hyperconnected, digital world.
- In February, Nokia launched its 5G FIRST, a commercial end-to-end solution for early 5G deployments. Later in the year, Nokia announced the 5G upgradeability of its existing radio units as well as inclusion of the 3GPP standards based 5GNR support of 5G FIRST.
- For smoothening the evolution of 4G networks to 5G, Nokia demonstrated commercial 1.2 Gbps speed with a commercial chipset device, cloud radio access network ("RAN") with all technologies virtualized, and eightfold radio cell capacity increase with massive MIMO technology jointly with Sprint.
- In September, Nokia launched the AirGile cloud-native core—a full portfolio of network functions built to execute on the demands brought by the future 5G and IoT networks.

Fixed Networks

Market overview

The primary market for our Fixed Network business group includes technologies for fixed access and related services in addition to fixed network transformation services with a focus on transformation of legacy fixed switching networks. The primary market for Fixed Networks was estimated at EUR 8.4 billion in 2017. In this market, we see a shift from copper to fiber technologies, and networks increasingly use a combination of multiple technologies, such as copper, fiber and wireless.

The adjacent market, including verticals, for Fixed Networks includes virtualization solutions for cable access platforms, Digital Home (IoT) and passive optical LAN. The adjacent market, including verticals, was estimated at EUR 0.2 billion in 2017.

Business overview and organization

Our Fixed Networks business group creates Intelligent Access networks that are more advanced, bringing connectivity to more people sooner to deliver the best broadband experience.

The Fixed Networks business group provides the broadest access networks toolkit including copper, fiber, coax and fixed-wireless access technologies to deliver more bandwidth to more people, faster and in a cost-efficient way. The portfolio allows for a customized combination of technologies that brings fiber to the most economical point for our customers. Nokia is a market leader in copper-based solutions to boost capacity on existing copper infrastructure, such as VDSL2 Vectoring, Vplus, and G.fast. Together with Nokia Bell Labs, we continue the innovation and development of even higher-capacity technologies like XG-Fast, which allows 10 Gb/s over copper. The Fixed Networks business group is also a market leader in fiber-to-the-home solutions, with technologies such as GPON, EPON, Ethernet point-to-point, as well as the award-winning 10 gigabit next generation fiber technologies (XGS-PON and TWDM-PON).

Following the acquisition of Gainspeed, Nokia has been extending its cable operator portfolio, with a comprehensive Unified Cable Access solution, including both fiber and coax solutions, as well as its ground-breaking and award-winning virtualized distributed access architecture solution ("vCMTS"). With this enhanced portfolio, Nokia provides cable operators with the end-to-end technology capabilities needed to support growing capacity requirements today and into the future.

Delivering a gigabit to the home is no longer enough, when in-home network, especially Wi-Fi capabilities, is often the pain point. To ensure carrier-grade in-home connectivity, Nokia has expanded its smart home portfolio with its carrier-grade Nokia Wi-Fi solution, providing coverage in every corner of the home, supporting communications service providers to offer enriched customer experience and diversify their services.

Virtualization will have a key role in keeping operational costs low as the network gets more complex. Moving functions to the cloud makes networks easier to manage and scale. With its Software Defined Access solution, Nokia takes a very pragmatic approach towards fixed access virtualization, working closely with service providers around the world to define the use cases that make the most sense for them. Nokia's Software-Defined Access Network ("SDAN") solution includes Altiplano cloud-native software and Lightspan open programmable hardware, enabling scalable deployment practices, automated operations and integration services. Nokia was awarded the Broadband Award 2017 for Achievement in Virtualization.

The Fixed Networks services portfolio is based on our unparalleled expertise and experience and includes amongst others, Public Switched Telephone Network transformation, ultra-broadband network design, deployment and operation, site implementation and outside plant, and multivendor maintenance. With predictive care, Nokia brings the powerful and proven intelligent analytics and automation capabilities of Nokia AVA cognitive services platform to fixed networks, providing near-real time monitoring capabilities to identify network anomalies before they impact service.

Competition

The competitive landscape in fixed access has similar characteristics to mobile access, where the market is dominated by three main vendors, Nokia, Huawei, and ZTE, and a handful of other vendors with estimated less than 10% market share.

2017 highlights

- Nokia continued to be the market leader in copper access and one of the market leaders in fiber access, and is the only vendor with a leading market share in all regions worldwide, according to Dell'Oro.
- In October, Nokia launched its Intelligent Access Vision on how to build access networks that are faster, better and smarter. This included a series of new product launches for the access network, the cloud and the home. With this extended portfolio, Nokia continues to strengthen its innovation leadership.
- To complement our portfolio for the cable operator market, Nokia announced the virtualized Distributed Access Architecture, based on its Gainspeed portfolio, ending the industry debate between remote PHY and remote MACPHY, immediately followed by a first customer announcement with Wide Open West. Following the acquisition of Gainspeed in 2016, we have now built up a strong portfolio to address cable operators' needs.
- Other key launches included Nokia Wi-Fi, a carrier-grade whole home Wi-Fi solution; a cloud-native set of Software Defined Access Network products; the industry's first wireless PON solution; expansions to our existing copper and fiber portfolio, and Nokia Predictive Care.



Global Services

Market overview

The Global Services business group's market includes network implementation, care and professional services for mobile networks in addition to managed services for the fixed, mobile, applications, IP and optical domains. The primary market for mobile networks services was estimated at EUR 28 billion in 2017. The adjacent market for Global Services, including services for Mobile Networks vertical segments, was estimated at EUR 5 billion.

Business overview and organization

Our services, solutions and multivendor capabilities help communications service providers navigate through the evolving technology landscape, network complexity and data growth as well as improve end user experience while supporting them also in day-to-day network planning, implementation, operations and maintenance. At the same time, we expand our offering in select attractive verticals as well as for IoT and cloud by leveraging our innovative portfolio and telco grade expertise.

We differentiate strategically through our service delivery by driving speed, quality and efficiency with the right combination of local expertise and globalized delivery centers, as well as automation and advanced analytics powered by Nokia AVA, our cognitive service delivery platform.

The Global Services business group consists of five business units.

Network Planning and Optimization helps customers maximize their network performance and quality of end users' experience, while also keeping capital expenditure under tight control. Analytics-based services powered by Nokia AVA are designed to satisfy the surging need for a use-case driven approach to addressing customer pain points.

Network Implementation deploys, expands and modernizes mobile networks of the communications service providers, enterprise and public sector customers in growth and mature markets, thus optimizing customers' total cost of ownership (both capital expenditure and operating expenditure) and deployment schedules while minimizing risks.

Systems Integration offers network architecture, integration, customization, and migration services. The portfolio focuses on core and SDM, data center services, telco cloud, transformation and prime integration for communications service providers and other specific services for vertical customers.

Care assures optimal network availability by providing network operation support, maintenance, orchestration and expert services. With the power of Nokia AVA and its latest analytics and automation, our offering includes proactive and predictive solutions that are fully customizable to local and customer-specific requirements.

Managed Services provides tailored packages for its communications service provider, public sector, transport and utility customers to help them transform their business and excel in the fixed, mobile, applications, IP and optical domains. The full portfolio comprises of network and service management, a build-operate-transfer model, hosting, advanced analytics, IoT, cloud and security operations.

Competition

In a market segment that combines products and services, Nokia competes against Huawei, Ericsson, ZTE, and Cisco, while for the service-led businesses like managed services and systems integration we see other competitors, such as TechMahindra, HPE and IBM, emerging in addition to Ericsson and Huawei.

2017 highlights

- Global Services expanded its portfolio with close to 20 new services, including in 5G, IoT, public safety, and analytics.
- The new Nokia WING—a managed service for IoT—provides communications service providers with a quick market entry.
- Our new Analytics Services that draw from machine learning, augmented intelligence and the power of Nokia AVA were recognized by several industry awards.
- Our analytics, artificial intelligence and machine learning capabilities were also recognized by several industry awards.
- We launched MIKA (Multi-purpose Intuitive Knowledge Assistant), the first digital assistant to support telecom services.

IP/Optical Networks

Market overview

The primary market for our IP/Optical Networks business group includes routing and optical technologies and related services sold to CSPs. This market includes technologies such as IP aggregation, edge and core routing, mobile packet core, Wave Division Multiplex, and packet optical transport networking solutions. We also have analytics and end-to-end Software-Defined Network ("SDN") solutions. The primary market for IP/Optical Networks was estimated at EUR 25 billion in 2017.

A growing portion of IP/Optical Networks revenue is derived from its adjacent market, which includes customer segments like webscales and enterprise. In the enterprise segment, we address verticals like energy, transport, public sector, and TXLEs. We address this mission-critical market with our IP, Optical and Nuage Networks portfolios. The adjacent market was estimated at EUR 6 billion in 2017.

Business overview and organization

The IP/Optical Networks business group provides the high-performance and massively scalable networks that underpin the digital world's dynamic interconnectivity. IP/Optical Networks' portfolio of carrier-grade software, systems and services play across multiple domains, from programmable IP and optical transport networks for the smart fabric to analytics and software-defined capabilities for the programmable network operating system and more.

The networks of CSPs are under tremendous pressure from cloud-based applications, ultra-broadband evolution and the IoT. IP/Optical Networks solutions reduce time-to-market and risk in CSPs launching new services, enabling rapid scaling to meet surging demands in the most optimized configurations. Our insight-driven network automation solutions further assure that network services are delivered with consistent quality, reliability and security and that

restorative actions are automatically initiated when any parameter varies beyond set limits. These carrier-grade attributes also benefit—and are valued by—the needs of webscales, energy, transport, public sector and TXLEs.

The IP/Optical Networks product portfolio includes:

- comprehensive IP and optical Wide Area Networking ("WAN") solutions that dynamically, reliably and securely connect people and things from any universal broadband access modality to any clouds and edge clouds at the lowest cost-per-bit;
- advanced, cloud-optimized IP service gateways for residential, business, mobile and IoT services and unique hybrid solutions enabling a converged services future;
- analytics and carrier SDN solutions for insight-driven network automation that dynamically provision, optimize and assure network services and resources end-to-end, from access to the cloud, and spanning IP and optical technology layers;
- advanced datacenter automation and software-defined WAN solutions that configure network connectivity among clouds and to any enterprise branch office with the ease and efficiency of cloud compute using products from our Nuage portfolio;
- advanced IP video services offering the utmost user experience streamed efficiently and flawlessly from the cloud; and
- an extensive portfolio of professional services to accelerate the benefits of integrating new technologies to transform networks and leverage the latest innovations in SDN, virtualization, video and programmable all-IP networks.

Competition

The competitive landscape includes Cisco, Juniper Networks, Huawei, and Nokia in addition to various specialized players in optical, such as Ciena.

2017 highlights

- The IP/Optical Networks business group launched the world's most powerful internet routing platforms powered by Nokia's new FP4 silicon. Leading smartphone manufacturer Xiaomi signed a business collaboration and multi-year patent agreement that includes the new FP4 silicon as well as optical transport solutions for datacenter interconnect and a datacenter fabric solution.
- The Nokia 100G optical portfolio was chosen to support the massive growth of Jio's pan-India 4G network and was integral to Nokia and Facebook breaking subsea spectral efficiency records in transatlantic field tests.
- The Nuage Networks solution powered the launch of BT Agile Connect and TELUS Network as a Service ("NaaS"). These launches reinforced Nuage Networks' SD-WAN leadership following additional wins with major service providers including Telefonica and China Telecom.
- AT&T teamed with Nokia to offer U.S. utilities a private LTE solution based on the new Nokia wireless router, which will help utility customers modernize their grid distribution and build converged field area networks to reap the benefits of the smart grid.

Nokia Software*

Market overview

Nokia Software's primary solution segments include software for 1) digital experience and monetization (i.e., Business Support Systems), 2) digital operations (i.e., Operational Support Systems), 3) digital networks (i.e., Session Border Controllers, Authentication, Authorization, and Accounting ("AAA"), and Diameter Routing), and 4) digital intelligence (i.e., big data analytics, augmented and artificial intelligence, etc.). The primary addressable market for Nokia Software and associated professional services was estimated at EUR 14 billion in 2017.

The adjacent market for Nokia Software includes emerging software and services for Network Function Virtualization ("NFV") and NFV Management Orchestration ("MANO"), Self-Organizing Networks, IoT platforms, and security. This market also includes digital enterprises and IoT verticals. The adjacent market, including verticals, was estimated at EUR 8 billion in 2017.

Business overview and organization

The Nokia Software business group serves communications service providers by helping them harness the power of connected intelligence to enrich and monetize experiences. Nokia is helping customers move from the slow, siloed, and monolithic systems they have today to agile, scalable and lightweight solutions that are built to

work in digital time. Each solution is designed to provide intelligence, automation, security, cloud readiness and multi-vendor capabilities over a common software foundation.

The Nokia Software portfolio contains:

- Digital experience and monetization: helps service providers identify and act upon the small windows of digital time where the opportunities to enrich and monetize are the best. Our portfolio includes solutions for omni-channel customer engagement, autonomous customer care, fixed and mobile device management, and policy and charging software that can be utilized across all network types from any vendor. Today, we have more than 300 digital experience and monetization customers,

* As of February 1, 2018 the Applications & Analytics business group was renamed Nokia Software.



we are the market leader in both fixed and mobile device management, and we have one of the industry's first 5G charging solutions.

- Digital operations: helps service providers simplify, automate and optimize their service and network operations. Our portfolio includes solutions for service fulfilment, assurance, orchestration, and network management. We have more than 500 digital operations customers globally, hold leading market positions in NFV MANO and service assurance and have been recognized as the “one stop shop for Operations Support Systems” by Analysys Mason.
- Digital networks: software that creates an elastic, programmable, and secure cloud-based foundation to address performance and reliability requirements. Our products include one of the industry's first cloud-native session border controllers, a portfolio of active security solutions, and market-leading mobile network management solutions.
- Our digital intelligence portfolio provides a complete 360-degree view on the market. We use artificial intelligence to provide advanced summarization, correlation, and prediction to determine sentiment, marketing targets, and the next best actions. We are the market leader in network analytics and have over 350 customers.

Competition

Nokia is one of the leading providers of telecom software products according to Analysys Mason. As the market is highly fragmented, the top six vendors all hold less than 10% market share while the remaining market is shared across several niche players.

Our competitors fall into two categories: Independent Software Vendors (“ISVs”) and Network Equipment Providers (“NEPs”). The main ISV competitors are Amdocs, Netcracker, and Oracle. The main NEP competitors are Huawei and Ericsson, selling software as part of large infrastructure deals.

2017 highlights

As part of Nokia's strategy to build a standalone software business at scale, the Nokia Software business group has been driving a major change agenda to strengthen the business.

Product highlights include:

- Acquired Comptel Corporation and gained the ability to provide closed loop fulfillment and assurance along with catalogue driven orchestration which are essential for fully automated operations. The acquisition also bolstered our monetization and analytics capabilities.
- Continued to add machine learning, analytics and automation capabilities with the launches of Autonomous Customer Care, Nokia Cognitive Analytics for Crowd Insight, Nokia Analytics Office Services, Nokia NetGuard Security Management Center solution, New Nokia evolved Service Operations Center, and Nokia IMPACT, our IoT platform.
- Introduced 5G-ready Nokia Smart Plan Suite in a cloud-native lightweight solution.
- Launched NetAct Archive Cloud, the first automated real-time monitoring cloud backup system and the industry's first cloud-native Session Border Controller.

Operational and organizational highlights include:

- Established a dedicated software salesforce with new leadership. The team invested in recruitment and enablement to ensure our team provides high value customer engagements.
- Modernized software R&D with improved portfolio management; creating a Common Software Foundation to make our software easier for customers to use, rely on and integrate; strengthening our DevOps capabilities to get features to market faster; and standardizing performance and reliability testing to ensure our products meet telco-grade standards.
- Increased the value of our service practice with a Common Delivery Framework, investment in key skills like data science, NFV on-boarding, security, and monetization.

Within our Networks business

Sales and marketing

The Customer Operations ("CO") organization is responsible for sales and account management across the five network-oriented business groups. The CO teams are represented worldwide (in approximately 130 countries) to ensure that we are close to our customers and have a deep understanding of local markets. In this way, we strive to create and maintain deep customer intimacy across our customer base.

Geographically, the CO organization is divided into seven markets:

- **Asia-Pacific and Japan** spans a varied geographical scope, ranging from advanced telecommunications markets, such as Japan and the Republic of South Korea, to developing markets including Philippines, Bangladesh, Myanmar, Vietnam and others. In 2017, we worked with all the leading operators in the market, and collaborated on 5G, IoT and other leading network evolution topics with operators from Japan and the Republic of South Korea. We also run a major Service Delivery Hub in Japan. Furthermore, we work across a wide range of vertical markets in Asia-Pacific and Japan including public sector, transportation and energy enabling solutions through its end-to-end portfolio.
- In **Europe**, we engaged with all the major operators serving millions of customers. We have extensive R&D expertise in Europe, and some of our largest Technology Centers, which are developing future technologies, are based in this market. We also have a Global Delivery Center (across two locations: Portugal and Romania) and three regional Service Delivery Hubs in Europe (one in Russia and two in Poland). With our strong end-to-end portfolio, Nokia is well positioned in Europe to help maximize the benefits of 5G, IoT and the digital transformation in the local digital ecosystems.

- In **Greater China**, we are the leading player among companies headquartered outside China, and work with all the major operators. We have also extended our market presence to the public and enterprise sectors, including energy, railways and public security. In 2017, we worked with numerous China-based webscale companies, and all the major operators in Taiwan. In China, we have six Technology Centers, one regional Service Delivery Hub and more than 80 offices spread over megacities and provinces. A major achievement in 2017 was the closing of our agreement with our Chinese partner, which resulted in the formation of the joint venture—Nokia Shanghai Bell. This was the last major organizational step in Nokia and Alcatel Lucent integration, bringing together approximately 8 000 colleagues from both companies into a single organization.
- In **India**, we are a strong supplier and service provider to the leading public and private operators. Collectively, our networks for these operators serve 418 million subscribers across some 459 000 sites with Nokia managing networks supporting 154 million subscribers. In addition, we are a key telecom infrastructure supplier to non-operator segments, including large enterprises, utilities companies, and the Indian defense sector. We are also a strategic telecommunications partner in GSM-Railways technology in India. Nokia's operations in the country include a Global Delivery Center, a Service Delivery Hub and a Global Technology Center.
- In **Latin America**, an estimated 24% of mobile subscribers use LTE services, almost double from a year ago, due to accelerated adoption in Brazil, Mexico and Argentina. High-speed fixed broadband, meanwhile, is still in its early phase. With the aim of providing broadband services to a population of over 600 million people in the area, we supplied ultra-competitive solutions to all major operators. In 2017,

we also closed our biggest ever deal in the market—the nationwide wholesale LTE network in Mexico known as 'Red Compartida', for Altán Redes, and the largest LTE 700 MHz deployment in Brazil with TIM.

- In **Middle-East and Africa**, we see strong opportunities for Nokia, and we are closely working with all key global and regional operators. We have been laying the foundation for early 5G adoption and Smart Cities deployments in the Middle-East region, and continue to see strong growth in the number of mobile broadband users in Africa, driven by increasing affordability of smartphones and commercial LTE deployments across the continent.
- In **North America**, we count all the major operators as our key customers. We also deliver advanced IP networking, ultra-broadband access, and cloud technology solutions to a wide array of customers, including local service providers, cable operators, large enterprises, state and local governments, utilities, and many others. North America is also home to the our most important and thriving innovation practices—from the renowned Nokia Bell Labs headquarters in Murray Hill, New Jersey, to the development labs in Silicon Valley.

As Nokia executes its strategy to expand beyond our traditional telecom operator customer base, Customer Operations is leading the way with a strong go-to-market strategy for our non-telco target segments. Our ambition is to drive the sale of business and mission-critical communications networks and services to organizations in several carefully chosen markets.

These efforts are led by two teams within Customer Operations. These are Global Enterprise TEPS (transportation, energy and public sector) and Global Enterprise Webscale/TXLE.

Within TEPS, we focus on the needs of public sector customers for technology in public safety, government driven broadband initiatives and smart city projects. For example, we work with Nedaa (the Dubai government security networks operator) in both public safety and smart city; as a key supplier to AT&T, Nokia will play a significant part in building the FirstNet nationwide U.S. Public Safety broadband network; we supply the Shanghai Oriental Pearl Group with technology for smart city services and work with the Digital Poland Operational Program, in which, together with Infracapital, we formed a joint venture to design, deploy and operate GPON fiber-optic networks to serve more than 400 000 residences and 2 500 schools in 13 regions in central and northern Poland.

In transportation, Nokia is the market leader in GSM for railway customers ("GSMR") world-wide. And in aviation, we are working with Skyguide on modernizing Switzerland's nationwide mission-critical communications network for air traffic control, managing both civil and military air traffic. We also supply Air2Ground private LTE solutions for major airline corporations, in cooperation with Deutsche Telekom and Inmarsat, among others. In energy, we are the global leader in Private LTE solutions for the mining industry. In 2017, we also added our first water utility with Placer County Water Authority in the United States, where our technology is helping to control water quality, prevent water loss and more effectively manage hydro-electric

power generation. We also work with the world's largest utility companies, including the world's largest utility by production—EDF—the world's largest utility by customers—SGCC in China—Tata Power in India and the major utilities for both generation and distribution across the United States, including Ameren.

Our Webscale / TXLE business saw significant progress during 2017. In Webscale, our business has grown steadily and we now count Facebook, Amazon Web Services ("AWS"), Apple, Xiaomi Baidu, Alibaba and Tencent among our customers and we also work with some of these as partners. We announced a partnership with Amazon Web Services, providing a full suite of services to support service providers in their migration to AWS, a patent agreement with Xiaomi and a business and patent license and business collaboration agreement with Apple. Among our TXLE customers, we include international banks—such as BBVA, Santander, and Crédit Andorrà—to which we supply software-defined networking and / or software-defined WAN solutions.

Research and development

Our Networks business is one of the industry's largest R&D investors in information communication technology and we expect it to drive innovation across telecommunications and vertical industries to meet the needs of a digitally connected world. Product development is continually underway to meet the highly programmable, agile and efficiency requirements of the next generation software-defined networks that will accommodate the IoT, intelligent analytics, and automation used to forge new human possibilities.

Our five networks-focused business groups are responsible for product R&D within the Networks business. The Networks business has a global network of R&D centers, each with individual technology and competence specialties. The main R&D centers are located in Belgium, Canada, China, Finland, France, Germany, Greece, Hungary, India, Italy, Japan, Poland, the Philippines, Portugal, Romania,

the United Kingdom, and the United States. We believe that the geographical diversity of our R&D network is an important competitive advantage for us. In addition, the ecosystem around each R&D center helps us to connect with experts on a global scale and our R&D network is further complemented by cooperation with universities and other research facilities.

All of our Networks business groups, and also Nokia Technologies, are committed to the Future X network architecture defined by Nokia Bell Labs. The Future X network is based on a vision of a massively distributed, cognitive, continuously adaptive, learning and optimizing network connecting humans, senses, things, systems, infrastructure, and processes. The Future X network aims to provide a 10-fold improvement across key technology domains in response to the six megatrends identified by Nokia as driving new technological requirements. For a more detailed description refer to "Our strategy" section.

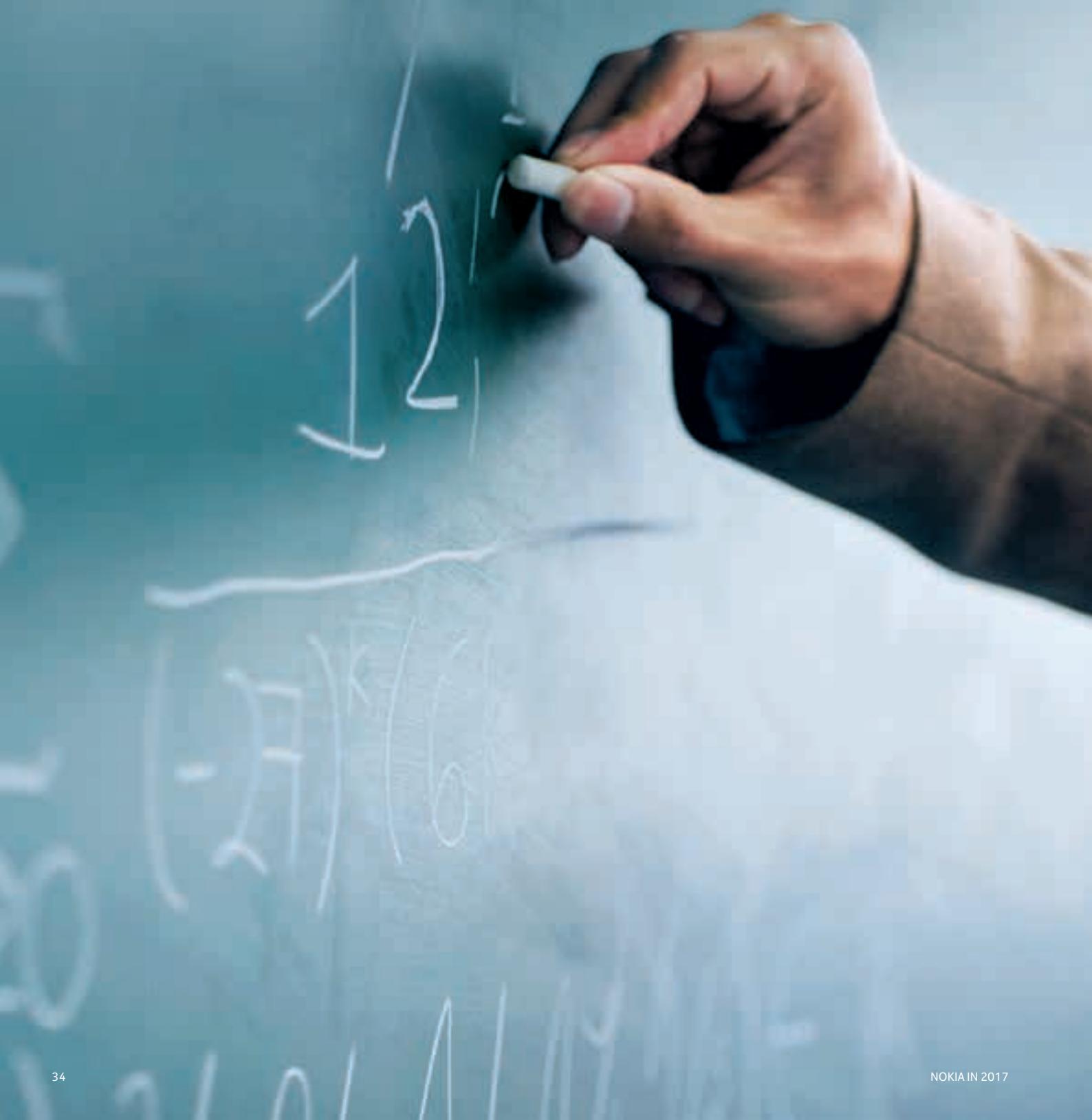
Patents and licenses

Intellectual property assets are fundamental to Nokia, and we own a large patent portfolio of approximately 20 000 patent families. The Patent Business in Nokia Technologies is the primary monetization entity for patent assets. Refer to "Nokia Technologies—Patents and licenses" for a description of our patent licensing activities.

Industry leading R&D in our Networks business including Nokia Bell Labs in fields such as wireless, IP networking, ultra-broadband access and cloud technologies and applications continues to generate valuable new, patentable innovations.

Our Networks business has patent license agreements in place with a number of third parties as part of its ordinary course of business.

Nokia Bell Labs



Nokia Bell Labs is the world-renowned industrial research and innovation arm of Nokia.

Over its 90-year history, Nokia Bell Labs has invented many of the foundational technologies that underpin information and communications networks and all digital devices and systems.

This research has resulted in eight Nobel Prizes, two Turing Awards, three Japan Prizes, a plethora of National Medals of Science and Engineering, as well as an Oscar, two Grammys, and an Emmy award for technical innovation. Nokia Bell Labs continues to conduct disruptive research focused on solving the challenges of the new digital era, defined by the contextual connection and interaction of everything and everyone.

Nokia Bell Labs searches for the fundamental limits of what is possible, rather than being constrained by the current state of art. It looks to the future to understand essential human needs and the potential barriers to enabling this new human existence. It then uses its unique diversity of research intellects and disciplines and perspectives to solve the key complex problems by discovering or inventing disruptive innovations that have the power to enable new economic capabilities, new societal behaviors, new business models and new types of services—in other words, to drive human and technological revolutions.

Research at Nokia Bell Labs is focused on key scientific, technological, engineering or mathematical areas which require 10x or more improvement in one or more dimensions. It then combines these areas of research into the Future X network architecture, which brings these disruptive research elements together into industry-redefining solutions. These innovations are brought to market through our business groups or through technology and patent licensing. Nokia Bell Labs also engages directly with the market and customers through its consulting service to help define the path to the future network with business model innovation and the optimum techno-economics.

This model of defining future needs and inventing game-changing solutions to critical problems while advising the market on the path forward has been the constant mission of Nokia Bell Labs.

Three functions create the Nokia Bell Labs' foundation to disrupt and transform the future:

- (1) Chief Technology Office which defines the technological and architectural vision for the future of human needs.
- (2) Nokia Bell Labs Research which understands the key challenges in the future vision and invents solutions that are 10x better than what is currently possible.
- (3) Bell Labs Consulting which advises the industry on the economics of the vision and how to efficiently achieve this future goal from the current starting point.

Nokia Bell Labs and Facebook achieved a record spectral efficiency of 7.46 b/s/Hz and 2.5 times capacity breakthrough for massive undersea cable transmission during a submarine field trial using Bell Labs' Probabilistic Constellation Shaping ("PCS") technology, a ground-breaking novel modulation technique that maximizes the distance and capacity of high-speed transmission in optical networks.

Nokia Bell Labs introduced "skim storage," a unique innovation that decreases storage needs by five times using innovative advanced video transcoding technology allowing TV and video providers to serve programming to time-shifted viewers at a fraction of the storage and compute now required.

In a world's first, Nokia Bell Labs demonstrated it is now possible to use a commercial next generation 10G PON to transport ultra-low latency Common Public Radio Interfaces ("CPRI") streams showing how operators can re-use existing fiber-to-the-home ("FTTH") massive-scale deployments to satisfy the strict latency constraints and capacity needs for mobile transport in 4G and future 5G networks.

Nokia Technologies



Market overview

Building on decades of innovation and R&D leadership in technologies used in virtually all mobile devices used today, Nokia Technologies is expanding our patent licensing business, reintroducing the Nokia brand to smartphones through brand licensing, and establishing a technology licensing business.

Smartphones, feature phones, and tablets had a global estimated wholesale market of over EUR 360 billion in 2017. Global smartphone wholesale revenues alone are forecasted to increase by 12% in 2018 and total over EUR 350 billion. In the automotive industry, expectations are that around half of the approximately 100 million new cars sold annually around the world will have connectivity in the next five years.

Business overview and organization

Nokia Technologies is determined to explore, discover and develop the ways in which technology can transform our lives. Nokia Technologies makes our vision for a connected future today's reality. Nokia Technologies' mission is to create effortless and impactful technological products and solutions that expand human possibilities.

Nokia Technologies currently consists of a portfolio of four businesses.

With the acquisition of Withings in 2016, our Digital Health business entered the market with a portfolio of premium, intuitive consumer products designed to inspire the individual to take control of their own health. Since then, we expanded this business into corporate wellness and elder care and developed an innovative patient care platform focused on remote patient care monitoring.

In the future, we plan to reduce our focus on consumer incubation in Nokia Technologies to allow us to prioritize our core strengths in business-to-business and licensing patents, technologies and the Nokia brand. In February 2018, Nokia announced a strategic review of options for the Digital Health consumer products business.

Our Brand Partnerships business works with our exclusive licensee for the Nokia brand for phones and tablets, HMD Global, which has launched six new Android smartphones and five new feature phones during 2017.

Our Patent Business continues to grow its successful patent licensing and monetization activities, which drive most of Nokia Technologies' net sales today, giving us the ability to invest in our new businesses in a disciplined, venture capital-like manner.

We have launched a Technology Licensing business, focused on innovative spatial audio and visual technologies stemming from our OZO VR camera, which is no longer in production.

Sales and marketing

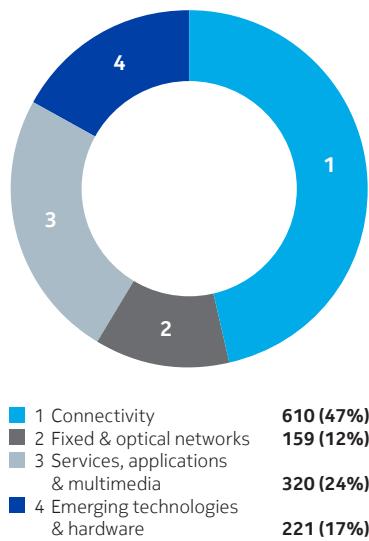
Our Patent Business manages intellectual property as a technology asset and seeks a return on our investments by making our innovations available to the markets through licensing activities and transactions. Nokia Technologies currently has more than 100 licensees, mainly for our standards essential patents ("SEPs").

Nokia Technologies also continues to engage in global sales and marketing activities supporting the technology licensing solutions stemming from the OZO VR camera, as well as our portfolio of connected health products in both regulated and non-regulated markets.

Nokia Technologies sees further opportunities in licensing its proprietary technologies, intellectual property and brand assets into telecommunications and vertical industries.

Nokia Technologies continued

Breakdown of patent filings in 2017 by technology



Research and development

The applied nature of our R&D in Nokia Technologies has resulted in various relevant and valuable inventions in areas that we believe are important for emerging consumer experiences, such as audio and video standardization, sensing technologies and advanced machine learning-based health analytics.

Nokia Technologies has R&D centers in Finland and France.

Patents and licenses

For more than 20 years, we have defined many of the fundamental technologies used in virtually all mobile devices and taken a leadership role in standards setting. As a result, we own a leading share of essential patents for GSM, 3G radio and 4G LTE technologies. These, together with others for Wi-Fi and video standards, form the core of our patent portfolio for monetization purposes. As mentioned above, Nokia Technologies currently has more than 100 licensees, mainly for our SEPs.

With the acquisitions of Nokia Siemens Networks in 2013 and Alcatel Lucent in 2016, we added the results of their sustained innovation, including that of Bell Labs, creating a larger and more valuable IP portfolio than ever before. As part of our active portfolio management approach, we are continuously evaluating our collective assets and taking actions to optimize the size of our overall portfolio while preserving the high quality of our patents. Through a series of structured divestments in 2017, we have enabled product companies to access Nokia innovations. At the end of 2017, our portfolio stands at around 20 000 patent families, built on combined R&D investments of more than EUR 123 billion over the last two decades.

We continue to refresh our portfolio from R&D activities across all Nokia businesses, filing patent applications on more than 1 300 new inventions in 2017. Continuing our focus on communications standards, we also expect to have a leading position in 5G. Through 2017, we continued to be a leading contributor to the development of emerging 5G standards.

Competition

In the digital health market, our competitors range from large multinationals to innovative smaller specialist vendors. Until recently, our focus was on higher growth segments of the total market, including consumer health and wellness products such as hybrid smart watches, blood pressure monitors, scales and thermometers, as well as remote patient monitoring. Fitbit, Garmin, Xiaomi, and Apple compete in personal wellness products, along with players like Omron, Qardio, and iHealth. Philips, Honeywell Life Care Solutions, Medtronic, and Vivify Health are active around remote patient monitoring.

2017 highlights

- At Mobile World Congress in February, Nokia Technologies launched its Patient Care Platform to enable doctors to remotely monitor patients with their smart devices. The platform, which is being used in a trial by the UK's National Health Service, aims to better prevent and manage chronic health conditions and drive timely and targeted patient care.
- During the year, Nokia signed a number of patent licensing agreements, including with Apple, Huawei, LG Electronics and Xiaomi. Our agreements with Apple and Xiaomi also include broader business collaborations.
- Our exclusive brand licensee for phones and tablets, HMD Global, launched six new Nokia branded Android smartphones and five new Nokia branded feature phones during its first year of operations. The new products have achieved outstanding net promoter (NPS) scores.

New patent filings in 2017

1 300+

R&D investment over the last two decades

~EUR 123bn

Patent licensees

100+

Principal industry trends affecting operations

Business-specific trends

Networks business

We are a leading vendor in the network and IP infrastructure, software, and the related services market. We provide a broad range of different products, from the hardware components of networks used by communications service providers and increasingly by customers in other select verticals, to software solutions supporting the efficient interaction of networks, as well as services to plan, optimize, implement, run and upgrade networks. Our Networks business is conducted through five business groups: Mobile Networks, Fixed Networks, Global Services, IP/Optical Networks and Nokia Software. These business groups provide an end-to-end portfolio of hardware, software and services to enable us to deliver the next generation of leading networks solutions and services to our customers. We aim for all five business groups to be innovation leaders, drawing on our frontline R&D capabilities to deliver leading products and services for our customers, and ultimately ensure our long-term value creation. For more information on the Networks business refer to "Business overview—Networks business" above.

Industry trends

The network and IP infrastructure, software and related services industry has witnessed certain prominent trends in recent years, which have also affected our Networks business. First, the increase in the use of data services and the resulting exponential increase in data traffic has resulted in an increased need for high-performance, high-quality and highly reliable networks. The continuing increase in data traffic has, however, not been directly reflected in operators' revenue. Consequently, there is an increased need to be efficient and cost competitive for both communications service providers and network infrastructure and services vendors.

Second, we are witnessing continued consolidation among communications service providers, driven by their desire to provide a wider scope of services, especially through the convergence of disparate network technologies across mobile, fixed, and IP and optical networks. In order to improve networks in terms of coverage, capacity and quality, communications service providers are continuing their transition to all-IP architectures, with an emphasis on fast access to their networks through copper, fiber, LTE and new digital services delivery. We are also seeing similar trends with cable operators, who are investing in the deployment of high-speed networks. Our end-to-end portfolio of products and services can be utilized to address both the fixed mobile convergence and the transition to all-IP architectures.

Third, we see an increasing demand for large high-performance networks in some key areas outside the traditional communications service provider space, which we define as our adjacent markets. Webscale companies and extra-large enterprises—such as Apple, Facebook, Google, Alibaba and Amazon—are investing in cloud technology and network infrastructure to build these high-performing, secure networks. In addition, other target vertical markets such as energy, transportation and the public sector are investing in their own network infrastructure, to connect data centers and provide seamless IP interconnection and digital services delivery.

Pricing and price erosion

In 2017, while we did not witness a widespread change in the overall pricing environment, we saw robust competition in China in the second half of the year, where early positioning for 5G is underway.

Product mix

The profitability of our Networks business is affected by our product mix, including the share of software in the sales mix. Products and services also have varying profitability profiles. For instance, our Ultra Broadband Networks and IP Networks and Applications reportable segments offer a combination of hardware and software, which generally have higher gross margins, but also require significant R&D investment, whereas the Global Services reportable segment has offerings that are typically labor-intensive, while carrying low R&D investment, and have relatively low gross margins compared to the hardware and software products.

Seasonality and cyclical nature of projects

Our Networks business' sales are affected by seasonality in the network operators' spending cycles, with generally higher sales in the fourth quarter, followed by generally lower sales in the first quarter. In addition to normal industry seasonality, there are normal peaks and troughs in the deployment of large infrastructure projects. The timing of these projects depends on new radio spectrum allocation, network upgrade cycles and the availability of new consumer devices and services, which in turn affects our Networks' business sales. As an example, during the last couple of years some of the major LTE deployments have been largely completed.

The next major technology cycle is expected to be the transition from 4G to 5G, with trials beginning in 2018, commercial deployments in lead markets in 2019 and large-scale deployments in 2020.

Continued operational efficiency improvements

In 2017, our Networks business continued to focus on operational improvements across its business groups. In order to continue to make our Networks business more efficient, higher-performing and positioned for long-term success, we aim to further strengthen our productivity, efficiency and competitive cost structure through strong operational discipline.

Cost of components and raw materials

There are several important factors driving the profitability and competitiveness of our Networks business: scale, operational efficiency and pricing, and cost discipline. The costs of our networks products comprise, among others, components, manufacturing, labor and overheads, royalties and licensing fees, depreciation of product machinery, logistics and warranty and other quality costs.



Principal industry trends affecting operations continued

Nokia Technologies

Nokia Technologies pursues new business opportunities building on our innovations and the Nokia brand. Nokia Technologies develops and licenses cutting-edge innovations that are powering the next revolution in computing and mobility. The Nokia Technologies strategy consists of: 1) patent licensing, focused on licensing standard-essential and other patents in the Nokia portfolio to companies in the mobile devices market and beyond; 2) technology licensing, focused on licensing proprietary spatial audio and video technologies to enable our customers to build better products; 3) brand licensing, to help our customers leverage the value of the Nokia brand in consumer devices; and 4) developing new products and technologies in digital health. For more information on the Nokia Technologies business, refer to “Business overview—Nokia Technologies”.

Monetization strategies of IPR

Success in the technology industry requires significant R&D investment, with the resulting patents and other IPR utilized to protect and generate a return on those investments and related inventions. In recent years, we have seen new entrants in the mobile device industry, many of which do not have licenses to our patents. Our aim is to approach these companies by potentially using one or more means of monetization. We believe we are well-positioned to protect, and build on, our existing industry-leading patent portfolio, and consequently to increase our shareholders' value.

We see a number of means of monetizing these opportunities: on the one hand, we seek to license our patent portfolio, and new technological innovations that can be integrated into other companies' products and services. We also engage in brand licensing to leverage the Nokia brand in consumer devices. In digital health,

Nokia announced on February 15, 2018 that it had initiated a review of strategic options for this business. This strategic review of the Digital Health business may or may not result in any transaction or other changes. In digital media, the slower-than-expected development of the virtual reality market has led Nokia Technologies to reduce investments in this area and focus more on technology licensing opportunities.

In patent licensing, the main opportunities we are pursuing are: 1) renewing existing license agreements, and negotiating new license agreements with mobile device manufacturers; and 2) expanding the scope of licensing activities to other industries, in particular those that implement mobile communication technologies such as automotive and consumer electronics. We no longer need patent licenses for our own mobile phone business, enabling the possibility of improving the balance of inbound and outbound patent licensing.



In brand licensing, we will continue to seek further opportunities to bring the Nokia brand into consumer devices, by licensing our brand and other intellectual property. For example, under a strategic agreement covering branding rights and intellectual property licensing, in 2016, Nokia Technologies granted HMD Global, a company based in Finland, an exclusive global license to create Nokia-branded phones and tablets for ten years. During 2017, HMD Global launched 11 new phones, including six Android smartphones.

In technology licensing, the opportunities are more long-term in our view, but we will look at opportunities to license technologies developed by Nokia Technologies and delivered to partners in consumer electronics as solutions or technology packages that can be integrated into their products and services to help enable the Programmable World.

To grow each of the aforementioned business programs, it is necessary to invest in commercial capabilities to support them.

General trends in IPR licensing

In general, there has been increased focus on IPR protection and licensing, and this trend is expected to continue. As such, new agreements are generally a product of lengthy negotiations and potential litigation or arbitration, and therefore the timing and outcome may be difficult to forecast. Due to the structure of patent license agreements, the payments may be very infrequent, at times may be partly retrospective, and the lengths of license agreements can vary.

Additionally, there are clear regional differences in the ease of protecting and licensing patented innovations. We have seen some licensees actively avoiding making license payments, and some licensors using aggressive methods to collect them; both behaviors have attracted regulatory attention. We expect discussion of the regulation of licensing to continue at both global and regional level. Some of those regulatory developments may be adverse to the interests of technology developers and patent owners, including us.

Research, development and patent portfolio development

As the creation of new technology assets and patented innovations is heavily focused on R&D activities with long lead-times to incremental revenues, we may from time to time see investment opportunities that have strategic importance. This generally affects operating expenses before sales reflect a return on those investments.

Trends affecting our businesses

Exchange rates

We are a company with global operations and net sales derived from various countries, invoiced in various currencies. Therefore, our business and results from operations are exposed to changes in exchange rates between the euro, our reporting currency, and other currencies, such as the U.S. dollar and the Chinese yuan. The magnitude of foreign exchange exposures changes over time as a function of our net sales and costs in different markets, as well as the prevalent currencies used for transactions in those markets. Refer also to "General facts on Nokia—Selected financial data—Exchange rate data" below.

To mitigate the impact of changes in exchange rates on our results, we hedge material net foreign exchange exposures (net sales less costs in a currency) typically with a hedging horizon of approximately 12 months. For the majority of these hedges, hedge accounting is applied to reduce income statement volatility.

In 2017, approximately 25% of Continuing operations net sales and approximately 30% of Continuing operations costs

were denominated in euro. In 2017, approximately 45% of Continuing operations net sales were denominated in U.S. dollars and approximately 10% in Chinese yuan.

During 2017, the U.S. dollar depreciated against the euro and this had a slightly negative impact on our net sales expressed in euros. However, the weaker U.S. dollar also contributed to slightly lower cost of sales and operating expenses, as approximately 45% of our total cost base was in U.S. dollars. In total, before hedging, the depreciation of the U.S. dollar had a slightly negative effect on our operating profit in 2017.

During 2017, the Chinese yuan depreciated against the euro and this had a slightly negative impact on our net sales expressed in euros. However, the weaker Chinese yuan also contributed to slightly lower cost of sales and operating expenses, as approximately 10% of Continuing operations total costs were denominated in Chinese yuan. In total, before hedging, the depreciation of the Chinese yuan had a slightly negative effect on our operating profit in 2017.

Significant changes in exchange rates may also impact our competitive position and related price pressures through their impact on our competitors.

For a discussion of the instruments used by us in connection with our hedging activities, refer to Note 36, Risk management of our consolidated financial statements included in this annual report. Refer also to "Operating and financial review and prospects—Risk factors".

The average currency mix for net sales and total costs:

Currency	2017		2016	
	Net sales	Total costs	Net sales	Total costs
EUR	~25%	~30%	~25%	~25%
USD	~45%	~45%	~50%	~45%
CNY	~10%	~10%	~10%	~10%
Other	~20%	~15%	~15%	~20%
Total	100%	100%	100%	100%

Board review



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Board review

After the successful integration of Alcatel Lucent, 2017 was a year of execution and taking our strategy forward.

Nokia continued the execution of its strategy during 2017 and delivered on its financial targets. The year was challenging in terms of the decline in the addressable market for the Networks business, and we expect that market to decline again in 2018, compared to 2017. However, for 2019 and 2020, we see market conditions improving, driven by rollouts of 5G networks and we believe that our end-to-end portfolio positions us well to deliver on our strategic targets. In terms of Nokia Technologies, the patent licensing business delivered excellent financial results in 2017, and Nokia signed several new patent licensing agreements and also won patent arbitration awards with companies including Apple, Blackberry, and Huawei. In Nokia Licensing within Nokia Technologies, we see over the next few years opportunities for revenue and profitability expansions arising from new patent licensing agreements with smartphone vendors, automotive companies and consumer electronics companies as well as brand and technology licensing. Given the strong group level performance in 2017 and continued momentum in the execution of our strategy, the Board of Directors has decided that it will propose a dividend of EUR 0.19 per share for 2017 (EUR 0.17 for 2016).

The Board held 21 meetings in 2017 to, among other things, address the strategic direction of the company, review the management succession planning, resolve on acquisitions and other transactions introduced by the management, and execute on our capital structure optimization program.

During 2017, Nokia acquired Comptel Corporation, a Finland-based telecommunications software company and Deepfield Networks Inc., a United States-based leader in real-time analytics for Internet Protocol network performance management and security. Additionally, Nokia completed in 2017 its capital structure optimization program announced in October 2015. We believe that we have managed to create a strong and efficient capital structure, while delivering shareholder returns.

The Board of Directors continues to be focused on creating shareholder value and is committed to proposing a growing dividend, including for 2018.

Results of operations

Nokia creates the technology to connect the world. We have global leadership in mobile and fixed network infrastructure with the software, services and advanced technologies to serve customers in more than 100 countries around the world. We are driving the transition to smart, virtual networks and connectivity by creating one single network for all services, converging mobile and fixed broadband, IP routing and optical networks, with the software and services to manage them.

Nokia is enabling the infrastructure for 5G and the Internet of Things, and shaping the future of technology to transform the human experience. Our comprehensive portfolio of products, services and licensing, and vast knowhow affords our customers the means and ability to optimally deliver extraordinary customer services and experiences. Through our six business groups, we have a global presence with operations in Europe, the Middle East & Africa, Greater China, North America, Asia-Pacific and Latin America.

The financial information included in this “Operating and financial review and prospects” section as of December 31, 2017 and 2016 and for each of the three years ended December 31, 2017, 2016 and 2015 has been derived from our audited consolidated financial statements included in this annual report. The financial information as of December 31, 2017 and 2016 and for each of the three years ended December 31, 2017, 2016 and 2015 should be read in conjunction with, and is qualified in its entirety by reference to, our audited consolidated financial statements.

On April 1, 2017 we revised our financial reporting structure. We have two businesses: Nokia’s Networks business and Nokia Technologies, and four reportable segments for financial reporting purposes: Ultra Broadband Networks, Global Services and IP Networks and Applications (within Nokia’s Networks business); and Nokia Technologies. We also present certain segment data for Group Common and Other as well as for Discontinued operations. The comparative financial information presented below has been prepared to reflect the financial results of our Continuing operations as if the new financial reporting structure had been in operation for the full years 2017, 2016 and 2015. Certain adjustments and reclassifications have been necessary. Refer to Note 4, Segment information, of our consolidated financial statements included in this annual report.

Continuing operations

For the year ended December 31, 2017 compared to the year ended December 31, 2016

The following table sets forth selective line items and the percentage of net sales for the years indicated.

For the year ended December 31	2017 EURm	% of net sales	2016 EURm	% of net sales	Year-on-year change %
Net sales	23 147	100.0	23 641	100.0	(2)
Cost of sales	(14 008)	(60.5)	(15 117)	(63.9)	(7)
Gross profit	9 139	39.5	8 524	36.1	7
Research and development expenses	(4 916)	(21.2)	(4 997)	(21.1)	(2)
Selling, general and administrative expenses	(3 615)	(15.6)	(3 767)	(15.9)	(4)
Other income and expenses	(592)	(2.6)	(860)	(3.6)	(31)
Operating profit/(loss)	16	0.1	(1 100)	(4.7)	–
Share of results of associated companies and joint ventures	11	–	18	0.1	(39)
Financial income and expenses	(537)	(2.3)	(287)	(1.2)	87
Loss before tax	(510)	(2.2)	(1 369)	(5.8)	(63)
Income tax (expense)/benefit	(927)	(4.0)	457	1.9	–
Loss for the year	(1 437)	(6.2)	(912)	(3.9)	58

Net sales

Continuing operations net sales in 2017 were EUR 23 147 million, a decrease of EUR 494 million, or 2%, compared to EUR 23 641 million in 2016. The decrease in Continuing operations net sales was primarily due to a decrease in Nokia’s Networks business net sales, partially offset by an increase in Nokia Technologies net sales.

The following table sets forth distribution of net sales by geographical area for the years indicated.

For the year ended December 31	2017 EURm	2016 EURm	Year-on-year change %
Asia-Pacific	4 228	4 223	–
Europe ⁽¹⁾	6 833	6 410	7
Greater China	2 516	2 654	(5)
Latin America	1 279	1 458	(12)
Middle East & Africa	1 907	1 872	2
North America	6 384	7 024	(9)
Total	23 147	23 641	(2)

(1) All Nokia Technologies IPR and licensing net sales are allocated to Finland.

Results of operations continued

Gross profit

Gross profit for Continuing operations in 2017 was EUR 9 139 million, an increase of EUR 615 million, or 7%, compared to EUR 8 524 million in 2016. The increase in gross profit was primarily due to lower working capital-related purchase price allocation adjustments and higher gross profit in Nokia Technologies, partially offset by lower gross profit in Nokia's Networks business and higher product portfolio integration-related costs. Gross margin for Continuing operations in 2017 was 39.5%, compared to 36.1% in 2016. In 2017, gross profit included product portfolio integration-related costs of EUR 453 million and working capital-related purchase price allocation adjustments of EUR 55 million. In 2016, gross profit included working capital-related purchase price allocation adjustments of EUR 840 million, which resulted in higher cost of sales and lower gross profit when the inventory was sold; and product portfolio integration-related costs of EUR 274 million.

Operating expenses

Our R&D expenses for Continuing operations in 2017 were EUR 4 916 million, a decrease of EUR 81 million, or 2%, compared to EUR 4 997 million in 2016. R&D expenses represented 21.2% of our net sales in 2017 compared to 21.1% in 2016. The decrease in R&D expenses were due to decreases in Nokia's Networks business, Group Common and Other and Nokia Technologies R&D expenses. In 2017, R&D expenses included amortization and depreciation of acquired intangible assets and property, plant and equipment of EUR 633 million, compared to EUR 619 million in 2016, as well as product portfolio integration-related costs of EUR 57 million, compared to EUR 62 million in 2016.

Our selling, general and administrative expenses for Continuing operations in 2017 were EUR 3 615 million, a decrease of EUR 152 million, or 4%, compared to EUR 3 767 million in 2016. Selling, general and administrative expenses represented 15.6% of our net sales in 2017 compared to 15.9% in 2016. The decrease in selling, general and administrative expenses was primarily due to lower transaction and integration-related costs, a decrease in Nokia's Networks business selling, general and administrative expenses and, to a lesser extent, Group Common and Other selling, general and administrative expenses, partially offset by an increase in Nokia Technologies selling, general and administrative expenses. Selling, general and administrative expenses included amortization and depreciation of acquired intangible assets, and property, plant and equipment of EUR 394 million in 2017 compared to EUR 386 million in 2016, as well as transaction and integration-related costs of EUR 194 million, compared to EUR 294 million in 2016.

Other income and expenses for Continuing operations in 2017 was a net expense of EUR 592 million, a change of EUR 268 million, compared to a net expense of EUR 860 million in 2016. The net positive fluctuation in our other income and expenses was primarily due to lower restructuring and associated charges and a net positive fluctuation in Nokia's Networks business and Group Common and Other other income and expenses, partially offset by impairment charges. Other income and expenses included restructuring and associated charges of EUR 576 million in 2017 compared to EUR 759 million in 2016.

In 2017, as a result of challenging business conditions, we recorded a non-cash charge to other income and expenses of EUR 141 million, due to the impairment of goodwill related to our Digital Health business, which is part of Nokia Technologies. The impairment charge was allocated to the carrying amount of goodwill held within the digital health cash generating unit, which was reduced to zero. In 2017, we also recorded a non-cash impairment charge to other income and expenses of EUR 32 million related to acquired intangible assets in Nokia's Networks business.

Operating profit/loss

Our operating profit for Continuing operations in 2017 was EUR 16 million, a change of EUR 1 116 million, compared to an operating loss of EUR 1 100 million in 2016. The change in operating result was primarily due to a higher gross profit and, to a lesser extent, a net positive fluctuation in other income and expenses and lower selling, general and administrative and R&D expenses. Our operating margin in 2017 was approximately break even compared to negative 4.7% in 2016.

The following table sets forth the impact of unallocated items on operating profit/loss:

EURm	2017	2016
Total segment operating profit⁽¹⁾	2 587	2 172
Amortization and depreciation of acquired intangible assets and property, plant and equipment	(1 033)	(1 026)
Restructuring and associated charges	(579)	(774)
Product portfolio strategy costs	(536)	(348)
Transaction and related costs, including integration costs relating to the acquisition of Alcatel Lucent	(206)	(295)
Impairment of intangible assets	(173)	–
Release of acquisition-related fair value adjustments to deferred revenue and inventory	(55)	(840)
Other	11	11
Total operating profit/(loss)	16	(1 100)

(1) Excludes costs related to the acquisition of Alcatel Lucent and related integration, goodwill impairment charges, intangible asset amortization and other purchase price fair value adjustments, restructuring and associated charges and certain other items.

Financial income and expenses

Financial income and expenses for Continuing operations was a net expense of EUR 537 million in 2017 compared to a net expense of EUR 287 million in 2016, an increase of EUR 250 million, or 87%. The net negative fluctuation in financial income and expenses was primarily due to costs of EUR 220 million related to the offer to purchase the 6.50% notes due January 15, 2028, the 6.45% notes due March 15, 2029, the 6.75% notes due February 4, 2019 and the 5.375% notes due May 15, 2019; losses from foreign exchange fluctuations; a non-recurring interest expense related to a change to uncertain tax positions; and a loss on the sale of financial assets. This was partially offset by a change in the fair value of the financial liability to acquire Nokia Shanghai Bell non-controlling interest and the absence of costs related to the early redemption of Alcatel Lucent high yield bonds, which adversely affected full year 2016.

Refer to “—Liquidity and capital resources” below.

Loss before tax

Our loss before tax for Continuing operations in 2017 was EUR 510 million, a change of EUR 859 million compared to a loss of EUR 1 369 million in 2016.

Income tax

Income taxes for Continuing operations was a net expense of EUR 927 million in 2017, a change of EUR 1 384 million compared to a net benefit of EUR 457 million in 2016. The change in net income taxes was primarily due to increased profitability, deferred tax expenses of EUR 777 million from re-measurement of deferred tax assets resulting from the tax rate change in the United States, a non-recurring tax expense of EUR 245 million (EUR 439 million tax benefit in 2016) related to the integration of the former Alcatel Lucent and Nokia operating models; as well as income taxes for prior years primarily from the disposal of the former Alcatel Lucent railway signaling business in 2006 to Thalès. This was partially offset by three factors: lower income taxes due to our regional profit mix in 2017 compared to 2016, lower losses than in 2016 in countries for which we do not recognize deferred tax assets, and a deferred tax benefit from re-measurement of deferred tax assets resulting from the tax rate changes (in countries other than the United States). Refer to Note 12, Income taxes, of our consolidated financial statements included in this annual report.

On December 22, 2017, the United States passed a comprehensive set of tax reforms into law. The new law, known as the Tax Cuts and Jobs Act, includes numerous changes to prior tax law, including a permanent reduction in the federal corporate income tax rate from 35% to 21%. Our deferred tax assets and liabilities are measured using enacted tax rates expected to apply to taxable income in the years in which those temporary differences are expected to be recovered or settled. The effect on deferred tax assets and liabilities of a change in tax rates is recognized in the consolidated income statement in the period in which the law is substantively enacted. We concluded that the United States federal income tax rate reduction causes our United States deferred tax assets and liabilities to be revalued in 2017 and, therefore, recognized an additional tax provision of EUR 777 million related to such revaluation. The new tax law also contains several other changes, in addition to the reduction in the federal corporate tax rate, many of which become effective for tax years beginning in 2018. We continue to consider the impact all the tax reform provisions will have on us and have made reasonable estimates for certain effects in our December 31, 2017 consolidated financial statements, as appropriate.

Loss attributable to equity holders of the parent and earnings per share

The loss attributable to equity holders of the parent in 2017 was EUR 1 494 million, an increase of EUR 728 million, compared to a loss of EUR 766 million in 2016. The change in profit attributable to equity holders of the parent was primarily due to an income tax expense, compared to an income tax benefit in 2016 and a net negative fluctuation in financial income and expenses. This was partially offset by an operating profit in 2017, compared to an operating loss in 2016.

Our total basic EPS in 2017 decreased to negative EUR 0.26 (basic) and negative EUR 0.26 (diluted) compared to negative EUR 0.13 (basic) and negative EUR 0.13 (diluted) in 2016.

Cost savings program

On April 6, 2016, we launched a new cost savings program, targeting approximately EUR 1 200 million of recurring annual cost savings to be achieved in full year 2018. In 2017, we recognized restructuring and associated charges of approximately EUR 550 million related to the cost savings program. Cumulative recognized restructuring and associated charges are approximately EUR 1 300 million and we expect total restructuring and associated charges to be approximately EUR 1 900 million.

In 2017, we had restructuring and associated cash outflows of approximately EUR 550 million related to the cost savings program. Cumulative restructuring and associated cash outflows are approximately EUR 950 million and we expect total restructuring and associated cash outflows to be approximately EUR 2 250 million, including approximately EUR 550 million related to previous Nokia and Alcatel Lucent restructuring and cost savings programs.

Results of operations continued

For the year ended December 31, 2016 compared to the year ended December 31, 2015

The following table sets forth selective line items and the percentage of net sales that they represent for the years indicated.

For the year ended December 31	2016 EURm	% of net sales	2015 EURm	% of net sales	Year-on-year change %
Net sales	23 641	100.0	12 560	100.0	88
Cost of sales	(15 117)	(63.9)	(6 963)	(55.4)	117
Gross profit	8 524	36.1	5 597	44.6	52
Research and development expenses	(4 997)	(21.1)	(2 080)	(16.6)	140
Selling, general and administrative expenses	(3 767)	(15.9)	(1 772)	(14.1)	113
Other income and expenses	(860)	(3.6)	(48)	(0.4)	–
Operating (loss)/profit	(1 100)	(4.7)	1 697	13.5	–
Share of results of associated companies and joint ventures	18	0.1	29	0.2	(38)
Financial income and expenses	(287)	(1.2)	(186)	(1.5)	54
(Loss)/profit before tax	(1 369)	(5.8)	1 540	12.3	–
Income tax benefit/(expense)	457	1.9	(346)	(2.8)	–
(Loss)/profit for the year	(912)	(3.9)	1 194	9.5	–

Net sales

Continuing operations net sales in 2016 were EUR 23 641 million, an increase of EUR 11 081 million, or 88%, compared to EUR 12 560 million in 2015. The increase in Continuing operations net sales was primarily attributable to growth in Nokia's Networks business and Group Common and Other, primarily related to the acquisition of Alcatel Lucent and, to a lesser extent, growth in Nokia Technologies.

The following table sets forth distribution of net sales by geographical area for the years indicated.

For the year ended December 31	2016 EURm	2015 EURm	Year-on-year change %
Asia-Pacific	4 223	3 248	30
Europe ⁽¹⁾	6 410	3 817	68
Greater China	2 654	1 718	54
Latin America	1 458	979	49
Middle East & Africa	1 872	1 195	57
North America	7 024	1 603	338
Total	23 641	12 560	88

(1) All Nokia Technologies net sales are allocated to Finland.

Gross profit

Gross profit for Continuing operations in 2016 was EUR 8 524 million, an increase of EUR 2 927 million, or 52%, compared to EUR 5 597 million in 2015. The increase in gross profit was primarily due to Nokia's Networks business, partially offset by working capital-related purchase price allocation adjustments, which resulted in higher cost of sales and lower gross profit when the inventory was sold; and product portfolio integration-related costs, all of which primarily related to the acquisition of Alcatel Lucent. Gross margin for Continuing operations in 2016 was 36.1% compared to 44.6% in 2015. In 2016, cost of sales included working capital-related purchase price allocation adjustments of EUR 509 million, which resulted in higher cost of sales and lower gross profit when the inventory was sold; and product portfolio integration-related costs of EUR 274 million.

Operating expenses

Our R&D expenses for Continuing operations in 2016 were EUR 4 997 million, an increase of EUR 2 917 million, or 140%, compared to EUR 2 080 million in 2015. R&D expenses represented 21.1% of our net sales in 2016 compared to 16.6% in 2015. The increase in R&D expenses was primarily attributable to Nokia's Networks business, amortization of acquired intangible assets and depreciation of acquired property, plant and equipment; and, to a lesser extent, product portfolio integration costs, as well as Group Common and Other, all of which primarily related to the acquisition of Alcatel Lucent, in addition to Nokia Technologies. R&D expenses included amortization and depreciation of acquired intangible assets, and property, plant and equipment of EUR 619 million in 2016 compared to EUR 35 million in 2015, as well as product portfolio integration-related costs of EUR 61 million in 2016.

Our selling, general and administrative expenses for Continuing operations in 2016 were EUR 3 767 million, an increase of EUR 1 995 million, or 113%, compared to EUR 1 772 million in 2015. Selling, general and administrative expenses represented 15.9% of our net sales in 2016 compared to 14.1% in 2015. The increase in selling, general and administrative expenses was primarily attributable to Nokia's Networks business, amortization of acquired intangible assets and depreciation of acquired property, plant and equipment, and transaction and integration-related costs and Group Common and Other, all of which primarily related to the acquisition of Alcatel Lucent, as well as Nokia Technologies. Selling, general and administrative expenses included amortization and depreciation of acquired intangible assets, and property, plant and equipment of EUR 385 million in 2016 compared to EUR 44 million in 2015, as well as transaction and integration-related costs of EUR 294 million in 2016.

Other income and expenses for Continuing operations in 2016 was a net expense of EUR 860 million, a change of EUR 812 million, compared to a net expense of EUR 48 million in 2015. The change was primarily attributable to higher restructuring and associated charges and, to a lesser extent, the absence of realized gains related to certain investments made through venture funds. Other income and expenses included restructuring and associated charges of EUR 759 million in 2016 compared to EUR 121 million in 2015.

Operating loss/profit

Our operating loss for Continuing operations in 2016 was EUR 1 100 million, a change of EUR 2 797 million, compared to an operating profit of EUR 1 697 million in 2015. The change in operating result was primarily attributable to higher R&D expenses and selling, general and administrative expenses, and a net negative fluctuation in other income and expenses, partially offset by higher gross profit. Our operating margin in 2016 was negative 4.7% compared to positive 13.5% in 2015.

The following table sets forth the impact of unallocated items on operating profit:

EURm	2016	2015
Total segment operating profit⁽¹⁾	2 172	1 958
Amortization and depreciation of acquired intangible assets and property, plant and equipment	(1 026)	(79)
Release of acquisition-related fair value adjustments to deferred revenue and inventory	(840)	–
Restructuring and associated charges	(774)	(123)
Product portfolio strategy costs	(348)	–
Transaction and related costs, including integration costs relating to the acquisition of Alcatel Lucent	(295)	(99)
Other	11	40
Total operating (loss)/profit	(1 100)	1 697

(1) Excludes costs related to the acquisition of Alcatel Lucent and related integration, goodwill impairment charges, intangible asset amortization and other purchase price fair value adjustments, restructuring and associated charges and certain other items.

Financial income and expenses

Financial income and expenses for Continuing operations was a net expense of EUR 287 million in 2016 compared to a net expense of EUR 186 million in 2015, an increase of EUR 101 million, or 54%. The change in financial income and expenses was primarily attributable to higher interest expenses, including charges of EUR 41 million related to the redemption of Alcatel Lucent bonds, net interest expenses of EUR 65 million for defined benefit pensions, and impairments of EUR 108 million for certain investments in private funds; partially offset by higher interest income, significantly lower foreign exchange losses and realized gains from venture fund distributions.

Refer to “—Liquidity and capital resources” below.

Loss/profit before tax

Our loss before tax for Continuing operations in 2016 was EUR 1 369 million, a change of EUR 2 909 million compared to a profit of EUR 1 540 million in 2015.

Income tax

Income taxes for Continuing operations was a net benefit of EUR 457 million in 2016, a change of EUR 803 million compared to a net expense of EUR 346 million in 2015. In 2016, net income tax benefit was primarily related to two factors. Firstly, we recorded a loss before tax compared to profit before tax in 2015. Secondly, following the completion of the squeeze-out of the remaining Alcatel Lucent securities, we launched actions to integrate the former Alcatel Lucent and Nokia operating models. In 2016, in connection with these integration activities, we transferred certain intellectual property to our operations in the United States, recording a tax benefit and additional deferred tax assets of EUR 348 million. In addition, we elected to treat the acquisition of Alcatel Lucent's operations in the United States as an asset purchase for United States tax purposes. The impact of this election was to utilize or forfeit existing deferred tax assets and record new deferred tax assets with a longer amortization period than the life of those forfeited assets. As a result of this we recorded EUR 91 million additional deferred tax assets in 2016.

Following the acquisition of Alcatel Lucent, we now have a strong presence in three jurisdictions: Finland, France and the United States, which had an impact on our effective tax rate in 2016. The local corporate tax rate in the United States and France is significantly higher compared to Finland. In addition, we do not recognize deferred tax assets for tax losses and temporary differences in France as our ability to utilize unrecognized deferred tax assets is currently uncertain. As of December 31, 2016 we have unrecognized deferred tax assets in France of EUR 4.8 billion.

Results of operations continued

Loss/profit attributable to equity holders of the parent and earnings per share

The loss attributable to equity holders of the parent in 2016 was EUR 766 million, a change of EUR 3 232 million, compared to a profit of EUR 2 466 million in 2015. Continuing operations generated a loss attributable to equity holders of the parent in 2016 of EUR 751 million compared to a profit of EUR 1 192 million in 2015. The change in profit attributable to equity holders of the parent was primarily attributable to the operating loss in 2016, compared to an operating profit in 2015 and, to a lesser extent, a net negative fluctuation in financial income and expenses, both of which primarily related to the acquisition of Alcatel Lucent. This was partially offset by an income tax benefit, resulting from the acquisition of Alcatel Lucent, compared to an income tax expense in 2015. In addition, the loss attributable to the non-controlling interests was higher, as a result of the acquisition of Alcatel Lucent. Our total basic EPS in 2016 decreased to negative EUR 0.13 (basic) and negative EUR 0.13 (diluted) compared to EUR 0.67 (basic) and EUR 0.63 (diluted) in 2015. In 2015, profit for the year included EUR 1 178 million gain on the Sale of the HERE Business recorded in Discontinued operations. From Continuing operations, EPS in 2016 decreased to negative EUR 0.13 (basic) and negative EUR 0.13 (diluted) compared to EUR 0.32 (basic) and EUR 0.31 (diluted) in 2015.

Discontinued operations

Background

The two businesses below are presented as Discontinued operations in this annual report. Refer to Note 6, Disposals treated as Discontinued operations, of our consolidated financial statements included in this annual report.

HERE business

We sold our HERE digital mapping and location services business to a German automotive industry consortium comprised of AUDI AG, BMW Group and Daimler AG, that was completed on December 4, 2015 ("the Sale of HERE Business"). The transaction, originally announced on August 3, 2015, valued HERE at an enterprise value of EUR 2.8 billion, subject to certain purchase price adjustments. We received net proceeds from the transaction of approximately EUR 2.55 billion at the closing of the transaction. We recorded a gain on the Sale of the HERE Business, including a related release of cumulative foreign exchange translation differences of approximately EUR 1.2 billion, in the year ended December 31, 2015.

Devices & Services business

We sold substantially all of our Devices & Services business to Microsoft in a transaction that was completed on April 25, 2014 (the "Sale of the D&S Business"). We granted Microsoft a ten-year non-exclusive license to our patents and patent applications. The announced purchase price of the transaction was EUR 5.44 billion, of which EUR 3.79 billion related to the purchase of substantially all of the Devices & Services business, and EUR 1.65 billion to the ten-year mutual patent license agreement and the option to extend this agreement into perpetuity. Of the Devices & Services-related assets, our former CTO organization and our patent portfolio remained within the Nokia Group, and are now part of the Nokia Technologies business group.

For the year ended December 31, 2017 compared to the year ended December 31, 2016

Discontinued operations loss for the year on ordinary activities was EUR 27 million compared to a loss of EUR 29 million in 2016. Discontinued operations loss for the year was EUR 21 million compared to a loss of EUR 15 million in 2016. Loss for the year in 2017 included EUR 5 million gain on the Sale of the HERE Business. Loss for the year in 2016 included EUR 7 million gain on the Sale of the HERE Business and EUR 7 million gain on the Sale of the D&S Business.

For the year ended December 31, 2016 compared to the year ended December 31, 2015

As the Sale of the HERE Business closed on December 4, 2015, the financial results of Discontinued operations in 2016 are not comparable to the financial results of Discontinued operations in 2015.

The following table sets forth selective line items for the years indicated.

For the year ended December 31	2016 EURm	2015 EURm
Net sales	–	1 075
Cost of sales	–	(244)
Gross profit	–	831
Research and development expenses	–	(498)
Selling, general and administrative expenses	(11)	(213)
Other income and expenses	(4)	(23)
Operating (loss)/profit	(15)	97
Financial income and expenses	14	(9)
(Loss)/profit before tax	(1)	88
Income tax (expense)/benefit	(28)	8
(Loss)/profit for the year, ordinary activities	(29)	96
Gain on the Sale of the HERE and D&S Businesses, net of tax	14	1 178
(Loss)/profit for the year	(15)	1 274

Net sales

Discontinued operations did not generate net sales in 2016. In 2015, Discontinued operations net sales were EUR 1 075 million. The decrease was attributable to the absence of net sales from HERE.

Gross profit

Discontinued operations did not generate gross profit in 2016. In 2015, Discontinued operations gross profit was EUR 831 million and gross margin 77.3%. The decrease in gross profit was attributable to the absence of net sales and cost of sales from HERE.

Operating expenses

Discontinued operations operating expenses in 2016 were EUR 15 million, a decrease of EUR 719 million, compared to EUR 734 million in 2015. The decrease was attributable to the absence of operating expenses from HERE.

Operating loss/profit

Discontinued operations operating loss in 2016 was EUR 15 million, a change of EUR 112 million, compared to an operating profit of EUR 97 million in 2015. The change in Discontinued operations operating result was attributable to the absence of net sales and operating expenses from HERE.

Loss/profit for the year

Discontinued operations loss in 2016 was EUR 15 million, a change of EUR 1 289 million compared to a profit of EUR 1 274 million in 2015. The gain on the Sale of the HERE Business recorded in 2015 was EUR 1 178 million, which included a reclassification of EUR 1 174 million of foreign exchange differences from other comprehensive income.

Results of segments

Networks business

For the year ended December 31, 2017 compared to the year ended December 31, 2016

The following table sets forth selective line items and the percentage of net sales for the years indicated.

For the year ended December 31	2017 EURm	% of net sales	2016 EURm	% of net sales	Year-on-year change %
Net sales	20 523	100.0	21 830	100.0	(6)
Cost of sales	(12 590)	(61.3)	(13 370)	(61.2)	(6)
Gross profit	7 933	38.7	8 460	38.8	(6)
Research and development expenses	(3 730)	(18.2)	(3 777)	(17.3)	(1)
Selling, general and administrative expenses	(2 587)	(12.6)	(2 664)	(12.2)	(3)
Other income and expenses	95	0.5	(76)	(0.3)	–
Operating profit	1 711	8.3	1 943	8.9	(12)

Segment information⁽¹⁾

For the year ended December 31	Ultra Broadband Networks ⁽²⁾ 2017 EURm	Global Services 2017 EURm	IP Networks and Applications ⁽³⁾ 2017 EURm	Networks total ⁽⁴⁾ 2017 EURm	Ultra Broadband Networks ⁽²⁾ 2016 EURm	Global Services 2016 EURm	IP Networks and Applications ⁽³⁾ 2016 EURm	Networks total ⁽⁴⁾ 2016 EURm
Net sales	8 970	5 810	5 743	20 523	9 758	6 036	6 036	21 830
Cost of sales	(4 723)	(4 697)	(3 170)	(12 590)	(5 210)	(4 825)	(3 335)	(13 370)
Gross profit	4 247	1 113	2 573	7 933	4 548	1 211	2 701	8 460
Research and development expenses	(2 361)	(85)	(1 284)	(3 730)	(2 393)	(96)	(1 288)	(3 777)
Selling, general and administrative expenses	(1 162)	(631)	(794)	(2 587)	(1 212)	(679)	(773)	(2 664)
Other income and expenses	57	14	24	95	(21)	(30)	(25)	(76)
Operating profit	781	411	519	1 711	922	406	615	1 943

(1) Refer to Note 4, Segment information, of our consolidated financial statements included in this annual report.

(2) Net sales include EUR 6 895 million (EUR 7 357 million in 2016) attributable to Mobile Networks and EUR 2 075 million (EUR 2 401 million in 2016) attributable to Fixed Networks.

(3) Net sales include EUR 2 694 million (EUR 2 941 million in 2016) attributable to IP Routing; EUR 1 499 million (EUR 1 564 million in 2016) attributable to Optical Networks; and EUR 1 550 million (EUR 1 531 million in 2016) attributable to Nokia Software.

(4) Includes Total Services net sales of EUR 8 221 million (EUR 8 531 million in 2016) which consists of all the services sales of Nokia's Networks business, including Global Services of EUR 5 810 million (EUR 6 036 million in 2016) and the services of Fixed Networks, IP/Optical Networks and Nokia Software.

The following table sets forth distribution of net sales by geographical area for the years indicated.

For the year ended December 31	2017 EURm	2016 EURm	Year-on-year change %
Asia-Pacific	4 197	4 237	(1)
Europe	4 442	4 884	(9)
Greater China	2 466	2 640	(7)
Latin America	1 245	1 446	(14)
Middle East & Africa	1 897	1 891	–
North America	6 276	6 732	(7)
Total	20 523	21 830	(6)

Net sales

Nokia's Networks business net sales in 2017 were EUR 20 523 million, a decrease of EUR 1 307 million, or 6%, compared to EUR 21 830 million in 2016. The decrease in Nokia's Networks business net sales was primarily due to Ultra Broadband Networks and, to a lesser extent, IP Networks and Applications and Global Services. Ultra Broadband Networks net sales were EUR 8 970 million in 2017, a decrease of EUR 788 million, or 8%, compared to EUR 9 758 million in 2016. Global Services net sales were EUR 5 810 million in 2017, a decrease of EUR 226 million, or 4%, compared to EUR 6 036 million in 2016. IP Networks and Applications net sales were EUR 5 743 million in 2017, a decrease of EUR 293 million, or 5%, compared to EUR 6 036 million in 2016.

The decrease in Ultra Broadband Networks net sales is comprised of a decrease in Mobile Networks net sales of EUR 462 million and a decrease in Fixed Networks net sales of EUR 326 million.

In 2017, Mobile Networks net sales were adversely affected by challenging market conditions. The decrease in Mobile Networks net sales was primarily due to radio networks and, to a lesser extent, converged core networks, partially offset by growth in advanced mobile networks solutions. From a growth perspective, small cells continued to deliver strong performance. Also, within radio networks, LTE net sales grew, despite weakness in the global LTE market. For radio networks, the decrease was primarily related to Greater China, Europe and, to a lesser extent, North America and Latin America. This was partially offset by growth in Asia-Pacific. For converged core networks, the decrease was primarily related to North America, partially offset by growth in Asia-Pacific. For advanced mobile networks solutions, the increase was primarily related to North America and Greater China, partially offset by a decrease in Middle East & Africa.

The net sales performance in Fixed Networks was in comparison to a particularly strong year 2016. The decrease in Fixed Networks net sales was primarily due to broadband access and services. The decrease was primarily related to three specific customers, which led to declines in Asia-Pacific, North America and Latin America. For broadband access, the decrease was primarily related to Asia-Pacific and, to a lesser extent, North America, partially offset by Europe.

For services, the decrease was primarily related to North America, Europe and Latin America, partially offset by growth in Middle East & Africa and Greater China.

The decrease in Global Services net sales in 2017 was primarily due to systems integration, care and managed services, partially offset by growth in network implementation. For systems integration, the decrease was primarily related to Europe and, to a lesser extent, North America. The decrease in systems integration was attributable to the winding down of a specific set of legacy Alcatel Lucent contracts. For care, the decrease was primarily related to North America, Europe and Asia-Pacific, partially offset by growth in Greater China. For managed services, the decrease was primarily related to Asia-Pacific, partially offset by growth in Europe. For network implementation, the increase was primarily related to North America, Latin America and Asia-Pacific, partially offset by Middle East & Africa and Europe.

The decrease in IP Networks and Applications net sales is comprised of decrease in IP/Optical Networks net sales of EUR 312 million, partly offset by an increase in Nokia Software net sales of EUR 19 million.

The decrease in IP/Optical Networks net sales was due to both IP routing and optical networks, primarily due to weakness in the communications service provider market in preparation for a new product portfolio launch in IP routing. For IP routing, the decrease was primarily related to North America and, to a lesser extent, Europe and Latin America, partially offset by growth in Greater China. In addition, IP routing net sales were adversely affected by lower resale of third party IP routers. For optical networks, the decrease was primarily related to Latin America, North America and Europe, partially offset by Middle East & Africa and Asia-Pacific.

The increase in Nokia Software net sales was primarily due to growth in network management, services and emerging businesses, partially offset by service delivery platforms and operational support systems. The year-on-year performance of Nokia Software benefitted from the acquisition of Comptel. 2017 was a year of transformation for our software business. It announced and executed plans to: 1) build our first standalone software sales force, 2) strengthen its services and care practices, 3) increase R&D velocity through modern software development, including the introduction of a Common Software Foundation that will improve the user experience for Nokia Software software, 4) acquire and integrate Comptel and 5) introduce new products and services that provide customers with increased intelligence and ability to push automation to new levels.

Gross profit

Nokia's Networks business gross profit in 2017 was EUR 7 933 million, a decrease of EUR 527 million, or 6%, compared to EUR 8 460 million in 2016. Nokia's Networks business gross margin in 2017 was 38.7%, compared to 38.8% in 2016. The decrease in Nokia's Networks business gross profit was primarily due to Ultra Broadband Networks and, to a lesser extent, IP Networks and Applications and Global Services.

Ultra Broadband Networks gross profit in 2017 was EUR 4 247 million, a decrease of EUR 301 million, or 7%, compared to EUR 4 548 million in 2016. The decrease in Ultra Broadband Networks gross profit was due to both Mobile Networks and Fixed Networks. The lower gross profit in both Mobile Networks and Fixed Networks was primarily due to lower net sales. Ultra Broadband Networks gross margin in 2017 was 47.3%, compared to 46.6% in 2016.

Global Services gross profit in 2017 was EUR 1 113 million, a decrease of EUR 98 million, or 8%, compared to EUR 1 211 million in 2016. The decrease in Global Services gross profit was primarily due to network implementation, care and network planning and optimization, partially offset by systems integration. Global Services gross profit was negatively affected by the absence of a benefit related to lower incentive accruals in 2016. Global Services gross margin in 2017 was 19.2%, compared to 20.1% in 2016.

IP Networks and Applications gross profit in 2017 was EUR 2 573 million, a decrease of EUR 128 million, or 5%, compared to EUR 2 701 million in 2016. The decrease in IP Networks and Applications gross profit was primarily due to IP/Optical Networks, partially offset by Nokia Software. The lower gross profit in IP/Optical Networks was primarily due to lower net sales. The higher gross profit in Nokia Software was due to higher net sales. IP Networks and Applications gross margin in 2017 was 44.8%, compared to 44.7% in 2016.

Results of segments continued

Operating expenses

Nokia's Networks business R&D expenses were EUR 3 730 million in 2017, a slight decrease of EUR 47 million, or 1%, compared to EUR 3 777 million in 2016. The decrease in Nokia's Networks business R&D expenses was primarily attributable to Ultra Broadband Networks R&D expenses, and to a lesser extent, Global Services R&D expenses. Ultra Broadband Networks R&D expenses were EUR 2 361 million in 2017, a decrease of EUR 32 million, compared to EUR 2 393 million in 2016. The decrease in Ultra Broadband Networks R&D expenses was primarily due to Mobile Networks, partially offset by Fixed Networks. The lower R&D expenses in Mobile Networks was primarily due to lower personnel expenses, reflecting progress related to our cost savings program, with reduced R&D related to legacy technologies, partially offset by an increase in R&D related to 5G. The higher R&D expenses in Fixed Networks was primarily related to investments to drive growth and higher returns in our current addressable market, as well as to expand into adjacent markets, both of which are priorities for Fixed Networks. Related to our current addressable market, Fixed Networks has increased its investments to enhance its portfolio of offerings towards the digital home and software defined access markets. Related to adjacent markets, Fixed Networks has increased its investments towards the cable access market, and is now offering a disruptive cable solution which gives operators the flexibility to choose from a full range of options across both fiber and cable to meet their unique network needs. Ultra Broadband Networks R&D expenses were negatively affected by the absence of a benefit related to lower incentive accruals for full year 2016. Global Services R&D expenses were EUR 85 million in 2017, a decrease of EUR 11 million, compared to EUR 96 million in 2016. The decrease in Global Services R&D expenses was primarily due to lower personnel expenses, reflecting progress related to our cost savings program. IP Networks and Applications R&D expenses were EUR 1 284 million in 2017, a decrease of EUR 4 million, compared to EUR 1 288 million in 2016.

Nokia's Networks business selling, general and administrative expenses were EUR 2 587 million in 2017, a decrease of EUR 77 million, or 3%, compared to EUR 2 664 million in 2016. The decrease in Nokia's Networks business selling, general and administrative expenses was attributable to decreases in both Ultra Broadband Networks and Global Services selling, general and administrative expenses, partially offset by an increase in IP Networks and Applications selling, general and administrative expenses.

Ultra Broadband Networks selling, general and administrative expenses were EUR 1 162 million in 2017, a decrease of EUR 50 million, compared to EUR 1 212 million in 2016. The decrease in Ultra Broadband Networks selling, general and administrative expenses was primarily due to Mobile Networks. The lower selling, general and administrative expenses in Mobile Networks was primarily due to lower personnel expenses reflecting progress related to our cost savings program and lower consultancy costs. Ultra Broadband Networks selling, general and administrative expenses were negatively affected by the absence of a benefit related to lower incentive accruals for full year 2016. Global Services selling, general and administrative expenses were EUR 631 million in 2017, a decrease of EUR 48 million, compared to EUR 679 million in 2016. The decrease in Global Services selling, general and administrative expenses was primarily due to lower personnel expenses, reflecting progress related to our cost savings program. IP Networks and Applications selling, general and administrative expenses were EUR 794 million in 2017, an increase of EUR 21 million, compared to EUR 773 million in 2016. The increase in IP Networks and Applications selling, general and administrative expenses was primarily due to Nokia Software. The higher selling, general and administrative expenses in Nokia Software was primarily due to investments to build an independent, dedicated software sales organization.

Nokia's Networks business other income and expenses was an income of EUR 95 million in 2017, a change of EUR 171 million compared to an expense of EUR 76 million in 2016. The change in other income and expenses was attributable to Ultra Broadband Networks, IP Networks and Applications and Global services other income and expenses. The net positive fluctuation in Ultra Broadband Networks other income and expenses was primarily related to foreign exchange hedging. The net positive fluctuation in Global Services other income and expenses was primarily related to foreign exchange hedging and lower doubtful accounts allowances. The net positive fluctuation in IP Networks and Applications other income and expenses was primarily due to lower doubtful accounts allowances and a settlement with a component supplier.

Operating profit

Nokia's Networks business operating profit was EUR 1 711 million in 2017, a decrease of EUR 232 million compared to EUR 1 943 million in 2016. Nokia's Networks business operating margin in 2017 was 8.3% compared to 8.9% in 2016. The decrease in operating margin was attributable to decreases in both Ultra Broadband Networks and IP Networks and Applications operating margin, partly offset by a slight increase in Global Services operating margin. Ultra Broadband Networks operating margin decreased from 9.4% in 2016 to 8.7% in 2017. IP Networks and Applications operating margin decreased from 10.2% in 2016 to 9.0% in 2017. The decreases in both Ultra Broadband Networks and IP Networks and Applications operating margins in 2017 were primarily attributable to lower gross profit.

For the year ended December 31, 2016 compared to the year ended December 31, 2015

The following table sets forth selective line items and the percentage of net sales for the years indicated.

For the year ended December 31	2016 EURm	% of net sales	2015 EURm	% of net sales	Year-on-year change %
Net sales	21 830	100.0	11 548	100.0	89
Cost of sales	(13 370)	(61.2)	(7 006)	(60.7)	91
Gross profit	8 460	38.8	4 542	39.3	86
Research and development expenses	(3 777)	(17.3)	(1 738)	(15.0)	117
Selling, general and administrative expenses	(2 664)	(12.2)	(1 420)	(12.3)	88
Other income and expenses	(76)	(0.3)	(35)	(0.3)	–
Operating profit	1 943	8.9	1 349	11.7	44

Segment information⁽¹⁾

For the year ended December 31	Ultra Broadband Networks ⁽²⁾ 2016 EURm	Global Services 2016 EURm	IP Networks and Applications ⁽³⁾ 2016 EURm	Networks total ⁽⁴⁾ 2016 EURm	Ultra Broadband Networks ⁽²⁾ 2015 EURm	Global Services 2015 EURm	IP Networks and Applications ⁽³⁾ 2015 EURm	Networks total ⁽⁴⁾ 2015 EURm
Net sales	9 758	6 036	6 036	21 830	5 333	4 887	1 328	11 548
Cost of sales	(5 210)	(4 825)	(3 335)	(13 370)	(2 716)	(3 638)	(652)	(7 006)
Gross profit	4 548	1 211	2 701	8 460	2 617	1 249	676	4 542
Research and development expenses	(2 393)	(96)	(1 288)	(3 777)	(1 405)	(65)	(268)	(1 738)
Selling, general and administrative expenses	(1 212)	(679)	(773)	(2 664)	(674)	(472)	(274)	(1 420)
Other income and expenses	(21)	(30)	(25)	(76)	(46)	7	4	(35)
Operating profit	922	406	615	1 943	492	719	138	1 349

(1) Refer to Note 4, Segment information, of our consolidated financial statements included in this annual report.

(2) Net sales include EUR 7 357 million (EUR 5 197 million in 2015) attributable to Mobile Networks and EUR 2 401 million (EUR 136 million in 2015) attributable to Fixed Networks.

(3) Net sales include EUR 2 941 million (EUR 515 million in 2015) attributable to IP Routing; EUR 1 564 million attributable to Optical Networks; and EUR 1 531 million (EUR 813 million in 2015) attributable to Nokia Software.

(4) Includes Total Services net sales of EUR 8 531 million (EUR 5 424 million in 2015) which consists of all the services sales of Nokia's Networks business, including Global Services of EUR 6 036 million (EUR 4 887 million in 2015) and the services of Fixed Networks, IP/Optical Networks and Nokia Software.

Results of segments continued

Net sales

Nokia's Networks business net sales in 2016 were EUR 21 830 million, an increase of EUR 10 282 million, or 89%, compared to EUR 11 548 million in 2015. The increase in Nokia's Networks business net sales was primarily attributable to the acquisition of Alcatel Lucent. Ultra Broadband Networks net sales were EUR 9 758 million in 2016, an increase of EUR 4 425 million, or 83%, compared to EUR 5 333 million in 2015. Global Services net sales were EUR 6 036 million in 2016, an increase of EUR 1 149 million, or 24%, compared to EUR 4 887 million in 2015. IP Networks and Applications net sales were EUR 6 036 million in 2016, an increase of EUR 4 708 million compared to EUR 1 328 million in 2015.

The increase in Ultra Broadband Networks net sales is comprised of an increase in Mobile Networks net sales of EUR 2 160 million and an increase in Fixed Networks net sales of EUR 2 265 million. The increase in Mobile Networks net sales was primarily attributable to the acquisition of Alcatel Lucent, which drove higher net sales in Radio Networks. This was partially offset by revenue declines from several key customers in Asia-Pacific and North America due to previous build-outs and investments, as well as adverse market conditions in Latin America. The increase in Fixed Networks net sales was primarily attributable to the acquisition of Alcatel Lucent, and increases in Broadband Access, supported by the completion of a large project in Asia-Pacific.

The increase in Global Services net sales of EUR 1 149 million was primarily attributable to the acquisition of Alcatel Lucent, affecting all services business units.

The increase in IP Networks and Applications net sales is comprised of an increase in IP/Optical Networks net sales of EUR 3 990 million and an increase in Nokia Software net sales of EUR 718 million, primarily attributable to the acquisition of Alcatel Lucent. The increase in IP/Optical Networks net sales was attributable to an increase in IP Routing net sales of EUR 2 426 million and an increase in Optical Networks net sales of EUR 1 564 million. The increase in Nokia Software net sales was primarily attributable to the acquisition of Alcatel Lucent, and increases in Services.

The following table sets forth distribution of net sales by geographical area for the years indicated.

For the year ended December 31	2016 EURm	2015 EURm	Year-on-year change %
Asia-Pacific	4 237	3 249	30
Europe	4 884	2 809	74
Greater China	2 640	1 716	54
Latin America	1 446	976	48
Middle East & Africa	1 891	1 195	58
North America	6 732	1 603	320
Total	21 830	11 548	89

On a regional basis, Nokia's Networks business net sales increased across all regions, with particularly strong growth in North America and Europe, primarily attributable to the acquisition of Alcatel Lucent.

The increase in Mobile Networks net sales was driven by the acquisition of Alcatel Lucent, resulting in significant improvements in the North America, Greater China, and the Middle East & Africa regions, partially offset by revenue decreases in Asia-Pacific, Europe and Latin America. The increase in Fixed Networks net sales was primarily attributable to the acquisition of Alcatel Lucent, supported by the completion of a large project in Asia-Pacific, offset by contraction in Europe.

The increase in Global Services net sales was primarily attributable to the acquisition of Alcatel Lucent, resulting in increases in North America, Europe, the Middle East & Africa, Greater China and Asia-Pacific regions, partially offset by revenue decreases in Latin America.

The increases in both IP/Optical Networks net sales and Nokia Software net sales were primarily attributable to significant increases in North America following the acquisition of Alcatel Lucent.

Gross profit

Nokia's Networks business gross profit in 2016 was EUR 8 460 million, an increase of EUR 3 918 million, or 86%, compared to EUR 4 542 million in 2015. The higher gross profit was due to both IP Networks and Applications and Ultra Broadband Networks, primarily related to the acquisition of Alcatel Lucent, partly offset by slightly lower gross profit in Global Services. Nokia's Networks business gross margin in 2016 was 38.8%, compared to 39.3% in 2015.

Ultra Broadband Networks gross profit in 2016 was EUR 4 548 million, an increase of EUR 1 931 million, or 74%, compared to EUR 2 617 million in 2015. The increase in Ultra Broadband Networks gross profit was primarily due to the acquisition of Alcatel Lucent. Ultra Broadband Networks gross margin in 2016 was 46.6%, compared to 49.1% in 2015.

Global Services gross profit in 2016 was EUR 1 211 million, a slight decrease of EUR 38 million, or 3%, compared to EUR 1 249 million in 2015. Global Services gross margin in 2016 was 20.1%, compared to 25.6% in 2015.

IP Networks and Applications gross profit in 2016 was EUR 2 701 million, an increase of EUR 2 025 million compared to EUR 676 million in 2015. The increase in IP Networks and Applications gross profit was primarily due to the acquisition of Alcatel Lucent. IP Networks and Applications gross margin in 2016 was 44.7%, compared to 50.9% in 2015.

Operating expenses

Nokia's Networks business R&D expenses were EUR 3 777 million in 2016, an increase of EUR 2 039 million, or 117%, compared to EUR 1 738 million in 2015. The increase in Nokia's Networks business R&D expenses was primarily attributable to an increase in headcount attributable to the acquisition of Alcatel Lucent, partially offset by operational and synergy savings. The increase in Nokia's Networks business R&D expenses was primarily attributable to Ultra Broadband Networks and IP Networks and Applications. Ultra Broadband Networks R&D expenses were EUR 2 393 million in 2016, an increase of EUR 988 million, compared to EUR 1 405 million in 2015. IP Networks and Applications R&D expenses were EUR 1 288 million in 2016, an increase of EUR 1 020 million, compared to EUR 268 million in 2015.

Nokia's Networks business selling, general and administrative expenses were EUR 2 664 million in 2016, an increase of EUR 1 244 million, or 88%, compared to EUR 1 420 million in 2015. The increase in Nokia's Networks business selling, general and administrative expenses was primarily attributable to an increase in headcount attributable to the acquisition of Alcatel Lucent, partially offset by operational and synergy savings. The increase in Nokia's Networks business selling, general and administrative expenses was attributable to Ultra Broadband Networks, Global Services and IP Networks and Applications. Ultra Broadband Networks selling, general and administrative expenses were EUR 1 212 million in 2016, an increase of EUR 538 million, compared to EUR 674 million in 2015.

Global Services selling, general and administrative expenses were EUR 679 million in 2016, an increase of EUR 207 million, compared to EUR 472 million in 2015. IP Networks and Applications selling, general and administrative expenses were EUR 773 million in 2016, an increase of EUR 499 million, compared to EUR 274 million in 2015.

Nokia's Networks business other income and expenses was an expense of EUR 76 million in 2016, a change of EUR 41 million compared to an expense of EUR 35 million in 2015. The change was attributable to Global Services and IP Networks and Applications, primarily related to doubtful accounts allowances, partially offset by Ultra Broadband Networks.

Operating profit

Nokia's Networks business operating profit was EUR 1 943 million in 2016, an increase of EUR 594 million compared to EUR 1 349 million in 2015. Nokia's Networks business operating margin in 2016 was 8.9% compared to 11.7% in 2015. The decrease in operating margin was primarily attributable to Global Services. Global Services operating margin decreased from 14.7% in 2015 to 6.7% in 2016. IP Networks and Applications operating margin decreased from 10.4% in 2015 to 10.2% in 2016. The decreases in both Global Services and IP Networks and Applications operating margins in 2016 were attributable to lower gross margin and higher operating expenses.

Results of segments continued

Nokia Technologies

For the year ended December 31, 2017 compared to the year ended December 31, 2016

The following table sets forth selective line items and the percentage of net sales for the years indicated.

For the year ended December 31	2017 EURm	% of net sales	2016 EURm	% of net sales	Year-on-year change %
Net sales	1 654	100.0	1 053	100.0	57
Cost of sales	(71)	(4.3)	(42)	(4.0)	69
Gross profit	1 583	95.7	1 011	96.0	57
Research and development expenses	(235)	(14.2)	(249)	(23.6)	(6)
Selling, general and administrative expenses	(218)	(13.2)	(184)	(17.5)	18
Other income and expenses	(6)	(0.4)	1	0.1	–
Operating profit	1 124	68.0	579	55.0	94

Net sales

Nokia Technologies net sales in 2017 were EUR 1 654 million, an increase of EUR 601 million, or 57%, compared to EUR 1 053 million in 2016. In 2017, EUR 1 602 million of net sales related to patent and brand licensing and EUR 52 million of net sales related to digital health and digital media. The increase in Nokia Technologies net sales was primarily due to recurring net sales related to new license agreements and settled arbitrations, non-recurring net sales related to settled arbitrations and new license agreements and, to a lesser extent, our brand partnership with HMD. This was partially offset by lower licensing income from certain existing licensees. In 2017, Nokia Technologies net sales included approximately EUR 300 million of non-recurring catch-up net sales related to prior years, compared to approximately zero in 2016.

Gross profit

Nokia Technologies gross profit in 2017 was EUR 1 583 million, an increase of EUR 572 million, or 57%, compared to EUR 1 011 million in 2016. The higher gross profit in Nokia Technologies was primarily due to higher net sales.

Operating expenses

Nokia Technologies R&D expenses in 2017 were EUR 235 million, a decrease of EUR 14 million, or 6%, compared to EUR 249 million in 2016. The decrease in Nokia Technologies R&D expenses was primarily due to lower patent portfolio costs.

Nokia Technologies selling, general and administrative expenses in 2017 were EUR 218 million, an increase of EUR 34 million, or 18%, compared to EUR 184 million in 2016. The increase in Nokia Technologies selling, general and administrative expenses was primarily due to a non-recurring licensing cost and the ramp-up of digital health. This was partially offset by lower licensing-related litigation costs, which benefitted from a reimbursement related to a settled arbitration, as well as lower business support costs. The higher selling, general and administrative expenses in digital health were primarily due to the acquisition of Withings in 2016.

Nokia Technologies other income and expense in 2017 was a net expense of EUR 6 million, a change of EUR 7 million compared to a net income of EUR 1 million in 2016.

Operating profit

Nokia Technologies operating profit in 2017 was EUR 1 124 million, an increase of EUR 545 million, or 94%, compared to an operating profit of EUR 579 million in 2016. The increase in Nokia Technologies operating profit was primarily attributable to higher gross profit. Nokia Technologies operating margin in 2017 was 68.0% compared to 55.0% in 2016.

For the year ended December 31, 2016 compared to the year ended December 31, 2015

The following table sets forth selective line items and the percentage of net sales for the years indicated.

For the year ended December 31	2016 EURm	% of net sales	2015 EURm	% of net sales	Year-on-year change %
Net sales	1 053	100.0	1 027	100.0	3
Cost of sales	(42)	(4.0)	(7)	(0.7)	–
Gross profit	1 011	96.0	1 020	99.3	(1)
Research and development expenses	(249)	(23.6)	(220)	(21.4)	13
Selling, general and administrative expenses	(184)	(17.5)	(109)	(10.6)	69
Other income and expenses	1	0.1	7	0.7	(86)
Operating profit	579	55.0	698	68.0	(17)

Net sales

Nokia Technologies net sales in 2016 were EUR 1 053 million, an increase of EUR 26 million, or 3%, compared to EUR 1 027 million in 2015. The increase in Nokia Technologies net sales was primarily attributable to higher IPR licensing income and the inclusion of Withings' net sales from June 2016 onwards, resulting from the acquisition of Withings, partially offset by the absence of non-recurring adjustments to accrued net sales from existing and new agreements, and lower licensing income from certain existing licensees.

Gross profit

Nokia Technologies gross profit in 2016 was EUR 1 011 million, a slight decrease of EUR 9 million, or 1%, compared to EUR 1 020 million in 2015.

Operating expenses

Nokia Technologies R&D expenses in 2016 were EUR 249 million, an increase of EUR 29 million, or 13%, compared to EUR 220 million in 2015. The increase in R&D expenses in Nokia Technologies was primarily attributable to the inclusion of Bell Labs' patent portfolio costs, resulting from the acquisition of Alcatel Lucent, and higher investments in the areas of digital media and digital health.

The higher R&D expenses in digital health were primarily attributable to the inclusion of Withings' R&D expenses from June 2016. This was partially offset by the focusing of general research investments towards more specific opportunities.

Nokia Technologies selling, general and administrative expenses in 2016 were EUR 184 million, an increase of EUR 75 million, or 69%, compared to EUR 109 million in 2015. The increase in Nokia Technologies selling, general and administrative expenses was primarily attributable to the ramp-up of digital health and digital media, higher business support costs and increased licensing activity. The higher selling, general and administrative expenses in digital health were primarily attributable to the inclusion of Withings' selling, general and administrative expenses from June 2016.

Nokia Technologies other income and expense in 2016 was a net income of EUR 1 million, a decrease of EUR 6 million compared to a net income of EUR 7 million in 2015.

Operating profit

Nokia Technologies operating profit in 2016 was EUR 579 million, a decrease of EUR 119 million, or 17%, compared to an operating profit of EUR 698 million in 2015. The decrease in Nokia Technologies operating profit was primarily attributable to higher selling, general and administrative and R&D expenses. Nokia Technologies operating margin in 2016 was 55.0% compared to 68.0% in 2015.

Results of segments continued

Group Common and Other

For the year ended December 31, 2017 compared to the year ended December 31, 2016

The following table sets forth selective line items for the years indicated.

For the year ended December 31	2017 EURm	2016 EURm
Net sales	1 114	1 142
Cost of sales	(956)	(957)
Gross profit	158	185
Research and development expenses	(260)	(287)
Selling, general and administrative expenses	(219)	(235)
Other income and expenses	73	(13)
Operating loss	(248)	(350)

Net sales

Group Common and Other net sales in 2017 were EUR 1 114 million, a decrease of EUR 28 million, or 2%, compared to EUR 1 142 million in 2016. The decrease in Group Common and Other net sales was primarily due to Alcatel Submarine Networks, partially offset by Radio Frequency Systems.

Gross profit

Group Common and Other gross profit in 2017 was EUR 158 million, a decrease of EUR 27 million, or 15%, compared to EUR 185 million in 2016. The lower gross profit was primarily due to Alcatel Submarine Networks. Group Common and Other gross margin in 2017 was 14.2% compared to 16.2% in 2016.

Operating expenses

Group Common and Other R&D expenses in 2017 were EUR 260 million, a decrease of EUR 27 million, or 9%, compared to EUR 287 million in 2016. The decrease in Group Common and Other R&D expenses was primarily due to lower personnel expenses, reflecting progress related to our cost savings program.

Group Common and Other selling, general and administrative expenses in 2017 were EUR 219 million, a decrease of EUR 16 million, or 7%, compared to EUR 235 million in 2016. The decrease in Group Common and Other selling, general and administrative expenses was primarily due to lower personnel expenses, reflecting progress related to our cost savings program.

Group Common and Other other income and expense in 2017 was a net income of EUR 73 million, a change of EUR 86 million compared to a net expense of EUR 13 million in 2016. The net positive fluctuation in other income and expenses was primarily due to the unwinding of a reinsurance contract, gains in venture fund investments and an expiration of a former Alcatel Lucent stock option liability.

Operating loss

Group Common and Other operating loss in 2017 was EUR 248 million, a change of EUR 102 million, compared to an operating loss of EUR 350 million in 2016. The change in Group Common and Other operating loss was primarily attributable to a positive fluctuation in other income and expense, and to a lesser extent, lower R&D and selling, general and administrative expenses, partly offset by lower gross profit.

For the year ended December 31, 2016 compared to the year ended December 31, 2015

The following table sets forth selective line items for the years indicated.

For the year ended December 31	2016 EURm	2015 EURm
Net sales	1 142	–
Cost of sales	(957)	–
Gross profit	185	–
Research and development expenses	(287)	(84)
Selling, general and administrative expenses	(235)	(97)
Other income and expenses	(13)	92
Operating loss	(350)	(89)

Net sales

Group Common and Other net sales in 2016 were EUR 1 142 million, an increase of EUR 1 142 million, compared to approximately zero in 2015. The increase in Group Common and Other net sales was primarily due to Alcatel Submarine Networks and Radio Frequency Systems net sales, both of which related to the acquisition of Alcatel Lucent.

Gross profit

Group Common and Other gross profit in 2016 was EUR 185 million, compared to approximately zero in 2015. The Group Common and Other gross profit was attributable to gross profit from Alcatel Submarine Networks and Radio Frequency Systems, both of which related to the acquisition of Alcatel Lucent. Group Common and Other gross margin in 2016 was 16.2%.

Operating expenses

Group Common and Other R&D expenses in 2016 were EUR 287 million, an increase of EUR 203 million, compared to EUR 84 million in 2015. Group Common and Other R&D expenses increased, primarily attributable to Nokia Bell Labs, related to the acquisition of Alcatel Lucent.

Group Common and Other selling, general and administrative expenses in 2016 were EUR 235 million, an increase of EUR 138 million compared to EUR 97 million in 2015. The increase in Group Common and Other selling, general and administrative expenses was primarily attributable to higher central function costs, related to the acquisition of Alcatel Lucent.

Group Common and Other other income and expense in 2016 was a net expense of EUR 13 million, a change of EUR 105 million compared to a net income of EUR 92 million in 2015. The change was primarily attributable to the absence of realized gains related to certain investments made through venture funds and the non-cash impairment of certain financial assets.

Operating loss

Group Common and Other operating loss in 2016 was EUR 350 million, an increase of EUR 261 million, compared to an operating loss of EUR 89 million in 2015. The increase in Group Common and Other operating loss was primarily attributable to higher R&D and selling, general and administrative expenses and a net negative fluctuation in other income and expenses, partially offset by higher gross profit.

Liquidity and capital resources

Financial position

As of December 31, 2017, our total cash and other liquid assets (defined as cash and cash equivalents; current available-for-sale investments, liquid assets; and investments at fair value through profit and loss, liquid assets) equaled EUR 8 280 million, a decrease of EUR 1 047 million, compared to EUR 9 327 million as of December 31, 2016. The decrease was primarily attributable to shareholder distributions, including payment of dividends of EUR 970 million and repurchases of shares of EUR 785 million; EUR 394 million cash outflow related to the acquisitions of businesses, and capital expenditures of EUR 601 million. The decrease was partially offset by EUR 1 811 million positive cash flow from operating activities, including EUR 597 million total cash inflows from net working capital. As of December 31, 2015, our total cash and other liquid assets equaled EUR 9 849 million.

As of December 31, 2017, our net cash and other liquid assets (defined as total cash and other liquid assets less long-term interest-bearing liabilities and short-term borrowings) equaled EUR 4 514 million, a decrease of EUR 785 million, compared to EUR 5 299 million as of December 31, 2016. The decrease was mainly attributable to drivers affecting our total cash and other liquid assets as described above. Our interest-bearing liabilities decreased by EUR 262 million primarily attributable to changes in foreign exchange rates and the issuance of senior notes and repurchases of selected outstanding senior notes during 2017. As of December 31, 2015, our net cash and other liquid assets equaled EUR 7 775 million.

As of December 31, 2017, our cash and cash equivalents equaled EUR 7 369 million, a decrease of EUR 128 million compared to EUR 7 497 million as of December 31, 2016. As of December 31, 2015, our cash and cash equivalents equaled EUR 6 995 million.

Cash flow

2017

Our cash inflow from operating activities in 2017 of EUR 1 811 million increased by EUR 3 265 million compared to a cash outflow of EUR 1 454 million in 2016. The increase was primarily attributable to a EUR 597 million cash release from net working capital in 2017 compared to a EUR 2 207 million cash being tied-up in 2016; and net profit, adjusted for non-cash items, of EUR 2 125 million, an increase of EUR 645 million compared to EUR 1 480 million in 2016. The primary driver for the decrease in net working capital was related to an increase in liabilities of EUR 1 314 million compared to a decrease of EUR 2 758 million in 2016. The increase in liabilities was primarily attributable to an up-front cash payment of approximately EUR 1 700 million, part of which has been recognized as net sales in 2017, and an increase in accounts payable partially offset by restructuring and associated cash outflows of approximately EUR 550 million. The increase in liabilities was partially offset by an increase in receivables of EUR 421 million and an increase in inventories of EUR 296 million.

Cash flow from operating activities also included interest paid of EUR 409 million, an increase of EUR 100 million compared to EUR 309 million in 2016; paid taxes of EUR 555 million, an increase of EUR 52 million compared to EUR 503 million in 2016; and interest received of EUR 53 million, a decrease of EUR 32 million compared to EUR 85 million in 2016. In 2017, out of EUR 555 million paid taxes, approximately EUR 260 million were non-recurring in nature and related to the disposal of the former Alcatel Lucent railway signaling business in 2006 to Thalés and the integration of the former Alcatel Lucent and Nokia operating models. In 2017, out of EUR 409 million interest paid, EUR 250 million were non-recurring in nature and related primarily to our offer to purchase selected outstanding notes.

In 2017, our cash inflow from investing activities equaled EUR 10 million, a decrease of EUR 6 826 million compared to EUR 6 836 million cash inflow in 2016. The decrease in cash inflow from investing activities was primarily driven by cash outflow due to the acquisition of businesses of EUR 394 million, mainly related to the acquisition of Comptel, compared to EUR 5 819 million cash inflow in 2016, which included cash and cash equivalents acquired as part of the acquisition of Alcatel Lucent. In 2017, cash outflow from acquisition of businesses was offset by proceeds from maturities and sale of current available-for-sale investments, liquid assets of EUR 3 265 million partially offset by purchase of current available-for-sale investments, liquid assets of EUR 2 729 million.

In 2017, our capital expenditure equaled EUR 601 million, an increase of EUR 124 million compared to EUR 477 million in 2016. Major items of capital expenditure in 2017 included investments in R&D equipment, test equipment, hardware for telco and cloud environment, plants, buildings and construction for transformation projects, and repair or improvements of sites.

In 2017, our cash outflow from financing activities of EUR 1 749 million decreased by EUR 3 174 million in comparison to EUR 4 923 million cash outflow in 2016. The decrease in cash outflows was primarily driven by proceeds from long-term borrowings of EUR 2 129 million, an increase of EUR 1 904 million compared to 2016, mainly related to issued new bonds; repayment of long-term borrowings of EUR 2 044 million, a decrease of EUR 555 million compared to 2016; and paid dividends of EUR 970 million, a decrease of EUR 545 million compared to 2016. The decrease in cash outflow was partially offset by purchase of treasury shares of EUR 785 million representing an increase of EUR 569 million compared to 2016.

2016

Our cash outflow from operating activities in 2016 of EUR 1 454 million decreased by EUR 1 957 million compared to a cash inflow of EUR 503 million in 2015. The decrease was primarily attributable to a EUR 2 207 million increase in net working capital in 2016 compared to a EUR 1 377 million increase in 2015 and a decrease in net profit, adjusted for non-cash items of EUR 727 million. The primary driver for the increase in net working capital related to a decrease in liabilities of EUR 2 758 million in 2016 compared to a decrease of EUR 990 million in 2015, partially offset by a decrease in inventories of EUR 533 million in 2016 compared to a decrease of EUR 341 million in 2015. The decrease in liabilities mainly related to restructuring cash outflows, reductions in liabilities related to our actions to harmonize working capital processes and practices, termination of Alcatel Lucent's license agreement with Qualcomm, the payment of incentives related to Alcatel Lucent's and Nokia's strong business performance in 2015 and the impact of foreign exchange fluctuations.

The decrease in cash flow from operating activities was also attributable to a EUR 400 million increase in cash outflows related to net interest and income taxes paid in 2016 and 2015 of EUR 727 million and EUR 327 million, respectively. Interest paid included cash outflows from the premium paid for the redemption of Alcatel Lucent bonds and notes related to our capital structure optimization program. Income taxes paid included a non-recurring tax payment due to the integration of the former Alcatel Lucent and former Nokia operating models into one combined operating model.

In 2016, our cash inflow from investing activities equaled EUR 6 836 million, representing an increase of EUR 4 940 million compared to EUR 1 896 million cash inflow from investing activities in 2015. The increase in cash inflow from investing activities was primarily driven by cash and cash equivalents acquired as part of the acquisition of Alcatel Lucent and an increase in proceeds from maturities and sale of current available-for-sale investments, liquid assets partially offset by purchase of current available-for-sale investments and liquid assets.

In 2016, our capital expenditure equaled EUR 477 million, an increase of EUR 163 million, as compared to EUR 314 million in 2015. Major items of capital expenditure in 2016 included investments in R&D equipment, test equipment, hardware for telco and cloud environment, plants, buildings and construction for transformation projects, repair or improvements of sites as well as intangible rights.

In 2016, our cash outflow from financing activities of EUR 4 923 million increased by EUR 4 343 million in comparison to our cash outflow of EUR 580 million in 2015. The increase in cash outflows was primarily driven by the repayment of long-term borrowings of EUR 2 599 million mainly including the redemption of Alcatel Lucent bonds and notes related to our capital structure optimization program, paid dividends of EUR 1 515 million primarily related to the payment of the ordinary and special dividends, purchase of equity instruments of subsidiaries of EUR 724 million related to the purchase of Alcatel Lucent shares and the equity component of the purchased Alcatel Lucent convertible bonds and EUR 216 million cash outflow related to the commencement of Nokia's share repurchasing program.

Financial assets and debt

As of December 31, 2017, our net cash and other liquid assets equaled EUR 4 514 million and consisted of EUR 8 280 million in total cash and other liquid assets and EUR 3 766 million of long-term interest-bearing liabilities and short-term borrowings.

We hold our cash and other liquid assets predominantly in euro. Our liquid assets are mainly invested in high-quality money-market and fixed income instruments with strict maturity limits. We also have a EUR 1 579 million undrawn revolving credit facility available for liquidity purposes.

As of December 31, 2017, our interest-bearing liabilities consisted of EUR 231 million notes due in 2019, USD 581 million notes due in 2019, EUR 500 million notes due 2021, USD 500 million notes due 2022, EUR 750 million notes due 2024, USD 500 million notes due 2027, USD 74 million notes due in 2028, USD 206 million notes due in 2029, USD 500 million notes due in 2039 and EUR 326 million of other liabilities. The notes maturing in 2019, 2021, 2022, 2024, 2027 and 2039 are issued by Nokia Corporation, while the notes maturing in 2028 and 2029 are issued by Lucent Technologies Inc., a predecessor to Nokia of America Corporation (Nokia's wholly-owned subsidiary, formerly known as Alcatel-Lucent USA Inc.). Refer to Note 23, Interest-bearing liabilities, of our consolidated financial statements included in this annual report for further information regarding our interest-bearing liabilities.

In March 2017, we executed capital markets transactions, including issuances of EUR 500 million notes due in 2021 and EUR 750 million notes due 2024 and, pursuant to cash tender offers, purchases of EUR 269 million of notes due 2019, USD 86 million of notes due 2028 and USD 401 million of notes due 2029. In June 2017, we executed additional capital market transactions, including issuances of USD 500 million notes due 2022 and USD 500 million notes due 2027 and, pursuant to cash tender offers, purchases of USD 419 million of notes due 2019, USD 140 million of notes due 2028 and USD 753 million of notes due 2029.

In June 2017, we exercised our option to extend our EUR 1 579 million revolving credit facility from June 2019 to June 2020. The facility has no financial covenants and remains undrawn.

We consider that with EUR 8 280 million of cash and other liquid assets as well as our EUR 1 579 million revolving credit facility, we have sufficient funds to satisfy our future working capital needs, capital expenditures, R&D investments, structured finance, venture fund commitments, acquisitions and debt service requirements, at least through 2018. We further consider that with our current credit ratings of BB+ by Standard & Poor's and Ba1 by Moody's, we have access to the capital markets should any funding needs arise in 2018.

We aim to re-establish our investment grade credit rating.

Liquidity and capital resources continued

Off-balance sheet arrangements

There are no material off-balance sheet arrangements that have, or are reasonably likely to have, a current or future effect on our financial condition, changes in financial condition, revenues or expenses, results of operations, liquidity, capital expenditures or capital resources that are material to investors, except for the purchase obligations and leasing commitments, as well as guarantees and financing commitments disclosed in Note 30, Commitments and contingencies, of our consolidated financial statements included in this annual report.

Capital structure optimization program

In 2015, we announced a two-year, EUR 7 billion program to optimize the efficiency of our capital structure (our “capital structure optimization program”). The capital structure optimization program was initially subject to the closing of the acquisition of Alcatel Lucent and the Sale of the HERE Business, as well as the conversion of all Nokia and Alcatel Lucent OCEANE convertible bonds. The Sale of the HERE business closed in December 2015. The result of the successful offer for Alcatel Lucent securities was announced on January 5, 2016 and 100% ownership was reached on November 2, 2016. However, not all convertible bonds were converted.

In 2017, we completed the following shareholder distributions as part of the capital structure optimization program:

- ordinary dividend for 2016 of EUR 0.17 per share, totaling EUR 963 million, paid in June 2017; and
- share repurchases totaling EUR 785 million to complete our EUR 1 billion share repurchase program commenced in November 2016.

Thereafter, we consider that the Capital Structure Optimization Program announced in 2015 has been completed.

Structured finance

Structured finance includes customer financing and other third-party financing. Network operators occasionally require their suppliers, including us, to arrange, facilitate or provide long-term financing as a condition for obtaining infrastructure projects.

As of December 31, 2017, our total customer financing, outstanding and committed, equaled EUR 655 million, an increase of EUR 303 million as compared to EUR 352 million in 2016. As of December 31, 2015, our total customer financing, outstanding and committed, equaled EUR 213 million. Customer financing primarily consisted of financing commitments to network operators.

Refer to Note 36, Risk management, of our consolidated financial statements included in this annual report for further information relating to our committed and outstanding customer financing.

We expect our customer financing commitments to be financed mainly from cash and other liquid assets and through cash flow from operations.

As of December 31, 2017, guarantees of our performance consisted of bank guarantees given on behalf of Nokia to its customers for EUR 1 678 million (EUR 1 805 million as of December 31, 2016). In addition, Nokia Corporation issued corporate guarantees directly to our customers with primary obligation for EUR 1 114 million (EUR 1 608 million as of December 31, 2016). These instruments entitle our customers to claim payments as compensation for non-performance by Nokia of its obligations under supply agreements. Depending on the nature of the instrument, compensation is either payable on demand, or is subject to verification of non-performance.

Financial guarantees and any collateral pledged that we may give on behalf of customers, represent guarantees relating to payment by certain customers and other third parties under specified loan facilities between such customers or other third parties and their creditors. Our obligations under such guarantees are released upon the earlier of expiration of the guarantee or early payment by the customer or other third party.

Refer to Note 30, Commitments and contingencies, of our consolidated financial statements included in this annual report for further information regarding commitments and contingencies.

Venture fund investments and commitments

We make financing commitments to a number of unlisted venture funds that make technology-related investments. The majority of the investments are managed by Nokia Growth Partners which specializes in growth-stage investing, seeking companies that are changing the face of mobility and connectivity.

As of December 31, 2017, our unlisted venture fund investments equaled EUR 661 million, as compared to EUR 819 million as of December 31, 2016. Refer to Note 24, Fair value of financial instruments, of our consolidated financial statements included in this annual report for further information regarding fair value of our unlisted venture fund investments.

As of December 31, 2017, our venture fund commitments equaled EUR 396 million, as compared to EUR 525 million as of December 31, 2016. As a limited partner in venture funds, we are committed to capital contributions and entitled to cash distributions according to the respective partnership agreements and underlying fund activities. Refer to Note 30, Commitments and contingencies, of our consolidated financial statements included in this annual report on for further information regarding commitments and contingencies.

Treasury policy

Treasury activities are governed by the Nokia Treasury Policy approved by the President and CEO and supplemented by operating procedures approved by the CFO, covering specific areas such as foreign exchange risk, interest rate risk, credit and liquidity risk. The objective of treasury's liquidity and capital structure management activities is to ensure that we have sufficient liquidity to go through unfavorable periods without being severely constrained by the availability of funds to execute Nokia's business plans and implement Nokia's long-term business strategy. We are risk-averse in our treasury activities.

Material subsequent events

After December 31, 2017 no material subsequent events have taken place.

Sustainability and corporate responsibility

We create the technology to connect the world and we aim to do this in a responsible way.

1 bn

We have set the target of helping our customers to connect the next billion by 2022

44%

The networks we modernized brought on average energy savings of 44% for our customers

We work together with key stakeholders to drive change and enable better lives, greater access to opportunity and a healthier planet. We design, create and deliver technology that can have a positive impact on people and the world around us. We align with globally recognized ethical and responsible business practices and frameworks, putting in place the processes, policies and programs to achieve our aim.

We believe we can achieve our greatest impact on the world's sustainability challenges by developing and enhancing solutions and technology that improve lives and provide greater opportunities for people. The continued development and rollout of 5G and IoT has the potential to socially and economically empower any individual. These, and other technologies can bring about smart efficiencies and improvements in cities, homes, and industry as well as improved access to digital health, greater public safety and a better climate. Our main business of delivering networks, technology solutions and services to operators, enterprises and institutions provides the greatest potential positive impact on sustainable development.

Materiality assessment and sustainability performance

Description of our business model can be found under "Results of Operations". Our sustainability approach is aligned with both our business strategy and focus, as well as the key material issues identified in our materiality analysis. Our sustainability priorities remain: to improve people's lives with technology, to protect the environment, to conduct our business with integrity, and to respect our people. Sustainability and corporate responsibility issues are reviewed regularly at all levels within Nokia, including review and feedback from the Board of Directors and the Group Leadership Team.

In 2017, we revisited and updated our materiality analysis. We analyzed current stakeholder requirements, our influence on sustainable development throughout the value chain, and further embedded the UN Sustainable Development Goals ("SDGs"). We believe the technology we create can have a positive impact on all 17 SDGs, but place special focus on the areas where we can achieve the greatest positive outcomes.

Based on the materiality analysis, we concentrate our efforts on the benefits of connectivity and sustainable products, environmental impact and climate change challenges. We work hard to ensure ethical business practices and support the increasing need for data privacy and freedom of expression, supply chain responsibility and transparency, health & safety, and employee engagement as well as increased diversity. More details on our materiality assessment, including how we support the UN SDGs can be found in our People & Planet Report at www.nokia.com/people&planet.

Setting concrete targets

In May 2017, we published our achievements against 25 targets in our People & Planet sustainability report online and set 46 short and long-term targets for the period 2017 to 2030. We also specifically set and received approval for 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.

EcoVadis is one of the evaluation platforms through which we provide annual sustainability information for evaluation which is then shared with customers as requested. In 2017, we were in the top 1% of suppliers assessed, achieving excellent scores in environment, sustainable procurement, and labor practices. We also retained for a second consecutive year our listing as Industry leader in the Communications Equipment ("CMT") sector of the Dow Jones Sustainability Indices ("DJSI"). We are listed in both the World and European DJSI indices.



Other recognitions included being ranked at leadership level in the CDP for our work on and disclosure of climate change data and being listed in the Europe 120 and Eurozone 120 indices of Euronext Vigeo. We were also reconfirmed as a constituent of Ethibel Sustainability Indices and were among Corporate Knights Global 100 Most Sustainable Corporations in the world in 2017.

We implement a variety of mitigation processes and procedures to deal with any day-to-day potential environmental, social and ethical risks in our daily business. Potential external global environmental, social, and ethical risks are discussed in more detail under the relevant topic areas below. We have provided detailed reports on our progress and performance in sustainability and corporate responsibility matters annually, and online for over a decade. For further information, refer to our People and Planet report, which is prepared in accordance with the GRI and UN Global Compact sustainability reporting guidelines, at http://www.nokia.com/en_int/about-us/sustainability.

Improving people's lives through technology

Our radio networks' customers provide service for around 5.7 billion subscriptions worldwide. We have set a public target of helping our customers connect the next billion measured by number of subscriptions in our radio customers' networks and by number of fixed lines shipped to our customers.

We have continued to develop our public safety portfolio and Nokia Saving Lives project demonstrates the power of technology to save lives by combining mobile communications technology with drones and applications like real-time high-definition video and infrared camera. We have also now included a humanitarian aid category into the Nokia Open Innovation Challenge 2017. Nokia ViTrust, using LTE, enables public safety networks to deliver real time video and data services that greatly enhance situational awareness and response time in emergencies when every second counts.

We also work closely with Non-Governmental Organizations ("NGOs"), customers, and communities in our corporate community investment. Our strategic social themes are: connecting the unconnected, empowering women, and saving lives. In 2017, as part of our community programs we collaborated with others to realize programs in gender diversity that encourage girls into Science Technology Engineering and Mathematics and technology careers, such as greenlight4girls (see www.greenlightforgirls.org) and CodeBus Africa (www.finland100africa.fi).

We look for initiatives where technology can make a positive contribution to people's lives. For example, in India we support the Save the Children led Forecast Application for Risk Management ("FARM") initiative which is a pioneering initiative that would enable farmers to reduce input costs and risks of crop failure by taking informed farming decisions and investing the savings in their children and families. This technology aims to galvanize the farmers against the ill-effects of changing climatic patterns. It is currently being implemented in Nagapattinam district, Tamil Nadu.

Sustainability and corporate responsibility continued

Protecting the environment

We believe that we have more opportunities than risks related to the environment. Our key potential environmental risks are the adverse effects resulting from climate change as well as natural and man-made disasters in countries where we have manufacturing or suppliers. These effects could include a material adverse impact on our ability to supply products and services, and therefore on our potential sales.

We are committed to protecting the environment and to the fight against climate change by making our operations eco-friendly and reducing the energy usage of the products we deliver to our customers. We have in place a mature, robust environmental management system, and company-wide environmental policy and procedures. We also provide for estimated costs of environmental remediation relating to soil, groundwater, surface water and sediment contamination when we become obliged, legally or associatively, to perform restorative work on current and/or legacy sites.

Our greatest environmental contribution comes from improving the energy efficiency of our products and solutions in use, as well as driving the positive impact digital technology can have in the world. Our environmental management system helps us monitor our progress and identify ways to improve further. We manage our own footprint through continued certification to ISO 14001 environmental management standard and our performance is audited regularly by external auditors. We apply a circular economy approach, for example, offering an Asset Recovery Service, including remanufacturing, reuse and recycling of older equipment as part of product lifecycle management. In 2017, through our voluntary programs, we sent around 2 600 metric tons of old telecommunications equipment for materials recovery and we remanufactured or reused approximately 68 000 units.

Energy efficiency and responsible waste management remain key objectives in our operations. Working with the Science Based Targets ("SBT") initiative we have set the long-term target of reducing emissions from our operations by 41% by 2030, against 2014 baseline year. Read more at www.sciencebasedtargets.org. In 2017, we were well on track towards the target. As a main element of the Scope 1 and 2 emissions, our total energy consumption across our facilities decreased by 3% as compared to 2016.

Targeting zero emissions

In terms of our products in use, we have also set an SBT target for scope 3 emissions – and particularly for emissions from customer use of our products. We target to reduce these emissions by 75% by 2030 compared to 2014 baseline, and are currently on track. We also further developed our zero-emissions radio network offering, which now includes some 20 products and services. We explored the use of liquid cooling for base station sites as well as investigating the capacity to capture waste heat from the base stations and use it as useful heat e.g. for heating buildings.



We have delivered zero emission products to 120 customers around the world, helping them reduce their emissions. Modernization is a key component to enable greater energy efficiency. In 2017, the customer base-station sites we modernized used on average 44% less energy than those where our customers did not modernize. This reduces the environmental impact of electricity consumption and is directly reflected as increased financial benefits for our customers.

Conducting our business with integrity

We apply our Code of Conduct across our operations which allows us to build and maintain personal integrity and protect our reputation. The Code of Conduct includes key business policy statements for 14 topics, including Improper Payments/Anti-Corruption, Fair Employment Practices, Human Rights, Environment and Working with Suppliers. We emphasize the implementation and understanding of the Code of Conduct across our workforce, sales and supplier interactions. Our employees are expected to comply with our Code of Conduct. In addition, employees are expected to successfully complete a training module on ethical business practices. In 2017, 86% of our employees completed this training against our target of 95%. We will continue and strengthen our efforts to increase the completion percentage of this training in order to meet or exceed this target in 2018.

Anti-corruption and bribery

Our Code of Conduct covers, for example, anti-corruption and bribery issues and is further supported by our internal Anti-Corruption Policy. As a global company working in many countries around the world, we naturally can face risks related to corruption and bribery. To mitigate those risks we have instigated a Compliance Controls Framework ("CCF"). This is a bottom-up exercise which includes internal gap-analysis workshops and localized risk mitigation plans. As per target for 2017, the Ethics & Compliance team together with relevant senior leaders carried out 20 CCF reviews during 2017. We also use face-to-face training, open communication and leadership roundtables. For example, we held specific anti-corruption training targeting supplier and customer facing employee groups which have been identified as groups who may face the greatest potential risk. We perform risk-based due diligence procedures for different categories of third parties (suppliers and business partners) to assess and to manage potential risks related to engaging and working with them. We also screen new suppliers as part of our anti-corruption supplier program, using two levels of screening according to perceived risk. If issues are identified during screening, additional information or actions are required of the supplier, or the supplier is rejected and cannot be used.

Oversight and grievance mechanisms

Leadership involvement and oversight of ethics and compliance are provided by the Board via the Audit Committee, which convened nine times in 2017, and covered ethics and compliance topics in five of those meetings. Compliance management is further supported by both global and regional compliance committees. Employees and external stakeholders are urged to report any ethical misconduct using our dedicated Nokia EthicsPoint channels via email, phone or online, anonymously if desired.

In 2017, our Ethics & Compliance office received 678 concerns, of which 257 were investigated by Ethics & Compliance Investigations as alleged violations of our Code of Conduct. We also implemented corrective actions including 47 dismissals and 45 written warnings following these and other investigations.

Human rights

Our human rights work is guided by the Code of Conduct and the Human Rights Policy. We feel that more connectivity is better than less and that the technologies we provide are a social good that can support human rights by enabling free expression, access to information, exchange of ideas and economic development. However, we have identified the potential misuse of the products and technology we provide, as the most salient human rights risk in our operations. We aim to ensure the technologies we provide are used to respect, and not to infringe human rights. We have also identified potential human rights related risks in our supply chain. Please read more about how we manage our supply chain, including the KPI on conflict-free smelters, in the "Responsible sourcing" section.

Sustainability and corporate responsibility continued

Freedom of expression and privacy

In 2017, to increase transparency, we became the first telecoms vendor to publish real human rights due diligence cases to increase the dialogue and understanding of the issues vendors can face. We run human rights due diligence processes as part of our global sales process, to further mitigate the potential risks of product misuse. In March 2017, we took a seat on the board of the Global Network Initiative (“GNI”) as a full member and as the first and only telecommunications equipment provider. The former Telecommunications Industry Dialogue was disbanded as the majority of its members have taken up membership in the GNI.

In June 2017, we published our Modern Slavery Statement. While it is often perceived that ICT may enable many activities related to modern slavery, it is our mission to help find ways in which the technology we provide can be used to eradicate modern slavery. We work with others in the industry to identify ways through which we can, as an industry, contribute with concrete solutions to tackling some of the issues related to modern slavery. To this end we co-hosted a multi-stakeholder event to increase the cooperation and dialogue around the role of digital technology in tackling modern slavery. Moving forward, we will also continue to call on other ICT companies to join us in this dialogue.

Responsible sourcing

Whereas our Code of Conduct primarily directs how we work in Nokia, our Supplier Requirements, common to all Nokia suppliers, is part of the contract appendices with suppliers and details related requirements from suppliers. Nokia Supplier Requirements contain requirements on such responsibility related domains as environment, security, privacy, risk management, human resources management, and health. We run robust assessments as well as training with our supplier network to support them in meeting our ethical standards and improving performance where necessary.

In 2017, we implemented 393 supply chain audits (390 in 2016), which included 72 on-site audits on Corporate Responsibility topics; 47 were on-site audits against our supplier requirements and 274 suppliers were assessed using the EcoVadis scorecards. Additionally, we run training workshops for suppliers operating in high-risk countries. In 2017, we organized online training on management of climate change and conflict minerals, and we arranged face-to-face training workshops establishing improvement plans and actions for 253 suppliers. An extract from the Nokia Supplier Requirements document showing a summary of the corporate responsibility requirements is available online at www.nokia.com/people&planet.

We also carry out Health & Safety Maturity Assessments with those high-risk suppliers who for example work at height or with electricity. In 2017, we assessed 975 suppliers delivering high-risk activity using our H&S Maturity Assessment Process and 81% of assessed suppliers met “H&S compliant supplier”-status. By the end of 2018 we target to increase the percentage of suppliers meeting H&S compliant supplier status to 90%.

The traceability of our materials and ensuring our products are conflict-free is a priority for us, which is also reflected in our Conflict Minerals Policy. In 2017, 83% (84% in 2016) of smelters identified as part of our supply chain have been validated as conflict-free or are active in the validation process. In our Mobile Networks business we target to achieve full traceability of the smelters in our supply chain and their conflict-free status by the end of 2018, and achieve full traceability at the Nokia Group level by the end of 2020. Refer to our conflict minerals report available at http://www.nokia.com/en_int/about-us/sustainability/downloads.

We work closely with our supply chain through the CDP Supply Chain Program to jointly create environmental improvement programs and better our upstream indirect emissions that occur in our value chain. In 2017, 292 of our key suppliers responded to the CDPs request to disclose their climate performance information and 153 (127 in 2016) also provided emission reduction targets. With this result, we have achieved our target to have 150 suppliers setting emission reduction targets by end of 2018.

Respecting our people

The market for skilled employees in our business is extremely competitive. Our workforce has fluctuated over recent years as we have introduced changes in our strategy to respond to our business targets and our endeavors. Such changes and uncertainty have caused, and may in the future cause disruption among employees as well as fatigue due to the cumulative effect of several reorganizations over the past years. As a result, we believe it is essential that we work on creating a corporate culture that is motivational, based on equal opportunities, and encourages creativity and continuous learning to meet the challenges.

In 2017, we continued to measure the favorability of employee perceptions across a wide variety of topics about company and culture, with an anonymous employee survey. The result rose from 76% to 80% favorability towards the company. In 2018, we aim to continue strengthening our employee engagement understanding by exploring new means to capture employee opinion, for overall perceptions of Nokia as a company and our cultural direction, as well as team dynamics. We offer training, development programs, comprehensive reward packages and flexible working as part of our effort to motivate and show that we value our employees and the work they do. In 2017, we also introduced global volunteering guidelines allowing all employees the opportunity to carry out two working days per year as a volunteer.

In 2017, each employee spent an average of approximately 16 hours on training (19 in 2016). Additionally, we arrange a one-hour dialog session every quarter between the line manager and each team member, which covers objective setting and review of results, individual development, employee well-being and engagement, coaching by the line manager, and mutual feedback.

Diversity, inclusion and anti-discrimination are key to our employee makeup. On March 8, 2017, International Women's Day, our CEO Rajeev Suri signed the United Nations Women Empowerment Principles, stating that Nokia is committed to doing its part to eliminate the disparity in technology companies between men and women. We have a Diversity Steering Committee that makes decision proposals to the Group Leadership Team and steers our various diversity programs. In September 2017, our CEO also signed a letter of cooperation with UNESCO to promote gender equality, women's empowerment and women's leadership. In 2017, approximately 13% (14% in 2016) of our senior management positions were held by women and around 2 300 leaders and employees were trained on gender balance topics, against the target of 2 000. In total, women accounted for 22% of our workforce in 2017.

Labor conditions

Our Code of Conduct provides the basis for our labor conditions, and is underpinned by a comprehensive set of global human resources policies and procedures that enable fair employment. We adhere to the International Labor Organization ("ILO") Declaration on Fundamental Principles and Rights at Work and wherever we operate we meet the requirements of labor laws and regulations, and oftentimes strive to exceed those laws and regulations.

We strive to ensure decent working conditions and fair employment, considering international and local laws and guidelines. Health and safety is a key priority for us.

We address job-related health and safety risks through training, analysis, assessments and consequence management. We have put in place a wide range of programs to improve our health and safety performance and encourage reporting of near misses and dangerous incidents by employees and contractors. As the highest risks exist with our contractors who, for example, work at height or with electricity, we have therefore set KPIs related to the supplier Health and Safety Maturity Assessment Process, which are described in the Responsible sourcing section above. In April 2017, we launched a new corporate wellness program *Healthier Together*, encouraging and enabling active lifestyle for all employees, and contributing to making Nokia a healthy place to work.

Making change happen together

To achieve our sustainability goals, we collaborate closely with suppliers, customers, non-governmental organizations ("NGOs"), authorities and industry peers, not only supporting them in achieving their sustainability goals but also driving the sustainability of our products and solutions.

Cooperating with others in our industry and beyond

In 2017, we remained a member of the United Nations Global Compact, Global e-Sustainability Initiative, CDP supply chain program, Global Network Initiative, Climate Leadership Council, Digital Europe, Responsible Mineral Initiative (formerly Conflict-Free Sourcing Initiative), GSMA Humanitarian Connectivity Charter and several standardization and university cooperation groups. We have further structured engagement with the World Economic Forum, the Broadband Commission and ITU Telecom World, amongst others.

Working with NGOs

Based on our Corporate Community Investment approach, we set a target of improving the lives of 2 000 000 people between 2016-2025 through our corporate and key regional community investment programs, focusing our action on gender balance, education, and health, and on how our products and services improve people's lives. By the end of 2017, already around 1 122 400 people have benefitted from our programs.

In addition to multi-year signature programs for example with Save the Children and Greenlight for Girls, in 2017 we supported new signature programs such as the Unicef mHealth program in Indonesia (<http://unicefstories.org/tech/mhealth/>) and HundrED (www.hundred.org/en). In addition to these, we have worked with several other organizations to activate children and youth to innovate and be empowered through technology.

Employees

In 2017, the average number of employees was 101 731 (102 687 in 2016 and 56 690 in 2015). The total amount of salaries and wages paid in 2017 was EUR 6 456 million (EUR 6 275 million in 2016 and EUR 3 075 million in 2015). Refer to Note 9, Personnel expenses, of our consolidated financial statements in this annual report.

The table below shows the average number of employees in 2017, by geographical location:

Region	Average number of employees
Finland	6 359
Other European countries	32 698
Middle East & Africa	3 954
China	17 829
Asia-Pacific	22 179
North America	14 910
Latin America	3 802
Total	101 731



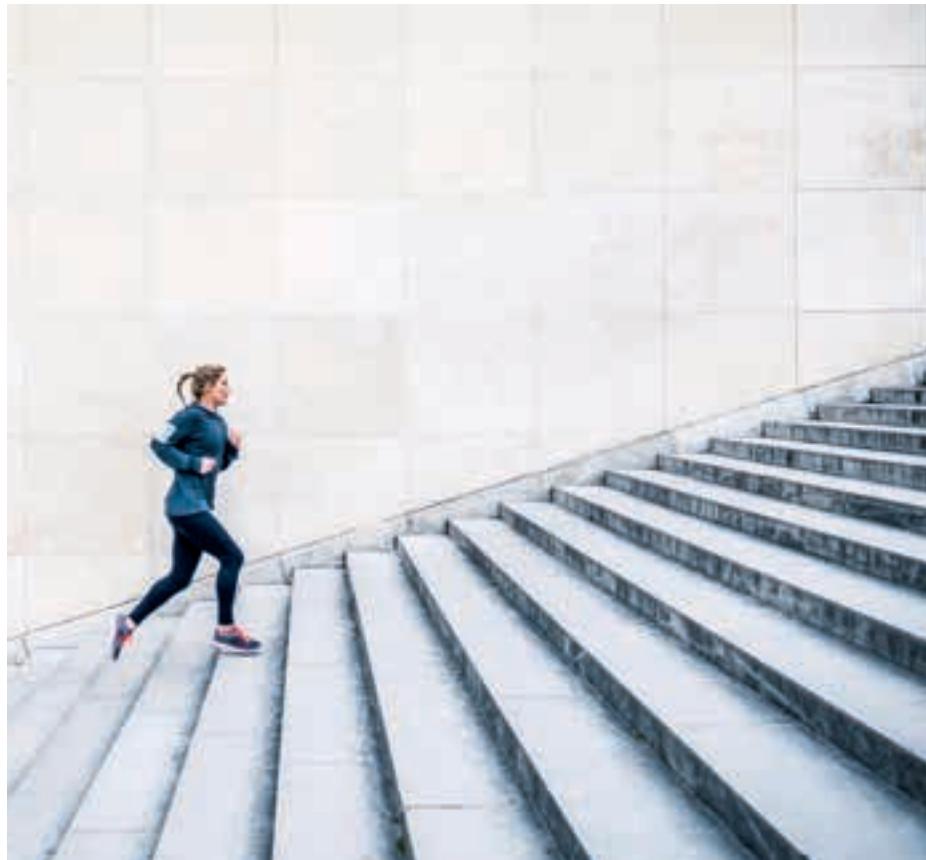
Dividend

The Board of Directors proposes a dividend of EUR 0.19 per share for 2017.

The proposed dividend is in line with our distribution target. Nokia's Board of Directors is committed to proposing a growing dividend, including for 2018. On a long-term basis, Nokia targets to grow the dividend by distributing approximately 40% to 70% of earnings per share ("EPS"), excluding unallocated items*, taking into account Nokia's cash position and expected cash flow generation.

We distribute retained earnings, if any, within the limits set by the Finnish Companies Act (as defined below). We make and calculate the distribution, if any, in the form of cash dividends, share buy-backs, or in some other form, or a combination of these. There is no specific formula by which the amount of a distribution is determined, although some limits set by law are discussed below. The timing and amount of future distributions of retained earnings, if any, will depend on our future results and financial conditions.

Under the Finnish Companies Act, we may distribute retained earnings on our shares only upon a shareholders' resolution and subject to limited exceptions in the amount proposed by the Board. The amount of any distribution is limited to the amount of distributable earnings of the parent company pursuant to the last accounts approved by our shareholders, taking into account the material changes in the financial situation of the parent company after the end of the last financial period and a statutory requirement that the distribution of earnings must not result in insolvency of the parent company. Subject to exceptions relating to the right of minority shareholders to request a certain minimum distribution, the distribution may not exceed the amount proposed by the Board of Directors.



* Includes costs related to the acquisition of Alcatel Lucent and related integration, goodwill impairment charges, intangible asset amortization and other purchase price fair value adjustments, restructuring and associated charges and certain other items.

Risk factors

Set forth below is a description of risk factors that could affect our business. Shareholders and potential investors should carefully review the following risk factors, in addition to other information contained in this annual report. The risk factors described below should not be construed as exhaustive. There may be additional risks that are unknown to us and other risks currently believed to be immaterial that could turn out to be material.

These risks, either individually or collectively, could adversely affect our business, sales, profitability, results of operations, financial condition, competitiveness, costs, expenses, liquidity, market share, brand, reputation and share price. Unless otherwise indicated or the context otherwise requires, references in these risk factors to "Nokia", the "Nokia Group", "Group", "we", "us" and "our" mean Nokia's consolidated operating segments. Certain risks or events may be more prevalent with respect to Nokia or a certain business group, business or part of the Group.

Additional risks and uncertainties not presently known to us, or that are currently believed to be immaterial, could impair our business or the value of an investment made in it. This annual report also contains forward-looking statements that involve risks and uncertainties presented in "Forward-looking statements" below.

- Our strategy is subject to various risks and uncertainties and we may be unable to successfully implement our strategic plans, sustain or improve the operational and financial performance of our business groups, correctly identify or successfully pursue business opportunities or otherwise grow our business.
- We may be materially and adversely affected by general economic and market conditions and other developments in the economies where we operate.
- We face intense competition and may fail to effectively and profitably invest in new competitive high-quality products, services, upgrades and technologies or bring them to market in a timely manner or fail to adapt to changing business models.
- We are dependent on the development of the industries in which we operate, including the information technology and communications industries and related services market, as well as the digital media and digital health markets. The information technology and communications industries and related services market are cyclical and are affected by many factors, including the general economic environment, purchase behavior, deployment, roll-out timing and spending by service providers, consumers and businesses. The digital media and digital health markets are rapidly evolving markets affected by numerous factors, including regulation and IPR.
- We are dependent on a limited number of customers and large multi-year agreements. The loss of a single customer or contract, operator consolidation, unfavorable contract terms or other issues related to a single agreement may have a material adverse effect on our business and financial condition.
- Our patent licensing income and other intellectual property-related revenues are subject to risks and uncertainties such as our ability to maintain our existing sources of intellectual property-related revenue, establish new sources of revenue and protect our intellectual property from infringement. A proportionally significant share of the current patent licensing income is generated from the smartphone market which is rapidly changing and features a limited number of large vendors.
- We conduct our business globally, exposing us to political and regional risks, including unfavorable or unpredictable treatment in relation to tax matters, exchange controls, and other restrictions.
- Our efforts aimed at managing and improving our financial or operational performance, cost savings, competitiveness and obtaining the targeted synergy benefits and cost savings, may not lead to targeted results, benefits, cost savings or improvements.
- We may be unable to realize the anticipated benefits, synergies, cost savings or efficiencies from acquisitions, including the acquisition of Alcatel Lucent, and we may encounter issues or inefficiencies related to our organizational and operational structure, including being unable to successfully implement our business plans.
- Due to our global operations, our net sales, costs and results of operations, as well as the U.S. dollar value of our dividends and market price of our ADSs, are affected by exchange rate fluctuations.
- Our products, services and business models depend on technologies that we have developed as well as technologies that are licensed to us by certain third parties. As a result, evaluating the rights related to the technologies we use or intend to use is increasingly challenging, and we expect to continue to face claims that we have allegedly infringed third parties' IPR. The use of these technologies may also result in increased licensing costs for us, restrictions on our ability to use certain technologies in our products and/or costly and time-consuming litigation.

■ Our business is subject to direct and indirect regulation. As a result, changes in various types of regulations or their application, as well as economic and trade policies applicable to current or new technologies or products, may adversely affect our business and results of operations. Our governance, internal controls and compliance processes could also fail to prevent regulatory penalties, both at operating subsidiaries and in joint ventures.

■ We are exposed to risks related to information security. Our business model relies on solutions for distribution of services and software or data storage, which entail inherent risks relating to applicable regulatory regimes, cybersecurity breaches and other unauthorized access to network data or other potential security risks that may adversely affect our business.

■ Inefficiencies, breaches, malfunctions or disruptions of information technology systems and processes could have a material adverse effect on our business and results of operations.

■ Our Nokia Technologies business group aims to generate net sales and profitability through licensing of the Nokia brand and technologies in addition to the development and sales of products and services, especially in the area of digital health. We are also engaged with other business ventures including technology innovation and incubation. Expected net sales and profitability for these businesses may not materialize as planned or at all.

■ We operate in a number of different jurisdictions around the world and we are subject to various legal frameworks regulating corruption, fraud, trade policies, and other risk areas. At any given time we may be subject to inspections,

investigations, claims, and government proceedings, and the extent and outcome of such proceedings may be difficult to estimate with any certainty. We may be subject to material fines, penalties and other sanctions as a result of such investigations.

- We may be adversely affected by developments with respect to the customer financing or extended payment terms that we provide our customers.
- We have operations in many countries with different tax laws and rules, which may result in complex tax issues and disputes.
- Our actual or anticipated performance, among other factors, could reduce our ability to utilize our deferred tax assets.
- We may be unable to retain, motivate, develop and recruit appropriately skilled employees.
- We may face problems or disruptions in our manufacturing, service creation, delivery, logistics or supply chain. Additionally, adverse events may have a profound impact on production sites or the production sites of our suppliers, which are geographically concentrated.
- An unfavorable outcome of litigation, arbitrations, agreement-related disputes or product liability-related allegations against our business could have a material adverse effect on us.
- We may not have access to sources of funding on favourable terms, or at all.
- We may not be able to re-establish investment grade rating or maintain our credit ratings.
- We may be unable to achieve targeted benefits from, or successfully implement, planned transactions or transactions may result in liabilities.
- We are involved in joint ventures and are exposed to risks inherent to companies under joint management.
- Performance failures of our partners, as well as failures to agree to partnering arrangements with third parties could adversely affect us.
- The carrying amount of our goodwill may not be recoverable.
- The amount of dividend and equity return distributed to shareholders for each financial period is uncertain and is affected by exchange rate fluctuations.
- We are exposed to pension, employee fund-related and employee healthcare-related risks and we may be unsuccessful in our ability to avoid or control costs resulting from a need for increased funding.
- We engage in the installation and maintenance of undersea telecommunications cable networks, and in the course of this activity we may cause damage to existing undersea infrastructure, for which we may ultimately be held responsible.

Shares and share capital

Nokia has one class of shares. Each Nokia share entitles the holder to one vote at General Meetings of Nokia.

As of December 31, 2017, the total number of Nokia shares was 5 839 404 303 and our share capital equaled EUR 245 896 461.96. As of December 31, 2017, Nokia and its subsidiary companies owned a total of 259 887 597 Nokia shares, representing approximately 4.5% of the total number of the shares and voting rights of the company.

In 2017, we did not cancel any shares.

In 2017, under the authorization held by the Board of Directors and in line with the capital structure optimization program, Nokia repurchased 153 601 462 shares representing approximately 2.6% of share capital and total voting rights as of December 31, 2017. In 2016, we had repurchased 54 296 182 shares. The price paid for the shares was based on the current market price of the Nokia share on the securities market at the time of the repurchase. The 207 897 644 repurchased shares representing approximately 3.6% of share capital and total voting rights on December 31, 2017 were cancelled, effective as of February 2, 2018.

In 2017, under the authorization held by the Board of Directors, we issued 415 750 new shares following the holders of stock options issued in 2011, 2012 and 2013 exercising their option rights. In addition, we issued 2 933 541 new shares without consideration to Nokia to be transferred to fulfil our obligation under the Nokia Equity Programs.

In 2017, under the authorization held by the Board of Directors, we issued a total of 12 199 284 treasury shares to our employees, including certain members of the Group Leadership Team, as settlement under Nokia's equity-based incentive plans. The shares were issued without consideration and in accordance with the plan rules. The total number of treasury shares issued represented 0.2% of the total number of shares and the total voting rights as of December 31, 2017. The issuances did not have a significant effect on the relative holdings of other Nokia shareholders, or on their voting power.

Information on the authorizations held by the Board of Directors in 2017 to issue shares and special rights entitling to shares, to transfer shares and repurchase own shares, as well as information on related party transactions, the shareholders, stock options, shareholders' equity per share, dividend yield, price per earnings ratio, share prices, market capitalization, share turnover and average number of shares is available in the "Corporate Governance—Compensation", "Financial Statements", "General facts on Nokia—Shares and shareholders" and "General facts on Nokia—Related party transactions" sections.

Refer to Note 20, Shares of the Parent Company, of our consolidated financial statements included in this annual report for further information regarding Nokia shares.

Board of Directors and management

Pursuant to the Articles of Association of Nokia Corporation, our Board of Directors is composed of a minimum of seven and a maximum of 12 members. The Board of Directors is elected at least annually at the Annual General Meeting of the shareholders for a term ending at the end of the next Annual General Meeting, which convenes annually by June 30.

The Board of Directors has responsibility for appointing and discharging the President and CEO, the Chief Financial Officer and other members of the Group Leadership Team.

For information on remuneration, shares and stock options held by the Board of Directors, the President and CEO and the other members of the Group Leadership Team, refer to “Corporate governance—Compensation”. For more information regarding corporate governance at Nokia, refer to “Corporate governance—Corporate governance statement” or to our website at http://www.nokia.com/en_int/investors/corporate-governance.



Articles of Association

Our Articles of Association are available on our website www.nokia.com/en_int/investors/corporate-governance. Amendment of the Articles of Association requires a resolution of the general meeting of shareholders, supported by two-thirds of the votes cast and two-thirds of the shares represented at the meeting. For information on our Articles of Association, refer to “General facts on Nokia—Memorandum and Articles of Association”.

Our Articles of Association include provisions for obligation to redeem. Amendment of the provisions of Article 13 of the Articles of Association, “Obligation to purchase shares”, requires a resolution supported by three-quarters of the votes cast and three-quarters of the shares represented at the meeting.

Board of Directors, Nokia Corporation
March 22, 2018

Corporate governance



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Corporate governance statement

This corporate governance statement is prepared in accordance with Chapter 7, Section 7 of the Finnish Securities Markets Act (2012/746, as amended) and the Finnish Corporate Governance Code 2015 (the “Finnish Corporate Governance Code”).

Regulatory framework

Our corporate governance practices comply with Finnish laws and regulations as well as with our Articles of Association. We also comply with the Finnish Corporate Governance Code, available at www.cgfinland.fi, with the following exception:

In 2017, we complied with the Finnish Corporate Governance Code, with the exception that we were not in full compliance with recommendation 24, because our restricted share plans did not include performance criteria but were time-based only. The restricted shares vest in three equal tranches on the first, second and third anniversary of the award subject to continued employment with Nokia. Restricted Shares were to be granted on a limited basis for exceptional purposes related to retention and recruitment, primarily in the United States, to ensure Nokia is able to retain and recruit vital talent for the future success of the company. The restricted share plan for 2018 is designed in a similar manner. The Board approves, upon recommendation from the Board’s Personnel Committee, any long-term incentive compensation and all equity plans, programs or similar arrangements of significance that the company establishes for its employees.

We comply with the corporate governance standards of Nasdaq Helsinki, which are applicable due to the listing of our shares on the exchange. Furthermore, as a result of the listing of our American Depository Shares on the New York Stock Exchange (the “NYSE”) and our registration under the U.S. Securities Exchange Act of 1934, we must comply with the U.S. federal securities laws and regulations, including the Sarbanes-Oxley Act of 2002 as well as the rules of the NYSE, in particular the corporate governance standards under Section 303A of the NYSE Listed Company Manual, which is available at <http://nysemanual.nyse.com/lcm>. We comply with these standards to the extent such provisions are applicable to foreign private issuers.

To the extent any non-domestic rules would require a violation of the laws of Finland, we are obliged to comply with Finnish law. There are no significant differences in the corporate governance practices applied by Nokia compared to those applied by United States companies under the NYSE corporate governance standards, with the exception that Nokia complies with Finnish law with respect to the approval of equity compensation plans. Under Finnish law,

stock option plans require shareholder approval at the time of their launch. All other plans that include the delivery of company stock in the form of newly issued shares or treasury shares require shareholder approval at the time of the delivery of the shares, unless shareholder approval has been granted through an authorization to the Board, a maximum of five years earlier. The NYSE corporate governance standards require that the equity compensation plans be approved by a company’s shareholders. Nokia aims to minimize the necessity for, or consequences of, conflicts between the laws of Finland and applicable non-domestic corporate governance standards.

The Board has also adopted corporate governance guidelines (“Corporate Governance Guidelines”) to reflect our commitment to good corporate governance. Our Corporate Governance Guidelines are available on our website at http://www.nokia.com/en_int/investors/corporate-governance.

Main corporate governance bodies of Nokia

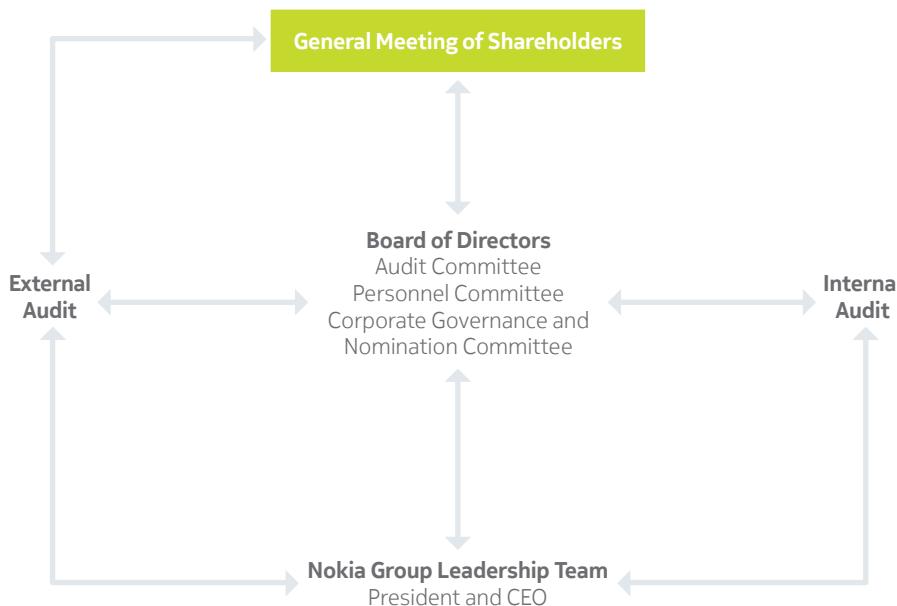
Pursuant to the provisions of the Finnish Limited Liability Companies Act (2006/624, as amended) (the “Finnish Companies Act”) and Nokia’s Articles of Association, the control and management of Nokia are divided among the shareholders at a general meeting, the Board, the President and CEO and the Group Leadership Team, chaired by the President and CEO.

General meeting of shareholders

The shareholders may exercise their decision-making power and their right to speak and ask questions at the general meeting of shareholders. Each Nokia share entitles a shareholder to one vote at general meetings of Nokia. Pursuant to the Finnish Companies Act, an Annual General Meeting must convene annually by June 30. The Annual General Meeting decides, among other things, on the election and remuneration of the Board, the adoption of the annual accounts, the distribution of profit shown on the balance sheet, and discharging the members of the Board and the President and CEO from liability, as well as on the election and fees of the external auditor.

In addition to the Annual General Meeting, an Extraordinary General Meeting shall be convened when the Board considers such meeting to be necessary, or when the provisions of the Finnish Companies Act mandate that such a meeting must be held.

Corporate governance framework



Board of Directors

The operations of Nokia are managed under the direction of the Board, within the framework set by the Finnish Companies Act and Nokia's Articles of Association as well as any complementary rules of procedure as defined by the Board, such as the Corporate Governance Guidelines and the charters of the Board's committees.

Election and composition of the Board of Directors

Pursuant to the Articles of Association of Nokia Corporation, we have a Board that is composed of a minimum of seven and a maximum of 12 members. The Board is elected at least annually at each Annual General Meeting with a simple majority of the shareholders' votes cast at the meeting. The term of a Board member shall begin at the closing of the general meeting at which he or she was elected, or later as resolved by the general meeting, and expire at the closing of the following Annual General Meeting. The Annual General Meeting convenes by June 30 annually.

The Annual General Meeting held on May 23, 2017 elected the following ten members to the Board for a term ending at the close of the Annual General Meeting in 2018: Bruce Brown, Jeanette Horan, Louis R. Hughes, Edward Kozel, Jean C. Monty, Elizabeth Nelson, Olivier Piou, Risto Siilasmaa, Carla Smits-Nusteling and Kari Stadigh.

Our Board's leadership structure consists of a Chair and Vice Chair elected annually by the Board, and confirmed by the independent directors of the Board, from among the Board members upon the recommendation of the Corporate Governance and Nomination Committee. On May 23, 2017, the Board elected Risto Siilasmaa to continue to serve as the Chair and Olivier Piou as the Vice Chair of the Board. The Chair of the Board has certain specific duties as stipulated by Finnish law and our Corporate Governance Guidelines. The Vice Chair of the Board assumes the duties of the Chair of the Board in the event he or she is prevented from performing his or her duties.

We do not have a policy concerning the combination or separation of the roles of the Chair of the Board and the President and CEO, but the leadership structure is dependent on our needs, shareholder value and other relevant factors applicable from time to time, while respecting the highest corporate governance standards. In 2017, Rajeev Suri served as the President and CEO, while Risto Siilasmaa served as the Chair of the Board.

The current members of the Board are all non-executive. For the term of the Board that began at the Annual General Meeting on May 23, 2017, all Board member candidates were determined to be independent under the Finnish corporate governance standards and the rules of the NYSE.

The Board has adopted principles concerning Board diversity describing (a) our commitment to promoting diverse Board composition, and (b) how diversity is embedded into our processes and practices when identifying and proposing new Board candidates as well as re-election of current Board members.

At Nokia, Board diversity consists of a number of individual elements, including gender, age, nationality, cultural and educational backgrounds, skills and experience. At Nokia diversity is not a static concept, but rather a relevant mix of required elements for the Board as a whole that evolves with time based on, among other things, the relevant business objectives and future needs of Nokia. Board diversity is treated as a means of improvement and development rather than an end in itself.

Nokia acknowledges and supports the resolution adopted by the Finnish Government on February 17, 2015 on gender equality on the boards of directors of Finnish large and mid-cap listed companies. Accordingly, we aim to have representation of 40% of both genders in our Board by January 1, 2020 by proposing a corresponding Board composition for shareholder approval in the Annual General Meeting of 2019, at the latest. At the Annual General Meeting on May 23, 2017, Jeanette Horan was elected to the Board after which the gender balance of the Board was 70% male and 30% female. We report annually our objectives relating to both genders being represented on our Board, the means to achieve them, and the progress we have made in achieving them.

Corporate governance statement continued

Members of the Board of Directors

Set forth below are the current members of the Board and their biographical details. Information about the share ownership of the Board members is disclosed in the Remuneration Statement, refer to “Compensation” below.

Chair Risto Siilasmaa

b. 1966

Chair of the Nokia Board. Board member since 2008. Chair since 2012. Chair of the Corporate Governance and Nomination Committee.

Master of Science (Eng.), Helsinki University of Technology, Finland.

President and CEO of F-Secure Corporation 1988–2006.

Chairman of the Board of Directors of F-Secure Corporation. Chairman of the Board of Directors of the Federation of Finnish Technology Industries. Vice Chairman of the Board of Directors of the Confederation of Finnish Industries (EK). Member of European Roundtable of Industrialists.

Chairman of the Board of Directors of Elisa Corporation 2008–2012.

Vice Chair Olivier Piou

b. 1958

Vice Chair of the Nokia Board. Board member and Vice Chair since 2016. Member of the Personnel Committee and the Corporate Governance and Nomination Committee.

Engineer, École Centrale de Lyon, France.

Chief Executive Officer of Gemalto N.V. 2006–2016. Chief Executive Officer of Axalto N.V. 2004–2006. With Schlumberger Ltd 1981–2004, including numerous management positions in the areas of technology, marketing and operations, in France and the United States.

Member of the Board of Directors of Gemalto N.V. Member of the Board of Directors of the PESH foundation.

Member of the Board of Directors of Alcatel Lucent SA 2008–2016.

Bruce Brown

b. 1958

Nokia Board member since 2012. Chair of the Personnel Committee. Member of the Corporate Governance and Nomination Committee.

MBA (Marketing and Finance), Xavier University, the United States. BS (Chemical Engineering), Polytechnic Institute of New York University, the United States.

Retired from The Procter & Gamble Company in 2014. Chief Technology Officer of the Procter & Gamble Company 2008–2014. Various executive and managerial positions in Baby Care, Feminine Care, and Beauty Care units of The Procter & Gamble Company since 1980 in the United States, Germany and Japan.

Member of the Board of Directors of Agency for Science, Technology & Research (A*STAR) in Singapore. Member of the Board of Directors, the Audit Committee and the Nominating and Corporate Governance Committee of P. H. Glatfelter Company. Member of the Board of Directors, the Audit Committee and the Compensation Committee of Medpace, Inc.

Jeanette Horan

b. 1955

Nokia Board member since 2017. Member of the Audit Committee.

MBA, Business Administration and Management, Boston University, the United States. BSc, Mathematics, University of London, United Kingdom.

Various executive and managerial positions in IBM 1998–2015. Vice President of Digital Equipment Corporation 1994–1998. Vice President, Development, of Open Software Foundation 1989–1994.

Member of the Supervisory Board at Wolters Kluwer, and the Chair of the Remuneration Committee. Member of the Board of Advisors at Jane Doe No More, a non-profit organization.

Member of the Board of Advisors of Cyberseason 2017–2018. Member of the Board of Directors of West Corporation 2016–2017. Member of the Board of Directors of Microvision 2006–2017.

Louis Hughes

b. 1949

Nokia Board member since 2016. Member of the Audit Committee.

Master's Degree in Business Administration, Harvard University, Graduate School of Business, the United States. Bachelor of Mechanical Engineering, General Motors Institute, now Kettering University, the United States.

President & Chief Operating Officer of Lockheed Martin in 2000. Executive Vice President of General Motors Corporation 1992–2000. President of General Motors International Operations 1992–1998. President of General Motors Europe 1992–1994.

Chairman of InZero Systems (formerly GBS Laboratories) (the United States). Independent director and member of the Audit Committee of AkzoNobel. Independent director and chairman of the Audit, Finance and Compliance Committee of ABB. Executive advisor partner of Wind Point Partners.

Member of the Board of Directors of Alcatel Lucent SA 2008–2016.

Edward Kozel

b. 1955

Nokia Board member since 2017. Member of the Audit Committee.

Degree in Electrical Engineering and Computer Science, University of California, the United States.

President and CEO of Range Networks 2013–2014, Owner of Open Range 2000–2013, Chief Technology and Innovation Officer and member of the Board of Management of Deutsche Telecom 2010–2012, CEO of Skyrider 2006–2008, Managing Director of Integrated Finance 2005–2006, Senior Vice President, Business development and Chief Technology Officer and Board Member of Cisco 1989–2001.

Various Board Memberships in 1999–2009.

Jean Monty

b. 1947

Nokia Board member since 2016. Member of the Personnel Committee.

Bachelor of Arts, Collège Sainte-Marie de Montréal, Canada. Master of Arts in Economics, University of Western Ontario, Canada. Master of Business Administration, University of Chicago, the United States.

Chairman of the Board and Chief Executive Officer of Bell Canada Enterprises until 2002. President and Chief Executive Officer of Nortel Networks Corporation until 1997.

Member of the Board of Directors of Fiera Capital Inc. Member of the Boards of Directors of Bombardier 1998–2017. Member of the Board of Directors of Alcatel Lucent SA 2008–2016.

Elizabeth Nelson**b. 1960**

Nokia Board member since 2012. Chair of the Audit Committee.

MBA (Finance), the Wharton School, University of Pennsylvania, the United States. BS (Foreign Service), Georgetown University, the United States.

Executive Vice President and Chief Financial Officer, Macromedia, Inc. 1997–2005. Vice President, Corporate Development, Macromedia, Inc. 1996–1997. Various roles in Corporate Development and International Finance, Hewlett-Packard Company 1988–1996.

Chairman of the Board of Directors of DAI. Independent Lead Director and Chair of the Audit Committee of Zendesk Inc.

Member of the Board of Directors of Pandora Media 2013–2017. Member of the Boards of Directors of Brightcove, Inc. 2010–2014, SuccessFactors, Inc. 2007–2012 and Ancestry.com, Inc. 2009–2012.

Carla Smits-Nusteling**b. 1966**

Nokia Board member since 2016. Member of the Audit Committee.

Master's Degree in Business Economics, Erasmus University Rotterdam, the Netherlands. Executive Master of Finance and Control, Vrije University Amsterdam, the Netherlands.

Member of the Board of Directors and Chief Financial Officer of KPN 2009–2012. Various financial positions in KPN 2000–2009. Various financial and operational positions in TNT/PTT Post 1990–2000.

Member of the Supervisory Board since 2013 and Chair of the Audit Committee of ASML. Member of the Board of Directors since 2013 and Chair of the Audit Committee of TELE2 AB. Member of the Management Board of the Unilever Trust Office since 2015. Lay Judge in the Enterprise Court of the Amsterdam Court of Appeal since 2015.

Kari Stadigh**b. 1955**

Group CEO and President of Sampo plc. Nokia Board member since 2011. Member of the Personnel Committee and the Corporate Governance and Nomination Committee.

Master of Science (Eng.), Helsinki University of Technology, Finland. Bachelor of Business Administration, Hanken School of Economics, Helsinki, Finland.

Deputy CEO of Sampo plc 2001–2009. President of Sampo Life Insurance Company Limited 1999–2000. President of Nova Life Insurance Company Ltd 1996–1998. President and COO of Jaakko Pöyry Group 1991–1996.

Member of the Board of Directors and Chair of the Board's Risk Committee of Nordea Bank AB (publ). Chairman of the Board of Directors of If P&C Insurance Holding Ltd (publ) and Mandatum Life Insurance Company Limited. Member of the Board of Directors of the Federation of Finance Finland (previously Finnish Financial Services). Member of the Board of Directors of Waypoint Capital Group Holdings SA. Member of the Board of Directors of Niilo Helanderin Säätiö.

Chair Risto Siilasmaa**Vice Chair Olivier Piou****Bruce Brown****Jeanette Horan****Louis Hughes****Edward Kozel****Jean Monty****Elizabeth Nelson****Carla Smits-Nusteling****Kari Stadigh**

Corporate governance statement continued

Election of the Chair of the Board of Directors and Vice Chair of the Board of Directors and the chair and members of the Board's Committees

The Chair of the Board and the Vice Chair of the Board of Directors are elected from among the members of the Board by the new Board and confirmed by the independent directors of the Board based on the recommendation of the Corporate Governance and Nomination Committee. The independent directors of the new Board also confirm the election of the members and chairs for the Board's committees from among the Board's independent directors upon the recommendation of the Corporate Governance and Nomination Committee and based on each committee's member qualification standards. These elections will take place at the Board's assembly meeting following the Annual General Meeting in 2018.

Operations of the Board of Directors

The Board represents and is accountable to the shareholders of Nokia. The Board's responsibilities are active, not passive, and include the responsibility to evaluate the strategic direction of Nokia, its management policies and the effectiveness of the implementation of such by the management on a regular basis. It is the responsibility of the members of the Board to act in good faith and with due care, so as to exercise their business judgment on an informed basis, in a manner which they reasonably and honestly believe to be in the best interests of Nokia and its shareholders. In discharging that obligation, the members of the Board must inform themselves of all relevant information reasonably available to them. The Board and each Board committee also have the power to appoint independent legal, financial or other advisors as they deem necessary from time to time.

The Board is ultimately responsible for monitoring and reviewing Nokia's financial reporting process, effectiveness of related control and audit functions and the independence of Nokia's external auditor, as well as for monitoring the statutory audit of the annual and consolidated financial statements. The Board's responsibilities also include overseeing the structure and composition of our top management and monitoring legal compliance and the management of risks related to our operations. In doing so, the Board may set annual ranges and/or individual limits for capital expenditures, investments and divestitures and financial commitments that may not be exceeded without separate Board approval.

In risk management policies and processes, the Board's role includes risk analysis and assessment in connection with financial, strategy and business reviews, updates and decision-making proposals. Risk management policies and processes are integral parts of Board deliberations and risk-related updates are provided to the Board on a recurring basis. For a more detailed description of our risk management policies and processes, refer to "—Risk management, internal control and internal audit functions at Nokia—Main features of risk management systems" below.

The Board has the responsibility for appointing and discharging the President and CEO and the other members of the Group Leadership Team. Since May 2014, Rajeev Suri has served as the President and CEO. His rights and responsibilities include those allotted to the President under Finnish law and he also chairs the Group Leadership Team.

Subject to the requirements of Finnish law, the independent directors of the Board confirm the compensation and terms of employment of the President and CEO upon the recommendation of the Personnel Committee of the Board. The compensation and employment conditions of the other members of the Group Leadership Team are approved by the Personnel Committee upon the recommendation of the President and CEO.

The Board has three committees: the Audit Committee, the Corporate Governance and Nomination Committee and the Personnel Committee. These committees assist the Board in its duties pursuant to their respective committee charters. The independent directors of the Board elect the members and chairs of the Board's committees from among the Board's independent directors based on the recommendation of the Corporate Governance and Nomination Committee and based on each committee's member qualification standards. The Board may also establish ad hoc committees for detailed reviews or consideration of particular topics to be proposed for the approval of the Board.

In line with our Corporate Governance Guidelines, the Board conducts annual performance evaluations, which also include evaluations of the Board committees' work as well as the Board and Committee Chairs and individual Board members. In 2017, an external evaluator assisted in the Board evaluation process consisting of self-evaluations and peer evaluations, as well as interviews. The evaluation process included both numeric assessments and the possibility to provide more detailed written comments. The feedback from selected members of management was also requested as part of this evaluation process. The results of the evaluation are discussed and analyzed by the entire Board and improvement actions are agreed based on such discussion.

Meetings of the Board of Directors

The Board held 21 meetings excluding committee meetings during 2017, of which approximately 40% were regularly scheduled meetings held in person, complemented by meetings via video or conference calls or by other means. Additionally, in 2017, the non-executive directors held meetings regularly without management in connection with Board meetings.

Directors' attendance at Board meetings, including committee meetings but excluding meetings among the non-executive directors or independent directors only, in 2017 is set forth in the table below:

	Board meetings %	Audit Committee meetings %	Corporate Governance and Nomination Committee meetings %	Personnel Committee meetings %
Bruce Brown	100		100	100
Jeanette Horan (from May 23, 2017)	100	100		
Louis Hughes	100	100		
Edward Kozel (from May 23, 2017)	100	100		
Jean Monty	100			100
Elizabeth Nelson	100	100		
Olivier Piou	95		80	88
Risto Siilasmaa	100		100	
Carla Smits-Nusteling	100	100		
Kari Stadigh	90		100	100

Additionally, many of the directors attended, as non-voting observers, meetings of a committee of which they were not a member.

According to Board practices, the non-executive directors meet without management in connection with each regularly scheduled meeting. Such sessions are chaired by the non-executive Chair of the Board. If the non-executive Chair of the Board is unable to chair these meetings, the non-executive Vice Chair of the Board chairs the meeting. Additionally, the independent directors meet separately at least once annually.

All the directors who served on the Board for the term until the close of the Annual General Meeting in 2017 attended Nokia's Annual General Meeting held on May 23, 2017. The Finnish Corporate Governance Code recommends that the Chair and members of the Board and the President shall be present at the general meeting of shareholders to ensure the possibility for the shareholders to exercise their right to present questions to both the Board and management.

Committees of the Board of Directors

The Audit Committee consists of a minimum of three members of the Board who meet all applicable independence, financial literacy and other requirements as stipulated by Finnish law, the rules of Nasdaq Helsinki and the NYSE. From May 23, 2017, the Audit Committee consisted of the following five members of the Board: Elizabeth Nelson (Chair), Jeanette Horan, Louis Hughes, Edward Kozel and Carla Smits-Nusteling.

The Audit Committee is established by the Board primarily for the purpose of oversight of the accounting and financial reporting processes of Nokia and the audits of its financial statements. The Committee is responsible for assisting the Board in the oversight of:

- the quality and integrity of the company's financial statements and related disclosures;
- the statutory audit of the company's financial statements;
- the external auditor's qualifications and independence;
- the performance of the external auditor subject to the requirements of Finnish law;
- the performance of the company's internal controls and risk management and assurance function;

- the performance of the internal audit function; and
- the company's compliance with legal and regulatory requirements, including the performance of its ethics and compliance program.

Audit Committee also maintains procedures for the receipt, retention and treatment of complaints received by the company regarding accounting, internal controls, or auditing matters and for the confidential, anonymous submission by our employees of concerns relating to accounting or auditing matters. Nokia's disclosure controls and procedures, which are reviewed by the Audit Committee and approved by the President and CEO and the Chief Financial Officer, as well as the internal controls over financial reporting, are designed to provide reasonable assurance regarding the quality and integrity of the company's financial statements and related disclosures. For further information on internal control over financial reporting, refer to "—Risk management, internal control and internal audit functions at Nokia—Description of internal control procedures in relation to the financial reporting process" below.

Corporate governance statement continued

Under Finnish law, an external auditor is elected by shareholders by a simple majority vote at the Annual General Meeting for one year at a time. The Audit Committee prepares the proposal to the shareholders, upon its evaluation of the qualifications and independence of the external auditor, of the nominee for election or re-election. Under Finnish law, the fees of the external auditor are also approved by the shareholders by a simple majority vote at the Annual General Meeting. The Committee prepares the proposal to the shareholders in respect of the fees of the external auditor, and approves the external auditor's annual audit fees under the guidance given by the Annual General Meeting. For information about the fees paid to Nokia's external auditor, PricewaterhouseCoopers Oy, during 2017, refer to "—Auditor fees and services" below.

In discharging its oversight role, the Audit Committee has full access to all company books, records, facilities and personnel. The Committee may appoint counsel, auditors or other advisors in its sole discretion, and must receive appropriate funding, as determined by the Audit Committee, from Nokia for the payment of compensation to such outside advisors.

The Board has determined that all members of the Audit Committee, including its Chair, Elizabeth Nelson, are "audit committee financial experts" as defined in the requirements of Item 16A of the annual report on Form 20-F filed with the U.S. Securities and Exchange Commission ("SEC"). Ms. Nelson and each of the other members of the Audit Committee are "independent directors" as defined by Finnish law and Finnish Corporate Governance Code and in Section 303A.02 of the NYSE Listed Company Manual.

The Audit Committee meets a minimum of four times a year based on a schedule established at the first meeting following the appointment of the Committee. The Committee meets separately with the representatives of Nokia's management, heads of the internal audit, and ethics and compliance functions, and the external auditor in connection with each regularly scheduled meeting. The head of the internal audit function has, at all times, direct access to the Audit Committee, without the involvement of management.

The Audit Committee held nine meetings in 2017. Attendance at the meetings was 100%. Additionally, any director who so wishes may attend meetings of the Audit Committee as a non-voting observer.

The Corporate Governance and Nomination Committee consists of three to five members of the Board who meet all applicable independence requirements as stipulated by Finnish law, the rules of Nasdaq Helsinki and the NYSE. From May 23, 2017, the Corporate Governance and Nomination Committee has consisted of the following four members of the Board: Risto Siilasmaa (Chair), Bruce Brown, Olivier Piou and Kari Stadigh.

The Corporate Governance and Nomination Committee's purpose is to prepare the proposals for the general meetings in respect of the composition of the Board and the director remuneration to be approved by the shareholders, and to monitor issues and practices related to corporate governance and to propose necessary actions in respect thereof.

The Committee fulfills its responsibilities by:

- actively identifying individuals qualified to be elected members of the Board as well as considering and evaluating the appropriate level and structure of director remuneration;
- preparing proposal to the shareholders on the director nominees for election at the general meetings as well as director remuneration;
- monitoring significant developments in the law and practice of corporate governance and of the duties and responsibilities of directors of public companies;
- assisting the Board and each Committee of the Board in its annual performance evaluations, including establishing criteria to be applied in connection with such evaluations;
- developing and recommending to the Board and administering Nokia's Corporate Governance Guidelines; and
- reviewing Nokia's disclosure in the corporate governance statement.

The Committee has the power to appoint recruitment firms or advisors to identify appropriate candidates. The Committee may also appoint counsel or other advisers, as it deems appropriate from time to time. The Committee has the sole authority to appoint or terminate the services of such firms or advisers and to review and approve such firm's or adviser's fees and other retention terms. It is the Committee's practice to appoint a recruitment firm to identify new director candidates.

The Corporate Governance and Nomination Committee held five meetings in 2017. The average attendance at the meetings was 95%. Additionally, any director who so wishes may attend meetings of the Corporate Governance and Nomination Committee as a non-voting observer.

The **Personnel Committee** consists of a minimum of three members of the Board who meet all applicable independence requirements as stipulated by Finnish law, the rules of Nasdaq Helsinki and the NYSE. From May 23, 2017, the Personnel Committee has consisted of the following four members of the Board: Bruce Brown (Chair), Jean Monty, Olivier Piou and Kari Stadigh.

The primary purpose of the Personnel Committee is to oversee the personnel-related policies and practices at Nokia, as described in the Committee charter. It assists the Board in discharging its responsibilities in relation to all compensation, including equity compensation, of the company's executives and their terms of employment. The Committee has overall responsibility for evaluating, resolving and making recommendations to the Board regarding:

- compensation of the company's top executives and their terms of employment;
- all equity-based plans;
- incentive compensation plans, policies and programs of the company affecting executives; and
- other significant incentive plans.

The Committee is responsible for overseeing compensation philosophy and principles and ensuring the above compensation programs are performance-based, and designed to contribute to long-term shareholder value creation and alignment to shareholders' interests, properly motivate management, and support overall corporate strategies.

The Personnel Committee held eight meetings in 2017. The average attendance at the meetings was 97%. Additionally, any director who so wishes may attend meetings of the Personnel Committee as a non-voting observer.

Further information

The Corporate Governance Guidelines concerning the directors' responsibilities, the composition and election of the members of the Board, its committees and certain other matters relating to corporate governance are available on our website at http://www.nokia.com/en_int/investors/corporate-governance. We have a Code of Conduct that is applicable to all of our employees, directors and management and, in addition, we have a Code of Ethics applicable to the President and CEO, Chief Financial Officer and Corporate Controller. These documents and the charters of the Audit Committee, the Corporate Governance and Nomination Committee and the Personnel Committee are available on our website at http://www.nokia.com/en_int/investors/corporate-governance.

Group Leadership Team and the President and CEO

We have a Group Leadership Team that is responsible for the operative management of Nokia. The Chair and members of the Group Leadership Team are appointed by the Board. The Group Leadership Team is chaired by the President and CEO. The President and CEO's rights and responsibilities include those allotted to the President and CEO under Finnish law.

Corporate governance statement continued

Members of the Nokia Group Leadership Team

Set forth below are the current and appointed members of the Group Leadership Team and their biographical details. Information about the shares and share-based rights of the members of the Group Leadership Team is disclosed in the Remuneration Statement; refer to “—Compensation” below.

During 2017 and thereafter, the following new appointments were made to the Group Leadership Team:

- Kristian Pullola was appointed Chief Financial Officer and member of the Group Leadership Team as of January 1, 2017;
- Monika Maurer was appointed Chief Operating Officer and member of the Group Leadership Team as of April 1, 2017;
- Igor Leprince was appointed President of Global Services and member of the Group Leadership Team as of April 1, 2017;
- Marcus Weldon was appointed Chief Technology Officer and President of Nokia Bell Labs, and member of the Group Leadership Team as of April 1, 2017;
- Gregory Lee was appointed President of Nokia Technologies and member of the Group Leadership Team as of June 30, 2017;
- Joerg Erlemeier was appointed Chief Operating Officer and member of the Group Leadership Team as of December 11, 2017; and
- Sanjay Goel was appointed President of Global Services and member of the Group Leadership Team as of April 1, 2018.

Further, during 2017 and thereafter, the following members of the Group Leadership Team resigned:

- Samih Elhage, formerly President of Mobile Networks, stepped down from the Group Leadership Team as of March 31, 2017;
- Monika Maurer, formerly Chief Operating Officer, stepped down from the Group Leadership Team as of December 11, 2017; and
- Igor Leprince, President of Global Services, will step down from the Group Leadership Team as of March 31, 2018.

Rajeev Suri

b. 1967

President and Chief Executive Officer of Nokia Corporation. Chair of the Group Leadership Team since 2014. Joined Nokia in 1995.

Bachelor of Engineering (Electronics and Communications), Manipal Institute of Technology, Karnataka, India.

CEO, Nokia Solutions and Networks 2009–2014. Head of Services, Nokia Siemens Networks 2007–2009. Head of Asia Pacific, Nokia Siemens Networks April 2007. Senior Vice President, Nokia Networks Asia Pacific 2005–2007. Vice President, Hutchison Customer Business Team, Nokia Networks 2004–2005. General Manager, Business Development, Nokia Networks Asia Pacific 2003. Sales Director–BT, O2 and Hutchison Global Customers, Nokia Networks 2002. Director, Technology and Applications, BT Global Customer, Nokia Networks 2000–2001. Head of Global Competitive Intelligence, Nokia Networks 1999–2000. Head of Product Competence Center, Nokia Networks South Asia 1997–1999. System Marketing Manager, Cellular Transmission, Nokia Networks India 1995–1997. Head of Group Procurement, imports and special projects, Churchgate Group, Nigeria 1993–1995. National Account Manager–Transmission/Manager–

Strategic Planning, ICL India (ICIM) 1990–1993. Production Engineer, Calcom Electronics 1989.

Rajeev Suri



Basil Alwan

b. 1962

President of IP/Optical Networks. Group Leadership Team member since 2016. Joined Nokia in 2016.

Bachelor in Computer Engineering, University of Illinois at Urbana-Champaign, the United States.

Previously President of IP Routing and Transport, Alcatel Lucent 2012–2016. President of IP Division, Alcatel Lucent 2003–2012. Founder, President and CEO, TiMetra Networks 2000–2003. Vice President and General Manager, Bay Networks (acquired by Nortel) Enterprise Products Division (EPD) 1997–2000. Vice President of Product Management and Marketing, Rapid City Communications 1996–1997.

Basil Alwan



Hans-Jürgen Bill



Hans-Jürgen Bill

b. 1960

Chief Human Resources Officer. Group Leadership Team member since 2016. Joined Nokia Siemens Networks in 2007.

Diploma in Telecommunications from the University of Deutsche Bundespost, Dieburg/Darmstadt, Germany. Diploma in Economics from the University of Applied Sciences, Pforzheim, Germany.

Executive Vice President, Human Resources, Nokia Corporation 2014–2016. Head of Human Resources, NSN 2009–2014. Head of West South Europe region, NSN 2007–2009. Head of Asia Pacific for Mobile Networks, Siemens 2003–2007. Head of Operations for Mobile Networks, Siemens 2001–2003. Head of Region Central-East and North Europe for Mobile Networks, Siemens 1998–2001. Head of Mobile Networks in Indonesia, Siemens 1994–1998. Various management positions, Siemens 1983–1994.

Kathrin Buvac**Kathrin Buvac****b. 1980**

Chief Strategy Officer. Group Leadership Team member since 2016. Joined Nokia Siemens Networks in 2007.

Degree in Business Information Systems from University of Cooperative Education, Germany. Bachelor Degree in Business Administration from Open University, London, the United Kingdom.

Ashish Chowdhary

Vice President, Corporate Strategy, Nokia Networks 2014–2016. Chief of staff to the CEO, Nokia Solutions and Networks 2011–2013. Head of Strategic Projects, Business Solutions, Nokia Siemens Networks 2009–2011. General Manager, Integration Programme, Nokia Siemens Networks 2007–2009. General Manager, Corporate Audit, Siemens Holding S.p.A. 2006–2007. Head of Controlling International Businesses, Siemens Communications 2003–2006. Head of Performance Controlling USA, Siemens Communications 2002–2003. Business Process Manager Global IT Strategy, Siemens Communications 2001–2002. Business Analyst, EADS Aerospace and Defence 1999–2000.

Ashish Chowdhary**b. 1965**

Chief Customer Operations Officer. Group Leadership Team member since 2016. Joined Nokia in 2003.

MBA, Wharton School, University of Pennsylvania, Philadelphia, the United States. MS Computer Science, Emory University, Atlanta, the United States. BA Mathematics from University of Delhi, India.

Executive Vice President and Chief Business Officer at Nokia Networks 2015–2016. Head of Customer Operations Asia, Middle East & Africa (AMEA), Nokia Networks 2011–2015. Head of Global Services, Nokia Siemens Networks 2009–2010. Head of Managed Services, Nokia Siemens Networks 2007–2009. Country Head India, Nokia Networks 2003–2007. Vice President for Enterprise Business, Hughes Communications Ltd 2000–2003 and 1994–1998. Software and Project Engineer, Hughes Network Systems 1989–1993. Teaching Assistant, Computer Science, Emory University 1987–1989.

Joerg Erlemeier**b. 1965**

Chief Operating Officer. Group Leadership Team member since 2017. Joined Nokia in 1994.

Bachelor of Engineering (Electronics and Telecommunications), Fachhochschule, Aachen, Germany.

Senior Vice President, Integration, Nokia, 2015. Vice President, Global Services, Europe, Nokia, 2015. Head of Delivery, North America market, Nokia, 2013/14. Head of Program Management Office, Nokia Siemens Networks, 2012. Head of Middle East & Africa, Nokia Siemens Networks, 2009–2011. Held several executive level positions in Nokia/Nokia Siemens Networks, 1994–2009.

Joerg Erlemeier

Corporate governance statement continued

Barry French

b. 1963

Chief Marketing Officer. Group Leadership Team member since 2016. Joined Nokia in 2006.

Master's Degree in International Affairs from Columbia University's School of International and Public Affairs, New York, the United States. Bachelor of Arts degree in Political Science, Bates Colleges, Lewiston, Maine, the United States.

Chief Marketing Officer and Executive Vice President, Marketing and Corporate Affairs, Nokia 2014–2016. Head of Marketing and Corporate Affairs, Nokia Siemens Networks 2010–2014. Head of Communications, Nokia Siemens Networks 2006–2010. Vice President, Corporate Communications, United Airlines 2004–2006. Director, Corporate Communications, Dell 2000–2004. Additional roles included communications, government relations and management positions, Engineering Animation, Raytheon, KRC Research and the Sawyer/Miller Group.

Board member, World Affairs Council of Dallas.

Sanjay Goel

b. 1967

Senior Vice President, Global Services. President of Global Services and Group Leadership Team member as of April 1, 2018. Joined Nokia Networks in 2001.

Bachelor's Degree in Engineering in Electronics and Communications from Manipal Institute of Technology, Karnataka, India.

Senior Vice President, Services Portfolio Sales, Global Services, Nokia since 2015. Vice President, Services, Customer Operations, Asia, Middle East & Africa, Nokia Networks 2012 – 2015. Head of Global Services, Asia Pacific & Japan, Nokia Siemens Networks 2009–2012. Head of Managed Services, Asia Pacific (including India & Japan), Nokia Siemens Networks 2007–2009. Several director and manager level positions in Nokia Networks 2001–2007. Manager in IBM India 1996–2001. Several engineer positions in Asea Brown Boveri Ltd 1990–1996.

Bhaskar Gorti

b. 1966

President of Nokia Software. Group Leadership Team member since 2016. Joined Nokia in 2016.

Master's degree in Electrical Engineering from Virginia Polytechnic Institute and State University, Blacksburg, the United States. Bachelor's degree in Technology and Electrical Engineering from National Institute of Technology, Warangal, India.

Previously President of IP Platforms, Alcatel Lucent 2015–2016. Senior Vice President and General Manager, Communications Global Business Unit, Oracle 2006–2015. Senior Vice President, Portal Software 2002–2006.

Federico Guillén

b. 1963

President of Fixed Networks. Group Leadership Team member since 2016. Joined Nokia in 2016.

Degree in Telecommunications Engineering, ETSIT at Universidad Politécnica de Madrid, Spain. Master's degree in Switching & Communication Architectures, ETSIT at Universidad Politécnica de Madrid, Spain. Master's Degree in International Management, ESC Lyon and Alcatel, France.

President of Fixed Networks, Alcatel Lucent 2013–2016. President and CEO of Alcatel Lucent Spain & Global Account Manager Telefonica, Alcatel Lucent 2009–2013. Vice President Sales of Vertical Market Sales in Western Europe, Alcatel Lucent 2009. Head of Regional Support Centre within Alcatel Lucent's Fixed Access Division for South Europe, MEA, India and CALA 2007–2009. CEO, Alcatel Mexico & Global Account Manager, Telmex 2003–2007. Various R&D, Portfolio and Sales Management Positions, Telettra and then Alcatel in Spain, Belgium and the United States 1989–2003.

Barry French



Sanjay Goel



Bhaskar Gorti



Federico Guillén



Gregory Lee



Igor Leprince**Gregory Lee****b. 1963**

President of Nokia Technologies. Group Leadership Team member since 2017. Joined Nokia in 2017.

Bachelor of Science degree in Biochemistry, University of California at San Diego, the United States.

President and Chief Executive Officer, North America and Director, Media Solutions Center of America, Samsung Electronics Co. Ltd 2014–2017. President, Samsung Telecommunications America (STA) 2013–2014. President, Samsung Asia 2010–2013. Global Chief Marketing Officer, Samsung Electronics Co. Ltd 2004–2010. Vice President, Franchises and Customer Development, Johnson & Johnson Consumer Asia Pacific 2002–2004. President, Vision Care, Asia Pacific, Johnson & Johnson Medical Devices 1999–2002.

Member of the Board of Directors of HMD Global.

Igor Leprince**b. 1971**

President of Global Services until March 31, 2018. Group Leadership Team member since 2017. Joined Nokia Siemens Networks in 2007.

Master's degree in Telecommunications and Network Engineering, E.N.S.T. Paris, France. Bachelor's and Master's degree in Computer Science and Systems and Networks, University Paris 7, Paris, France.

Executive Vice President, Global Services, Nokia since 2014. Senior Vice President and Head of Middle East & Africa, Nokia Networks 2011–2014. Vice President, Head of Care, Global Services, Nokia Siemens Networks 2010–2011. Vice President, Head of Network Planning & Optimization, Global Services, Nokia Siemens Networks 2007–2010. Senior Vice president, LCC International 2007. Managing Director EMEA, WFI 2005–2007.

Kristian Pullola**b. 1973**

Chief Financial Officer. Group Leadership Team member since 2017. Joined Nokia in 1999.

Master of Science (Economics), the Hanken School of Economics, Helsinki, Finland. Finance diploma, the Stockholm School of Economics, Stockholm, Sweden.

Senior Vice President, Corporate Controller, Nokia 2011–2016. Vice President, Treasury & Investor Relations, Nokia 2009–2011. Vice President, Corporate Treasurer, Nokia 2006–2008. Director, Treasury Finance & Control, Nokia 2003–2006. Various roles in Nokia Treasury 1999–2003. Associate, Citibank International 1998–1999.

Member of the Board of Directors of Ilmarinen Mutual Pension Insurance Company.

Marc Rouanne**b. 1963**

President of Mobile Networks. Group Leadership Team member since 2016. Joined Nokia Siemens Networks in 2008.

Ph.D. in Information Theory from University of Notre Dame, Indiana, the United States. Engineering degree in Signal Processing from Supélec, France. Degree in Computer Science from Université d'Orsay, France.

Executive Vice President, Mobile Broadband, Nokia Networks 2011–2016. Head of Network Systems, Nokia Siemens Networks 2010–2011. Head of Radio Access, Nokia Siemens Networks 2008–2009. Executive Vice President of Alcatel, President of Convergence Business Group, Alcatel Lucent 2006–2008. Chief Operating Officer, then President Wireless Business Group, then Executive Vice President, Alcatel 2003–2006. VP positions, then Chief Operating Officer, then President Wireless Business Division, Alcatel 1997–2003. R&D and Engineering Director positions, Matra and Nortel Matra Cellular 1988–1997.

Chairman of Advisory Board of Dhatim.

Maria Varsellona**b. 1970**

Chief Legal Officer. Group Leadership Team member since 2016. Joined Nokia Siemens Networks in 2013.

Law Degree from University of Palermo (Juris Doctor), Italy.

Executive Vice President and Chief Legal Officer, Nokia 2014–2016. General Counsel, NSN 2013–2014. Tetra Pak Group General Counsel, Tetra Laval Group 2011–2013. Sidel Group General Counsel, Tetra Laval Group 2009–2011. Senior Counsel Commercial Operations and Global Services, GE Oil & Gas 2006–2009. Senior Counsel Europe, Hertz Europe 2005–2006. Senior Counsel Global Services, GE Oil & Gas 2001–2005. Lawyer, Pini Birmingham & Partners 1998–2001. Lawyer, Greco Law Firm 1994–1998.

Member of the Board of Directors of Nordea Bank AB (publ).

Marcus Weldon**b. 1968**

Corporate Chief Technology Officer and President of Nokia Bell Labs. Group Leadership Team member since 2017. Joined Nokia in 2016.

Ph.D (Physical Chemistry) degree, Harvard University, Cambridge, Massachusetts, United States. Bachelor of Science (Computer Science and Chemistry) joint degree, King's College, London, United Kingdom.

Corporate Chief Technology Officer and President of Bell Labs, Alcatel Lucent (then Nokia) 2013–2016. Corporate Chief Technology Officer, Alcatel Lucent 2009–2013. Chief Technology Officer, Broadband Networks & Solutions, Alcatel Lucent 2006–2009. Member of Technical Staff, Bell Labs, Lucent Technologies 1997–2006.

Network Partner to Keen Venture Partners. Advisor to Mundi Ventures.

Marc Rouanne**Maria Varsellona****Marcus Weldon**

Corporate governance statement continued

Risk management, internal control and internal audit functions at Nokia

Main features of risk management systems

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

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

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

Description of internal control procedures in relation to the financial reporting process

The management is responsible for establishing and maintaining adequate internal control over financial reporting for Nokia. Our internal control over financial reporting is designed to provide reasonable assurance to the management and the Board regarding the reliability of financial reporting and the preparation and fair presentation of published financial statements.

The management conducts a yearly assessment of Nokia's internal controls over financial reporting in accordance with the Committee of Sponsoring Organizations framework (the "COSO framework", 2013) and the Control Objectives for Information and related technology of internal controls. The assessment is performed based on a top-down risk assessment of our financial statements covering significant accounts, processes and locations, corporate-level controls and information systems' general controls.

As part of its assessment the management has documented:

- the corporate-level controls, which create the "tone from the top" containing the Nokia values and Code of Conduct and which provide discipline and structure to decision-making processes and ways of working. Selected items from our operational mode and governance principles are separately documented as corporate-level controls;

- the significant processes, structured under so-called financial cycles. Financial cycles have been designed to: (i) give a complete end-to-end view of all financial processes; (ii) identify key control points; (iii) identify involved organizations; (iv) ensure coverage for important accounts and financial statement assertions; and (v) enable internal control management within Nokia;
- the control activities, which consist of policies and procedures to ensure the management's directives are carried out and the related documentation is stored according to our document retention practices and local statutory requirements; and
- the information systems' general controls to ensure that sufficient IT general controls, including change management, system development and computer operations, as well as access and authorizations, are in place.

Further, the management has also:

- assessed the design of the controls in place aimed at mitigating the financial reporting risks;
- tested operating effectiveness of all key controls; and
- evaluated all noted deficiencies in internal controls over financial reporting in the interim and as of year-end.

In 2017, Nokia has followed the procedures as described above and has reported on the progress and assessments to the management and to the Audit Committee of the Board on a quarterly basis.

Description of the organization of the internal audit function

We also have an internal audit function that acts as an independent appraisal function by examining and evaluating the adequacy and effectiveness of our system of internal control. Internal audit reports to the Audit Committee of the Board. The head of the internal audit function has direct access to the Audit Committee, without involvement of the management. Internal Audit staffing levels and annual budget are approved by the Audit Committee. All authority of the internal audit function is derived from the Board. Internal audit aligns to the business regionally and by business and function.

Annually, an internal audit plan is developed with input from the management, including key business risks and external factors. This plan is approved by the Audit Committee of the Board. Audits are completed across the business focused on country level, customer level, IT system implementation, IT security, operations activities or at a Group function level. The results of each audit are reported to the management identifying issues, financial impact, if any, and the correcting actions to be completed. Quarterly, internal audit communicates the progress of the internal audit plan completion, including the results of the closed audits.

Internal audit also works closely with our Ethics and Compliance office to review any financial concerns brought to light from various channels and, where possible, works with Enterprise Risk Management to ensure priority risk areas are reviewed through audits.

In 2017, the internal audit plan was completed and all results of these reviews were reported to the management and to the Audit Committee of the Board.

Main procedures relating to insider administration

Our insider administration is organized according to the applicable European Union and Finnish laws and regulations. In addition, the Board of Directors has approved Nokia Insider Policy, which sets out Nokia-wide rules and practices to ensure full compliance with applicable rules and that inside information is recognized and treated in an appropriate manner and with the highest integrity. The policy is applicable to all Nokia employees.

Persons discharging managerial responsibilities

Nokia has identified members of the Board of Directors and the Group Leadership Team as persons discharging managerial responsibilities who, along with persons closely associated with them, are required to notify Nokia and the Finnish Financial Supervisory Authority of their transactions with Nokia's financial instruments. Nokia publishes the transaction notifications on a stock exchange release.

In addition, under the Nokia Insider Policy, persons discharging managerial responsibilities are obligated to clear with the Vice President, Corporate Legal, a planned transaction in Nokia's financial instruments in advance. It is also recommended that trading and other transactions in Nokia's financial instruments are carried out in times when the information available to the market is as complete as possible.

Closed Window

Persons discharging managerial responsibilities are subject to a closed window period of 30 calendar days preceding the disclosure of Nokia's quarterly or annual result announcements, as well as the day of the disclosure. During the closed window period persons discharging managerial responsibilities are prohibited from dealing in Nokia's financial instruments.

Nokia has imposed this closed window period also on separately designated Financial Reporting Persons who are recurrently involved with the preparation of Nokia's quarterly and annual results announcements. These persons are separately notified of their status as Financial Reporting Persons.

Insider Registers

Nokia does not maintain a permanent insider register. Insiders are identified on a case-by-case basis for specific projects and are notified of their insider status. Persons included in a project-specific insider register are prohibited from dealing in Nokia's financial instruments until the project ends or is made public.

Supervision

Our insider administration's responsibilities include internal communications related to insider matters and trading restrictions, setting up and maintaining our insider registers, arranging related trainings as well as organizing and overseeing compliance with the insider rules.

Violations of the Nokia Insider Policy must be reported to the Vice President, Corporate Legal. Nokia employees may also use channels stated in the Nokia Code of Conduct for reporting incidents involving alleged violations of the Nokia Insider Policy.

Auditor fees and services

PricewaterhouseCoopers Oy has served as our auditor for each of the fiscal years in the three-year period ended December 31, 2017. The auditor is elected annually by our shareholders at the Annual General Meeting for the fiscal year in question. The Audit Committee of the Board prepares the proposal to the shareholders in respect of the appointment of the auditor based upon its evaluation of the qualifications and independence of the auditor to be proposed for election or re-election on an annual basis.

The following table presents fees by type paid to PricewaterhouseCoopers for the years ended December 31:

EURm	2017	2016
Audit fees ⁽¹⁾	25.3	31.3
Audit-related fees ⁽²⁾	1.8	1.8
Tax fees ⁽³⁾	1.2	3.4
All other fees ⁽⁴⁾	0.1	–
Total	28.4	36.5

(1) Audit fees consist of fees incurred for the annual audit of the Group's consolidated financial statements and the statutory financial statements of the Group's subsidiaries.

(2) Audit-related fees consist of fees billed for assurance and related services that are reasonably related to the performance of the audit or review of the Group's financial statements or that are traditionally performed by the independent auditor, and include consultations concerning financial accounting and reporting standards; advice on tax accounting matters; advice and assistance in connection with local statutory accounting requirements; due diligence related to mergers and acquisitions; employee benefit plan audits and reviews; and audit procedures in connection with investigations in the pre-litigation phase and compliance programs. They also include fees billed for other audit services, which are those services that only the independent auditor can reasonably provide, and include the provision of comfort letters and consents in connection with statutory and regulatory filings and the review of documents filed with the SEC and other capital markets or local financial reporting regulatory bodies.

(3) Tax fees include fees billed for: (i) services related to tax compliance including preparation and/or review of tax returns, preparation, review and/or filing of various certificates and forms and consultation regarding tax returns and assistance with revenue authority queries; customs duties reviews and advice; compliance reviews, advice and assistance on other indirect taxes; and transaction cost analysis; (ii) service related to tax audits; (iii) services related to individual compliance (preparation of individual tax returns and registrations for employees (non-executives), assistance with applying visa, residency, work permits and tax status for expatriates); (iv) services related to technical guidance on tax matters; (v) services related to transfer pricing advice and assistance with tax clearances; and (vi) tax consultation and planning (advice on stock-based remuneration, local employer tax laws, social security laws, employment laws and compensation programs and tax implications on short-term international transfers).

(4) Other fees include fees billed for company establishments; liquidations; forensic accounting, data security, other consulting services and reference materials and services.

Audit Committee pre-approval policies and procedures

The Audit Committee of the Board is responsible, among other matters, for oversight of the external auditor's independence, subject to the requirements of applicable legislation. The Audit Committee has adopted a policy regarding an approval procedure of audit services performed by the external auditors of Nokia Group and permissible non-audit services performed by the principal external auditor of the Nokia Group (the "Pre-approval Policy").

Under the Pre-approval Policy, proposed services either: (i) may be pre-approved by the Audit Committee in accordance with certain service categories described in the Pre-approval Policy ("general pre-approval"); or (ii) require the specific pre-approval of the Audit Committee ("specific pre-approval"). The Pre-approval Policy sets out the audit, audit-related, tax and other services that have received the general pre-approval of the Audit Committee. All other audit, audit-related (including services related to internal controls and significant mergers and acquisitions projects), tax and other services are subject to specific pre-approval by the Audit Committee. All service requests concerning generally pre-approved services will be submitted to an appointed Audit Committee delegate within management, who will determine whether the services are within the services generally pre-approved. The Pre-approval Policy is subject to annual review by the Audit Committee.

The Audit Committee establishes budgeted fee levels annually for each of the categories of audit and non-audit services that are pre-approved under the Pre-approval Policy, namely, audit, audit-related, tax and other services. At each regular meeting of the Audit Committee, the auditor provides a report in order for the Audit Committee to review the services that the auditor is providing, as well as the cost of those services.

Compensation

This section sets out our remuneration governance, policies and how they have been implemented within Nokia and includes our Remuneration Report where we provide disclosure of the compensation of our Board, the President and CEO and aggregated compensation information for the Group Leadership Team for 2017. We report information related to executive compensation in accordance with Finnish regulatory requirements and with requirements set forth by the U.S. Securities and Exchange Commission.

Introduction

2017 was a challenging year, with our primary addressable market declining in the range of 4 to 5%. Despite this, we continued to execute well on our “rebalancing for growth” strategy, maintain cost and pricing discipline, and deliver solid financial results, though lower than the annual plan. On a compensation front this led to lower than target annual bonuses, though a little higher than last year driven by the performance of the patent licensing business.

Compensation in 2017

Our compensation approach is driven by our fundamental belief in pay for performance and aligning the interests of employees and shareholders. We strive to pay competitively compared to peer companies and we pay based on performance. Compensation received in any one year consists primarily of base salary, annual short-term incentive and a long-term incentive awarded three years prior to vesting.

The business delivered weaker revenue than planned, but resilient operating profit and cash flow, resulting in an annual short-term incentive being below target (76%) for our President and CEO.

The settlement of the Apple patent litigation was not built into the 2017 forecast and target, as it was not expected to be resolved in 2017, but it did have a significant impact on the results in 2017. The Board exercised discretion on the treatment of the settlement of the Apple patent litigation providing credit for the financial benefit of an earlier settlement, but not recognizing the full value of the settlement in 2017.

Long-term incentive payments received in the year reflect the performance share award granted in 2014. Based on strong performance in 2014 and 2015 the payout under that plan was 125.72% of target. The President and CEO also received the payment under the first tranche of a special award granted in 2016 to incentivize the delivery of synergies from the Alcatel Lucent acquisition. That award was based on financial synergies and cultural integration and the targets were achieved in full. The three-tranche vesting of the award ensures continued interest in delivering sustainable integration.

In 2017, the President and CEO was awarded a long-term incentive award, which will vest to him in 2020 based on performance in 2017 and 2018.

The base salary of the President and CEO will remain at EUR 1 050 000 for 2018, the third year in which his salary has remained at this level. His target short-term incentive will also remain at 125% of base salary.

Looking forward on long-term incentives

The change to our long-term incentive resulted from the Personnel Committee's review of the performance measures used in our long-term incentive plan. The review resulted in two recommendations to the Board. First, while earnings per share remains core to the plan, the committee recommended to introduce a relative measure by changing the measure of revenue to revenue relative to market, measuring Nokia's revenue relative to its primary addressable market to recognize cyclical in the industry. The weighting of the measure was also reduced from 50% to 33.3% with the second change to introduce a free cash flow measure. In any business managing cash flow is critical and in the challenging market environment ahead it is essential to ensure the management remain focused on the dual priorities of managing for cash and investing in 5G.

The Personnel Committee continues to monitor the effectiveness of the long-term incentive plans comparing performance and payout to that of our peers and then comparing performance of the plans with the total shareholder return of Nokia over time. The analysis is discussed in more detail below in the Remuneration Report with a headline that there is strong correlation between performance of the plans and total shareholder return over time and within a given year. However, the nature of long-term incentives means that there is a delay between the time they are earned and the time they are received which can distort the snapshot at any one point in time. In 2017 the 2014 long-term incentive award vested which rewarded for strong performance in 2014 and 2015 while the results in 2017 showed a weaker revenue and impact on the share price.

The pattern of performance of the performance share plans follows the movement in the share price of the company with the most recent performance being the 2016 cycle where 46.25% of the target award will vest. In the recent years, the payout of our long-term incentive plans has been as follows:

The 2014 performance share plan vested on January 1, 2017 with 125.72% of the target award vesting based on the achievement against the revenue and earnings per share targets during the performance period (financial years 2014 and 2015); and

The 2015 performance share plan vested on January 1, 2018 with 123.75% of the target award vesting based on the achievement against the revenue and earnings per share targets during the performance period (financial years 2015 and 2016); and

The 2016 performance share plan will vest on January 1, 2019 with 46.25% of the target award vesting based on the achievement against the revenue and earnings per share targets during the performance period (financial years 2016 and 2017).

Employee Share Purchase Plan

Finally, a word about our employee share purchase plan, Share in Success. The plan offers the opportunity for our employees to own shares in Nokia, fosters share ownership as a component of the culture in Nokia and is a key part of aligning everyone's interests and helping Nokia grow. We are particularly proud of Share in Success, under which participating employees receive one matching share for every two purchased shares that the participant still holds at the end of the 12-month plan cycle. In 2017, Nokia offered the plan to employees in 57 countries and 36% of those eligible joined the plan. In 2018, it is intended for employees in 18 new countries to be invited to join, taking the total number of participating countries to 75.

Remuneration governance

We manage our remuneration through clearly defined processes, with well-defined governance principles, ensuring that no individual is involved in the decision-making process related to their own remuneration and that there is appropriate oversight of any compensation decision. Remuneration of the Board is annually presented to shareholders for approval at the Annual General Meeting and the remuneration of the President and CEO is approved by the Board.

The General Meeting of Shareholders

- Shareholders approve the composition of the Board and the director remuneration based on proposals of the Board's Corporate Governance and Nomination Committee, which actively considers and evaluates the appropriate level and structure of director remuneration. The composition of the Board and director remuneration are resolved by a majority vote of the shareholders represented at the General Meeting and determined as of the date of the General Meeting, until the close of the next Annual General Meeting.
- Shareholders authorize the Board to resolve to issue shares, for example, to settle the company's equity-based incentive plans based on the proposal of the Board.

The Board of Directors

- Approves, and the independent members of the Board confirm, the compensation of the President and CEO, upon recommendation of the Personnel Committee;
- Approves, upon recommendation of the Personnel Committee, any long-term incentive compensation and all equity plans, programs or similar arrangements of significance that the company establishes for its employees; and
- Decides on the issuance of shares (under authorization by shareholders) to fulfill the company's obligations under equity plans in respect of vested awards to be settled.

The Personnel Committee

The Personnel Committee assists the Board in discharging its responsibilities relating to all compensation, including equity compensation, of the company's executives and the terms of employment of the executives.

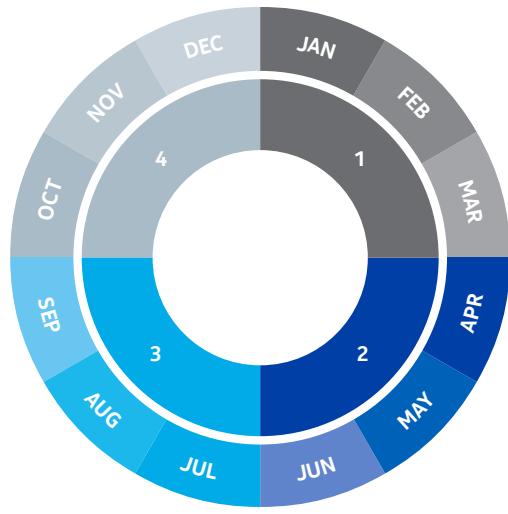
- In respect of the President and CEO, the Committee is accountable to the Board for:
 - reviewing and recommending to the Board the goals and objectives relevant to compensation;
 - evaluating and presenting to the Board the assessment of performance in light of those goals and objectives; and
 - proposing to the Board the total compensation based on this evaluation.
- In respect of the other members of the Group Leadership Team (other than the President and CEO) and the direct reports to the President and CEO in Vice President-level positions and above, the Committee:
 - reviews and approves the goals and objectives relevant to the compensation, upon recommendation of the President and CEO;
 - reviews the results of the evaluation of performance in relation to the approved goals and objectives. The Committee approves the incentive compensation based on such evaluation;
 - approves and oversees the total compensation recommendations made by the President and CEO; and
 - reviews and approves compensation proposals made by the President and CEO in the event of termination of employment of a member of the Group Leadership Team.

Compensation continued

- The Committee reviews periodically, and makes recommendations to the Board regarding any equity programs, plans and other long-term incentive compensation arrangements, or similar arrangements of significance that the company establishes for, or makes available to, its employees, the appropriateness of the allocation of benefits under the plans and the extent to which the plans are meeting their intended objectives.
- The Committee reviews and resolves, at its discretion, any other significant compensation arrangements applicable to the wider executive population in the Nokia Group.
- The Committee reports to the Board at least annually on its views as to whether the President and CEO is providing the necessary leadership for the company in the long- and short-term.
- The Committee reviews and discusses with management the compensation philosophy, strategy, principles, and management compensation to be included in our Remuneration Report.

Work of the Personnel Committee

The Personnel Committee convened five times during 2017 with a general theme for each meeting. The discussion and timing of certain remuneration-related elements was unique in 2017, given the specific needs following the acquisition of Alcatel Lucent and any associated integration-related matters, as required.



- 1 Approvals & reporting
- 2 Philosophy & structure
- 3 Long-term direction & market review
- 4 Planning

- The Committee reviews annually the company's share ownership policy to determine the appropriateness of the policy against its stated objectives.
- The Committee has the power, in its sole discretion, to retain compensation consultants having special competence to assist the Personnel Committee in evaluating director and executive compensation.
- The Committee reviews and approves changes to the company's peer group for the assessment of the competitiveness of our compensation from time to time.

The committee consults regularly with the President and CEO and the Chief Human Resources Officer though they are not present when their own compensation is reviewed or discussed.

January:

- 2016 achievement review and short-term incentive plan payment approvals including review of the performance of the President and CEO
- Budget approval for the 2017 Nokia equity program and performance review for the 2015 performance share plan
- Review of the Group Leadership Team succession planning

March:

- Share ownership policy compliance review
- Review of the 2016 Remuneration Statement and Report
- Group Leadership Team compensation reviews

August:

- Review of:
- Talent summit outcomes;
- diversity; and
- policy

September:

- Compensation strategy and philosophy review
- Risk review
- Update on:
- market and legal environment; and
- adviser market practices

November:

- Review of:
- framework for the short-term incentive program for 2018;
- framework for the long-term incentive program for 2018; and
- the Remuneration Statement and Report for 2017

The President and CEO

The President and CEO has an active role in the compensation governance and performance management processes for the Group Leadership Team and the wider employee population at Nokia.

The President and CEO is not a member of the Personnel Committee and does not vote at Personnel Committee meetings, nor does he participate in any conversations regarding his own compensation.

Advisors

The Personnel Committee engaged Aon, an independent external consultant, to assist in the review and determination of executive compensation and program design and provide insight into market trends and regulatory developments. The Personnel Committee has reviewed and established that Aon is independent of Nokia and does not have any other material business relationships with Nokia.

Authorizations and resolutions of the Board concerning remuneration

Valid authorizations

The Annual General Meeting held on May 23, 2017 resolved to authorize the Board to resolve to issue a maximum of 560 million shares through one or more issuances of shares or special rights entitling to shares. The authorization may be used to develop the company's capital structure, diversify the shareholder base, finance or carry out acquisitions or other arrangements, to settle the company's equity-based incentive plans or for other purposes resolved by the Board.

The authorization is effective until November 23, 2018 and the authorization terminated the earlier shareholder authorization for the Board to issue shares and special rights entitling to shares resolved at the Annual General Meeting on June 16, 2016. The authorization did not terminate the authorization granted by the Extraordinary General Meeting held on December 2, 2015 to the Board for the issuance of shares in order to implement the acquisition of Alcatel Lucent.

Board resolutions

On January 31, 2018, the Board approved the Nokia equity program for 2018 and the issuance, without consideration, of a maximum of 10.5 million Nokia shares held by the company to settle its commitments to Nokia's equity plan participants during 2018.

Remuneration policy

This section of our statement describes our remuneration policy, the aspects considered when setting the policy and how we currently compensate our directors and executives.

Board of Directors

The objective of the Board's Corporate Governance and Nomination Committee when determining director remuneration is to ensure that Nokia is able to compete for top-of-class board competence in order to maximize shareholder value. Therefore, it is the practice of the Corporate Governance and Nomination Committee to review and compare the total remuneration levels and their criteria paid in other global companies with net sales, geographical coverage and complexity of business comparable to that of Nokia's. The Corporate Governance and Nomination Committee's aim is to ensure that Nokia has an efficient Board consisting of international professionals representing a diverse and relevant mix of skills and experience. Nokia believes that a competitive Board remuneration contributes to the achievement of this target.

Director remuneration at Nokia consists of an annual fee and a meeting fee. Director remuneration for the term that began at the Annual General Meeting held on May 23, 2017 and ends at the close of the Annual General Meeting in 2018 consists of the following fees:

Annual fee	EUR
Chair	440 000
Vice Chair	185 000
Member	160 000
Chair of Audit Committee	30 000
Member of Audit Committee	15 000
Chair of Personnel Committee	30 000
Meeting fee⁽¹⁾	
Meeting requiring intercontinental travel	5 000
Meeting requiring continental travel	2 000

(1) Paid for a maximum of seven meetings per term. Not paid to the Chair of the Board.

Approximately 40% of the annual fee is paid in Nokia shares purchased from the market or by using treasury shares. According to our policy, the directors shall retain until the end of their directorship such number of shares as corresponds to the number of shares they have received as Board remuneration during their first three years of service on the Board (the net amount received after deducting those shares needed to offset any costs relating to the acquisition of the shares, including taxes). The shares shall be purchased from the market on behalf of the directors, or, if treasury shares are used, transferred to the directors, as soon as practicable after the Annual General Meeting. The remainder of the annual fee is payable in cash, most of which is typically used to cover taxes arising from the paid remuneration.

A meeting fee for Board and Committee meetings is paid to all members of the Board except the Chair of the Board based on cost of travel required between the home location of the member of the Board and the location of a meeting. Only one meeting fee is payable for multiple Board and Committee meetings per eligible travel. The meeting fee is paid for a maximum of seven meetings per term. The meeting fee is paid in cash.

According to our policy, non-executive directors do not participate in any of Nokia's equity programs and do not receive performance shares, restricted shares or any other equity-based or other form of variable compensation for their duties as members of the Board.

Compensation continued

The President and CEO

Our focus when considering policies related to remuneration of the President and CEO is to:

- attract, retain and motivate the right individuals to lead Nokia;
- drive performance and appropriate behaviors; and
- align the interests of the President and CEO and the results of our compensation programs with the interests and returns of our shareholders.

These principles are then also applied to the compensation of the Group Leadership Team.

Compensation philosophy, design and strategy

Our compensation programs are designed to attract, drive and retain the talent necessary to deliver long-term sustainable results to the ultimate benefit of our shareholders. Rewards are tied to the execution of our strategy by adopting an appropriate mix of fixed and variable compensation to engage and incentivize delivery of these objectives and ensure alignment with shareholder interests.

A single compensation framework is used across the Nokia Group with a varying mix of fixed and variable compensation for each level of responsibility. Higher levels of performance-based compensation and equity compensation are used to reward executives for delivering long-term sustainable results and creating value for our shareholders.

Compensation structure and target setting

In line with our overall compensation philosophy, our executives are rewarded using a mix of fixed and variable pay. The variable pay is determined based on performance against a mix of targets, either short- or long-term in nature, depending on the strategic impact for the business.

Targets for the short- and long-term incentive plans are set by the Board. The Board reviews business plans, external analysts' expectations, previous year's performance and the overall macro-economic environment to arrive at suitable targets for the plans. The goal of target-setting is to set targets that are achievable and sufficiently demanding to create shareholder value.

The elements of the compensation structure for the President and CEO are further detailed below.

Element	Purpose	Operation	Opportunity
Base salary	To attract and retain the best individual with the requisite level of knowledge, skills and experience to lead our businesses and provide a degree of financial certainty and stability.	Base pay is reviewed annually taking into consideration a variety of factors, including, for example, the following: <ul style="list-style-type: none">■ performance of the individual;■ changes in the market and the remuneration of our external comparator group;■ changes in individual responsibilities; and■ average employee salary increases across Nokia and in the local market.	Base salary increases are expected to be set in the context of wider employee increases.
Short-term incentives	To incentivize and reward performance against delivery of the annual business plan.	Short-term incentives are based on performance against single year targets and paid in cash. Targets for the short-term incentives are set at the start of the year, in the context of analyst expectations and the annual plan, selecting measures that align to delivery of Nokia's strategy. Achievement is assessed at the end of the year.	As a percentage of base salary Min 0% Target 125% Max 281.25%

Element	Purpose	Operation	Opportunity
Long-term incentives	To reward for delivery of sustainable long-term performance, align the President and CEO's interests with those of shareholders and aid retention.	<p>Annual long-term incentive awards are made in performance shares and paid for performance against longer-term targets.</p> <p>Targets are set in the context of the Nokia long-term plans which are validated against analyst forecasts ensuring that they are considered both demanding and motivational.</p> <p>The target value of a long-term incentive award is determined by reference to Nokia's peer group and informed by reference to a wider group of emerging competitors in the markets where we recruit our talent including a range of technology companies.</p> <p>The Board retains the discretion to make exceptional awards in circumstances where there is a strategically significant change in Nokia for which they believe that additional incentives would increase or accelerate value creation.</p>	<p>Payout as a percentage of target award</p> <p>Min 0%</p> <p>Target 100%</p> <p>Max 200%</p>
Benefits & perquisites	To attract, retain and protect the President and CEO.	Benefits are made available as part of the same policy that applies to employees more broadly in the relevant country, with additional security provisions, as appropriate.	n/a
Relocation & mobility	To support the international mobility and ensure the right person is in the right location to meet business needs.	Support may be offered to cover additional costs related to relocation to and working in a location other than home country based on business need. The policy supports the mobility needs of an individual and their dependants or the reasonable costs of commuting. Benefits are market-specific and are not compensation for performing the role but provided to defray costs or additional burdens of a relocation or residence outside the home country.	n/a
Retirement plans	To provide for retirement with a level of certainty.	<p>Retirement age is defined and pensions are provided in line with local country arrangements; in Finland this is the statutory Finnish pension system ("Finnish TyEL").</p> <p>Under the TyEL arrangements, base salary, incentives and other taxable benefits are included in the definition of earnings while gains from equity related plans are not.</p> <p>No supplemental pension arrangements are provided in Finland.</p>	As mandated by Finnish law
Change of control arrangements	To ensure the continuity of management in connection with a possible change of control event.	Change of control arrangements are offered on a very limited basis only and are based on a double trigger structure, which means that both a specified change of control event and termination of the individual's employment must take place for any change of control-based severance payment to materialize. Refer to "—Termination provisions of the President and CEO".	n/a

Compensation continued

Compensation mix and opportunity

To align the interests of the President and CEO with those of our shareholders, the compensation mix for the President and CEO is heavily geared towards performance-based pay with only 19.5% of core target compensation in 2017 consisting of fixed pay. The total remuneration of the President and CEO is thus dependent on performance and the range of possible outcomes is shown opposite:

Remuneration on recruitment

Our policy on recruitment is to offer a compensation package which is sufficient to attract, retain and motivate the individual with the right skills for the required role. On occasion, we may offer compensation to buy out awards or other lost compensation which the candidate held prior to joining Nokia, but which lapsed upon the candidate leaving their previous employer. Due consideration is given to the potential value and timing of such awards, taking into account any conditions attached to the awards and the likely performance against such conditions.

Clawback

The President and CEO is subject to a clawback policy where any restatement of financial results may result in the reclaiming of amounts previously paid which had been based on numbers which have since been materially restated. Any such reclaimed amount, and the period over which payments can be reclaimed, will take into account the circumstances and duration of any misstatement.

Share ownership requirement

Nokia believes that it is desirable for its executives to own shares in Nokia to align their interests with those of shareholders and to ensure that their decisions are in the long-term interest of the company. The President and CEO is required to own three times his base salary in Nokia shares and is given a period of five years from appointment to achieve the required level of share ownership.

Termination provisions

In the event of a termination of employment, any payable compensation is determined in line with legal advice regarding local legislation, country policies, contractual obligations and the rules of the applicable incentive and benefit plans. Current termination provisions of the President and CEO's service agreement are described under "Termination provisions of the President and CEO".

2017 Pay opportunity (EURm)



Group Leadership Team

Remuneration of the Group Leadership Team

The remuneration of the members of the Group Leadership Team (excluding the President and CEO) consists of base salary, fringe benefits and short- and long-term incentives and follows the same policy framework as the President and CEO and other eligible employees, except that the quantum differs by role. Short-term incentive plans are based on rewarding the delivery of business performance utilizing certain, or all, of the following metrics as appropriate to the member's role: revenue, operating profit, free cash flow and defined strategic objectives. The revenue and operating profit metrics exclude costs related to the acquisition of Alcatel Lucent and related integration, goodwill impairment charges, intangible asset amortization and other purchase price fair value adjustments, restructuring and associated charges and certain other items.

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Our executives are subject to a clawback policy where any restatement of financial results may result in the reclaiming of amounts previously paid which had been based on numbers which have since been materially restated. Any such reclaimed amount, and the period over which payments can be reclaimed, will take into account the circumstances and duration of any misstatement.

Nokia Equity Program

The Nokia equity program includes the following equity instruments:

	Performance shares	Restricted shares	Employee share purchase plan
Eligible employees	Grade-based eligibility	Grade-based eligibility	Employees in participating countries
Purpose	Annual long-term incentive awards, to reward delivery of sustainable long-term performance, align with the interests of shareholders and aid retention of key employees	Limited use for recruitment and retention	Encourage share ownership within the Nokia employee population, increasing engagement and sense of ownership in the company
Vesting schedule	Two-year performance period based on financial targets and one-year restriction period	Vest equally in three tranches on the 1st, 2nd and 3rd anniversary of grant	Matching shares vest at the end of the 12-month savings period

Share ownership policy

Members of the Group Leadership Team are required to own two times their base salary in Nokia Shares. They are given five years from joining the Group Leadership Team to meet the requirements of the policy.

Pension arrangements of the Group Leadership Team

The members of the Group Leadership Team participate in the local retirement plans applicable to employees in the country of residence. Executives based in Finland participate in the statutory Finnish pension system, as regulated by the Finnish TyEL.

Executives based outside Finland participate in arrangements relevant to their location. Retirement plans vary by country and include defined benefit, defined contribution and cash balance plans. The retirement age for the members of Group Leadership Team varies between 60 and 65.

Termination provisions

In all cases, if an executive is dismissed for cause, no compensation will be payable and no outstanding equity will vest.

In the event of termination by Nokia for any other reason than cause, where Nokia pays compensation in lieu of notice period salary, the benefits and target short-term incentive amounts are taken into account.

The Board has discretion to implement change of control agreements if there is a period of significant instability in the business to facilitate stable and effective leadership during such a time, for example during a merger. At the end of 2017 there were no change of control agreements in place for the Group Leadership Team members.

Compensation continued

Performance share plans

In accordance with previous years' practice, the primary equity instruments granted to eligible employees are performance shares. The performance shares represent a commitment by Nokia to deliver Nokia shares to employees at a future point in time, subject to our fulfillment of the performance criteria.

The table below illustrates the performance criteria of the performance share plans that are currently active.

Performance criteria ⁽¹⁾ (Nokia group)	2018	2017	2016
Annual earnings per share (diluted)	Yes		
Annual free cash flow	Yes		
Revenue relative to market	Yes		
Average annual net sales		Yes	
Average annual earnings per share (diluted)		Yes	Yes
Minimum settlement at below threshold performance ⁽²⁾	-	-	25%

(1) Measures exclude costs related to the acquisition of Alcatel Lucent and related integration, goodwill impairment charges, intangible asset amortization and other purchase price fair value adjustments, restructuring and associated charges and certain other items.

(2) In 2014, a minimum payout level was introduced to reinforce the retentive impact of the plan by giving some certainty to remaining employees during the transformation of Nokia following the Sale of the D&S Business and integration of the Nokia Networks business. The 2017 plan removes the minimum payout of 25% of the grant amount for executive employees. Employees who are not executives at the time the awards are granted to them will continue to benefit from a minimum payout of 25% with the intention of this continuing to provide a retention effect.

Under the 2018 performance share plan, the pay-out will depend on whether the performance criteria have been met by the end of the performance period. The performance criteria are: Nokia annual earnings per share (diluted), annual free cash flow and revenue relative to market. The criteria exclude costs related to the acquisition of Alcatel Lucent and related integration, goodwill impairment charges, intangible asset amortization and other purchase price fair value adjustments, restructuring and associated charges and certain other items.

The 2018 performance share plan has a two-year performance period (2018-2019) and a subsequent one-year restriction period. The number of performance shares to be settled would be determined with reference to the performance targets during the performance period. For non-executive participants, 25% of the performance shares granted in 2018 will settle after the restriction period, regardless of the satisfaction of the applicable performance criteria. In case the applicable performance criteria are not satisfied, employees who are executives at the date of the performance share grant in 2018 will not receive any settlement.

The grant under the 2018 performance share plan could result in an aggregate maximum settlement of 94 million Nokia shares, in the event that maximum performance against all the performance criteria is achieved.

Until the Nokia shares are delivered, the participants will not have any shareholder rights, such as voting or dividend rights associated with these performance shares.

Restricted share plan

Restricted shares are granted to Nokia's executives and other eligible employees on a more limited basis than performance shares for purposes related to retention and recruitment to ensure Nokia is able to retain and recruit vital talent for the future success of Nokia.

Under the 2018 restricted share plan, the restricted shares are divided into three tranches, each tranche consisting of one third of the restricted shares granted. The first tranche has a one-year restriction period, the second tranche a two-year restriction period, and the third tranche a three-year restriction period.

The grant under the 2018 restricted share plan could result in an aggregate maximum settlement of 8 million Nokia shares. Until the Nokia shares are delivered, the participants will not have any shareholder rights, such as voting or dividend rights, associated with the restricted shares.

Employee Share Purchase Plan

Under our employee share purchase plan 2018 "Share in Success", eligible employees can elect to make monthly contributions from their salary to purchase Nokia shares. The contribution per employee cannot exceed EUR 1 800 per year. The share purchases are made at market value on predetermined dates on a quarterly basis during a 12-month savings period. Nokia intends to deliver one matching share for every two purchased shares the employee still holds at the end of the plan cycle. Participation in the plan is voluntary for all employees in countries where the plan is offered. The Employee Share Purchase Plan is planned to be offered to Nokia employees in up to 75 countries for the plan cycle commencing in 2018.

Legacy equity programs

Stock Options

The granting of stock options ceased at the end of 2013; however, awards granted under the 2011 stock option plan remain in force. Under the plan, each stock option entitles the holder to subscribe for one new Nokia share. The stock options are non-transferable and may be exercised for shares only. The vesting schedule of the 2011 stock option plan is as follows:

Plan	Vesting schedule
2011 stock option plan	50% on third anniversary of grant
	50% on fourth anniversary of grant
	Term is approximately six years
	The final subscription periods end on December 27, 2019

Shares will be eligible for dividends in respect of the financial year in which the share subscription takes place. Other shareholder rights will commence on the date on which the subscribed shares are entered in the trade register. The stock option grants are generally forfeited if the employment relationship is terminated with Nokia.

Alcatel Lucent liquidity agreements

In 2016, Nokia and Alcatel Lucent entered into liquidity agreements with beneficiaries of the 2015 Alcatel Lucent performance share plan. Pursuant to the agreements, the 2015 Alcatel Lucent performance shares (as well as other unvested performance share plans, where the employee elected to enter into a liquidity agreement rather than accelerate their equity), would be exchanged for Nokia shares, or for the cash equivalent of the market value of such Nokia shares, shortly after expiration of the vesting period. The exchange ratio would be aligned with the exchange ratio of Nokia's exchange offer for all outstanding Alcatel Lucent securities, subject to certain adjustments in the event of financial transactions by either Nokia or Alcatel Lucent.

Remuneration Report

The Remuneration Report provides information on the Board and executive remuneration between January 1, 2017 and December 31, 2017. We provide disclosure of the compensation of our Board, the President and CEO and aggregated compensation information for the Group Leadership Team. Revenue, operating profit and earnings per share measures referred to in the Remuneration Report exclude costs related to the acquisition of Alcatel Lucent and related integration, goodwill impairment charges, intangible asset amortization and other purchase price fair value adjustments, restructuring and associated charges and certain other items.

Board of Directors

In 2017, the aggregate amount of compensation paid to the members of the Board for their services on the Board and its committees equaled EUR 2 138 000.

The Annual General Meeting held on May 23, 2017 resolved to elect ten members to the Board. The following members of the Board were re-elected for a term ending at the close of the Annual General Meeting in 2018: Bruce Brown, Louis R. Hughes, Jean C. Monty, Elizabeth Nelson, Olivier Piou, Risto Siilasmaa, Carla Smits-Nusteling and Kari Stadigh. Jeanette Horan and Edward Kozel were elected as new members of the Board for the same term. For director remuneration resolved by the Annual General Meeting for the current term refer to "Remuneration Policy—Board of Directors" above.

The following table outlines the total annual compensation paid in 2017 to the members of the Board for their services, as resolved by shareholders at the Annual General Meeting on May 23, 2017. The table does not include the meeting fees as resolved by the Annual General Meeting in 2017. The meeting fees for applicable Board and Committee meetings held in 2017 will be paid in 2018. For details of Nokia shares held by the members of the Board, refer to "—Share ownership—Share ownership of the Board of Directors" below.

Compensation paid in 2017:

	EUR ⁽¹⁾	Shares ⁽²⁾
Risto Siilasmaa, Chair	440 000	30 497
Olivier Piou, Vice Chair ⁽³⁾	199 000	12 823
Bruce Brown ⁽⁴⁾	209 000	13 169
Jeanette Horan ⁽⁵⁾	175 000	12 129
Louis R. Hughes ⁽⁶⁾	194 000	12 129
Edward Kozel ⁽⁷⁾	175 000	12 129
Jean C. Monty ⁽⁸⁾	174 000	11 090
Elizabeth Nelson ⁽⁹⁾	207 000	13 169
Carla Smits-Nusteling ⁽¹⁰⁾	195 000	12 129
Kari Stadigh ⁽¹¹⁾	170 000	11 090
Total	2 138 000	140 354

(1) The meeting fees for the term that ended at the close of the Annual General Meeting in 2017 were paid in cash in 2017 and are included in the table above. The meeting fees for the current term as resolved by the Annual General Meeting in 2017 will be paid in cash in 2018 and are not included in the table above.

(2) Approximately 40% of each Board member's annual fee was paid in Nokia shares purchased from the market and the remaining amount of approximately 60% was paid in cash.

(3) Consists of EUR 185 000 for services as the Vice Chair of the Board and meeting fees of EUR 14 000.

(4) Consists of EUR 160 000 for services as a member of the Board, EUR 30 000 for services as the Chair of the Personnel Committee and meeting fees of EUR 19 000.

(5) Consists of EUR 160 000 for services as a member of the Board and EUR 15 000 for services as a member of the Audit Committee.

(6) Consists of EUR 160 000 for services as a member of the Board, EUR 15 000 for services as a member of the Audit Committee and meeting fees of EUR 19 000.

(7) Consists of EUR 160 000 for services as a member of the Board and EUR 15 000 for services as a member of the Audit Committee.

(8) Consists of EUR 160 000 for services as a member of the Board and meeting fees of EUR 14 000.

(9) Consists of EUR 160 000 for services as a member of the Board, EUR 30 000 for services as the Chair of the Audit Committee and meeting fees of EUR 17 000.

(10) Consists of EUR 160 000 for services as a member of the Board, EUR 15 000 for services as a member of the Audit Committee and meeting fees of EUR 20 000.

(11) Consists of EUR 160 000 for services as a member of the Board and meeting fees of EUR 10 000.

The President and CEO

The following table shows the remuneration received by the President and CEO in 2017 and 2016. The long-term incentive payments reflect actual payments in the respective years attributable to the vesting of the 2014 Nokia performance share plan in 2017 and the 2012 Nokia Networks equity incentive plan that vested in 2016.

EUR	2017	2016
Salary	1 050 000	1 049 044
Short-term incentive ⁽¹⁾	997 369	780 357
Long-term incentive		
From role as Nokia President and CEO	4 261 633	—
From role as NSN CEO ⁽²⁾	—	7 556 598
Other compensation ⁽³⁾	114 557	122 157
Total	6 423 559	9 508 156

(1) Short-term incentives represent amounts earned in respect of the financial year, but that are paid in April of the following year.

(2) Amount represents the value of the 2012 Nokia Networks equity incentive plan.

(3) Other compensation includes compensation for housing equaling EUR 44 463 (2016: EUR 41 312); travel assistance equaling EUR 22 628 (2016: EUR 33 482); Tax services equaling EUR 17 595 (2016: EUR 19 260) and other benefits including mobile phone, driver and supplemental medical and disability insurance equaling EUR 29 871 (2016: EUR 28 103).

Pursuant to Finnish legislation, Nokia is required to make contributions to the Finnish TyEL pension arrangements in respect of the President and CEO. Such payments can be characterized as defined contribution payments. In 2017, payments to the Finnish state pension system equaled EUR 304 546 (EUR 469 737 in 2016).

Compensation continued

Variable pay

Targets for the short-term incentives are set annually at or before the start of the year, balancing the need to deliver value with the need to motivate and drive the performance of the President and CEO. Targets are selected from a set of strategic metrics that align with driving sustainable value for shareholders and are set in the context market expectations and analyst consensus forecasts. The long-term incentive targets are set in a similar context and are set for the life of the plan at the start of the performance period and locked in for the life of the plan.

The variable pay of the President and CEO is determined based on performance against a mix of targets, either short- or long-term in nature, depending on the strategic impact for the business.

Based on the Board's assessment, the most appropriate measures for driving sustainable business performance at Nokia in 2017 were:

- revenue;
- operating profit;
- earnings per share;
- free cash flow; and
- personal strategic objectives.

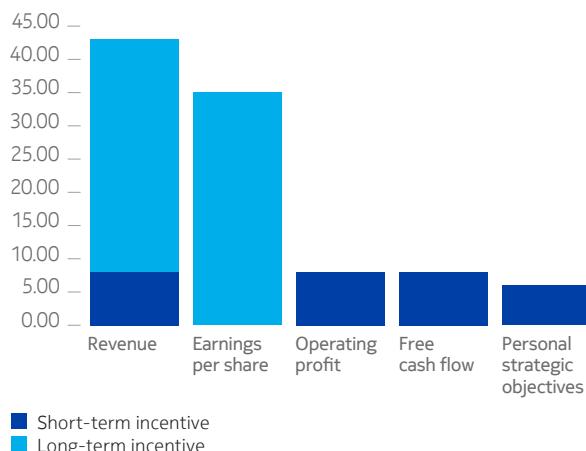
The variable compensation focused on these measures including personal strategic objectives to support the strategic development of Nokia, which is not necessarily measurable or easily measured in purely financial terms.

Short-term incentive

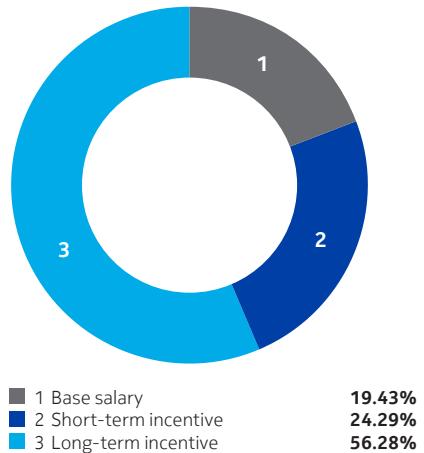
The 2017 short-term incentive framework for the President and CEO was based on three core metrics: revenue, operating profit and free cash flow.

The short-term incentive for the President and CEO were based on the achievement of key financial targets and other strategic objectives, as defined below. Performance against these defined targets was then multiplied by a business results multiplier, which acts as a funding factor for the incentive plan for most employees, to determine the final payment.

Incentive opportunity by metric (% of total variable pay)



2017 Pay mix



% of base salary

Minimum performance	Target performance	Maximum performance	Measurement criteria
0%	125%	281.25%	80% of the incentive was based on performance against the Nokia scorecard:

- revenue (1/3);
- operating profit (1/3); and
- free cash flow (1/3).

The final 20% of the incentive was determined based on the achievement of personal strategic objectives set for President and CEO by the Board.

Short-term incentive targets and achievements reflect the challenging market conditions yet also show the operational resilience of our business. In line with Nokia's performance in 2017, the short-term incentive of the President and CEO equaled EUR 997 369, or 76% of the target award, reflecting the challenging market environment. Achievement by each element of the short-term incentive plan was as follows:

Metric	Target EURm	Achievement
Revenue	24 283	22.11%
Operating profit	2 483	96.94%
Free cash flow ⁽¹⁾	(244)	105.31%

(1) Free cash flow target was negative due to expected restructuring costs and roadmap integration issues.

The Board reviewed the impact of the settlement of the Apple patent litigation on the short-term Incentive and decided not to recognize the impact of the settlement itself on either revenue or operating profit on the basis that it had not been included in targets due to the unpredictable nature of such large litigations. It was deemed appropriate to give credit for the cash flow benefit, value a swift settlement and recognize the cost savings achieved by avoiding extensive litigation.

Long-term incentive

In 2017, the President and CEO's 2014 performance share award vested at 125.72% of the target award valued at EUR 3 968 064.

In 2016, the President and CEO was granted a restricted share award subject to the fulfillment of predetermined and demanding performance conditions related to the successful integration of Nokia and Alcatel Lucent. This award vests in three equal tranches, the first of which was in 2017 and worth EUR 293 569.

In 2017, the President and CEO was awarded the following equity awards under the Nokia equity program:

Award	Units awarded	Grant date fair value (EUR)	Grant date	Vesting date
Performance shares ⁽¹⁾	596 421	3 040 554	July 5, 2017	January 1, 2020

(1) The 2017 performance share plan has a two-year performance period based on financial targets and a one-year restriction period. There is no minimum payout at below threshold performance for executive employees. The maximum payout would be 200% subject to maximum performance against all the performance criteria. Vesting is subject to continued employment.

Share ownership

Our share ownership policy requires that the President and CEO holds a minimum of three times his base salary in Nokia shares in order to ensure alignment with shareholder interests over the long term. This requirement has been met.

	Units	Value (EUR)
Beneficially owned shares as of December 31, 2017 ⁽¹⁾	1 366 994	5 317 607
Vested shares under the 2015 performance share plan delivered on February 14, 2018 ⁽²⁾	436 530	1 964 385
Unvested shares under outstanding Nokia equity plans ⁽³⁾	1 032 533	4 015 553
Total	2 836 057	11 294 545

(1) The value is based on the closing price of a Nokia share of EUR 3.89 on Nasdaq Helsinki on December 29, 2017.

(2) The value and number of units represent fair market value of a Nokia share of EUR 4.50 on Nasdaq Helsinki on February 14, 2018 and the net number of shares delivered after the applicable taxes were withheld from the number of shares that vested to the President and CEO.

(3) The number of units represents the number of unvested awards as of December 31, 2017 including the payout factor of the 2016 performance share plan and excluding the 2015 performance share plan that vested on January 1, 2018. The value is based on the closing price of a Nokia share of EUR 3.89 on Nasdaq Helsinki on December 29, 2017. Vesting is subject to continued employment.

Termination provisions of the President and CEO

Currently the termination provisions for the President and CEO's service agreement specify alternatives for termination and associated compensation in accordance with the following table:

Termination by	Reason	Notice	Compensation
Nokia	Cause	None	The President and CEO is entitled to no additional compensation and all unvested equity awards would be forfeited.
Nokia	Reasons other than cause	Up to 18 months	The President and CEO is entitled to a severance payment equaling up to 18 months of compensation (including annual base salary, benefits, and target incentive) and unvested equity awards would be forfeited.
President and CEO	Any reason	Six months	The President and CEO may terminate his service agreement at any time with six months' prior notice. The President and CEO would either continue to receive salary and benefits during the notice period or, at Nokia's discretion, a lump sum of equivalent value. Additionally, the President and CEO would be entitled to any short- or long-term incentives that would normally vest during the notice period. Any unvested equity awards would be forfeited.
President and CEO	Nokia's material breach of the service agreement	Up to 18 months	In the event that the President and CEO terminates his service agreement based on a final arbitration award demonstrating Nokia's material breach of the service agreement, he is entitled to a severance payment equaling up to 18 months of compensation (including annual base salary, benefits and target incentive). Any unvested equity awards would be forfeited.

Compensation continued

The President and CEO's service agreement includes special severance provisions in the event of a termination of employment following a change of control event. Such change of control provisions are based on a double trigger structure, which means that both a change of control event and the termination of the President and CEO's employment within a defined period of time must take place in order for any change of control-based severance payment to become payable. More specifically, if a change of control event has occurred, as defined in the service agreement, and the President and CEO's service with Nokia is terminated by either Nokia or its successor without cause, or by the President and CEO for "good reason", in either case within 18 months from such change of control event, the President and CEO would be entitled to a severance payment equaling up to 18 months of compensation (including annual base salary, benefits, and target incentive) and cash payment (or payments) for the pro-rated value of his outstanding unvested equity awards, restricted shares, performance shares and stock options (if any), payable pursuant to the terms of the service agreement. "Good reason" referred to above includes a material reduction of the President and CEO's compensation and a material reduction of his duties and responsibilities, as defined in the service agreement and as determined by the Board.

The President and CEO is subject to a 12-month non-competition obligation that applies after the termination of the service agreement or the date when he is released from his obligations and responsibilities, whichever occurs earlier.

Group Leadership Team

In 2017, our Group Leadership Team grew following the realignment of the business to accelerate delivery of our strategy, bringing a Chief Operating Officer, Chief Technology Officer and the President of the new business group, Global Services onto the Group Leadership Team. At the end of 2017, the Group Leadership Team consisted of 15 persons split between Finland, other European countries and the United States.

Name	Position in 2017	Appointment date
Rajeev Suri	President and CEO	May 1, 2014
Federico Guillén	President of Fixed Networks	January 8, 2016
Basil Alwan	President of IP/Optical Networks	January 8, 2016
Bhaskar Gorti	President of Nokia Software	January 8, 2016
Igor Leprince ⁽¹⁾	President of Global Services	April 1, 2017
Marc Rouanne	President of Mobile Networks	January 8, 2016
Samih Elhage ⁽²⁾	President of Mobile Networks	May 1, 2014
Gregory Lee	President of Nokia Technologies	June 30, 2017
Kristian Pullola	Chief Financial Officer	January 1, 2017
Monika Maurer ⁽³⁾	Chief Operating Officer	April 1, 2017
Joerg Erlemeier	Chief Operating Officer	December 11, 2017
Hans-Jürgen Bill	Chief Human Resources Officer	January 8, 2016
Kathrin Buvac	Chief Strategy Officer	January 8, 2016
Ashish Chowdhary	Chief Customer Operations Officer	January 8, 2016
Barry French	Chief Marketing Officer	January 8, 2016
Maria Varsellona	Chief Legal Officer	January 8, 2016
Marcus Weldon	Chief Technology Officer and President of Bell Labs	April 1, 2017

(1) Igor Leprince will step down from the Group Leadership Team as of March 31, 2018. Sanjay Goel was nominated as President of Global Services and member of the Group Leadership Team from April 1, 2018.

(2) Samih Elhage was a member of the Group Leadership Team until March 31, 2017.

(3) Monika Maurer was a member of the Group Leadership Team until December 11, 2017.

Remuneration of the Group Leadership Team (excluding the President and CEO) in 2017 and 2016, in the aggregate, was as follows:

	2017 EURm ⁽¹⁾	2016 EURm ⁽¹⁾
Salary, short-term incentives and other compensation ⁽²⁾	20.3	22.7
Long-term incentives ⁽³⁾	7.0	25.5
Total	27.3	48.2

(1) The values represent each member's time on the Group Leadership Team.

(2) Short-term incentives represent amounts earned in respect of 2017 performance. Other compensation includes mobility related payments, local benefits and pension costs.

(3) The 2016 amount represents the value of the 2012 Nokia Networks equity incentive plan or other equity awards vesting or stock options exercised during 2016 and share awards from Alcatel Lucent where appropriate.

In 2017, the Group Leadership Team (excluding the President and the CEO) was awarded the following equity awards under the Nokia equity program:

Award	Units awarded ⁽²⁾	Grant date fair value (EUR)	Grant date	Vesting date
Performance shares ⁽¹⁾	1 333 567	6 798 525	July 5, 2017	January 1, 2020
Restricted shares	696 835	3 548 981	July 5, 2017	October 1, 2018, 2019 and 2020

(1) The 2017 performance share plan has a two-year performance period based on financial targets and a one-year restriction period. There is no minimum payout at below threshold performance for executive employees. The maximum payout would be 200% subject to maximum performance against all the performance criteria. Vesting is subject to continued employment.

(2) Includes units awarded to persons who were Group Leadership Team members during 2017.

Review of our incentive plans

Each year we monitor the performance of our incentive plans against the targets for the plan, total shareholder return and the impact that the plans have on total compensation compared to market peers.

Target setting

Targets for the short-term incentives are set annually at or before the start of the year, balancing the need to deliver value with the need to motivate and drive performance of the Group Leadership Team. Targets are selected from a set of strategic metrics that align with driving sustainable value for shareholders and are set in the context of market expectations and analyst consensus forecasts. Targets for our long-term incentive plans are set in a similar context. The long-term incentive targets are set at the start of the performance period and locked in for the life of the plan.

Short-term incentives

Short-term incentive targets and achievements for the members of the Group Leadership Team (excluding the President and CEO) were based on a mix of revenue, operating profit and cash flow targets. These targets are measured either at a Nokia Group level or, alternatively, a mix of Nokia Group and business group level for business group presidents. Payout levels for 2017 represent the challenging business environment in which Nokia has been operating with median payout at 83% of target.

Long-term incentives

We have actively introduced a rolling review of compensation against key metrics such as total shareholder return and share price to validate the effectiveness of our equity plans.

The 2014 performance share plan vested on January 1, 2017 with 125.72% of the target award vesting based on the achievement against the revenue and earnings per share targets during the performance period (financial years 2014 and 2015).

The 2015 performance share plan vested on January 1, 2018 with 123.75% of the target award vesting based on the achievement against the revenue and earnings per share targets during the performance period (financial years 2015 and 2016).

The 2016 performance share plan will vest on January 1, 2019 with 46.25% of the target award vesting based on the achievement against the revenue and earnings per share targets during the performance period (financial years 2016 and 2017).

While short-term performance in 2017 was affected by a challenging market and the integration of Alcatel Lucent, the performance under long-term incentive plans represents the significant turnaround of Nokia from 2013 when it acquired the remainder of Nokia Siemens Networks and the continued focus on delivering profit despite challenging market conditions. The performance of the business in 2014, 2015 and 2016 against targets set in the context of analyst forecasts shows fair rewards for a business well positioned for the longer term.

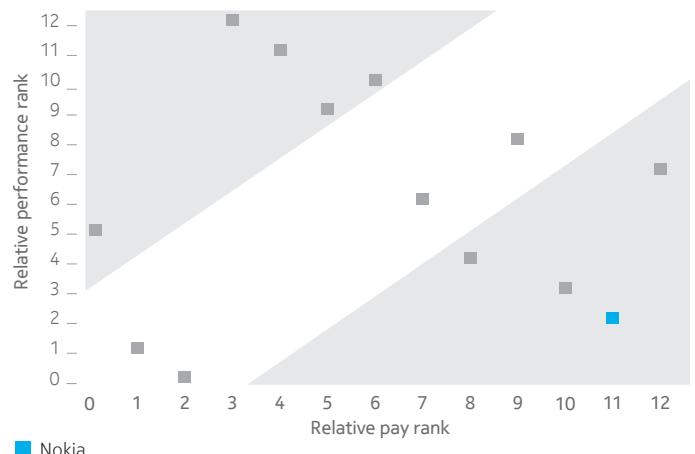
Pay for performance

Core to our compensation philosophy is a desire to pay for performance.

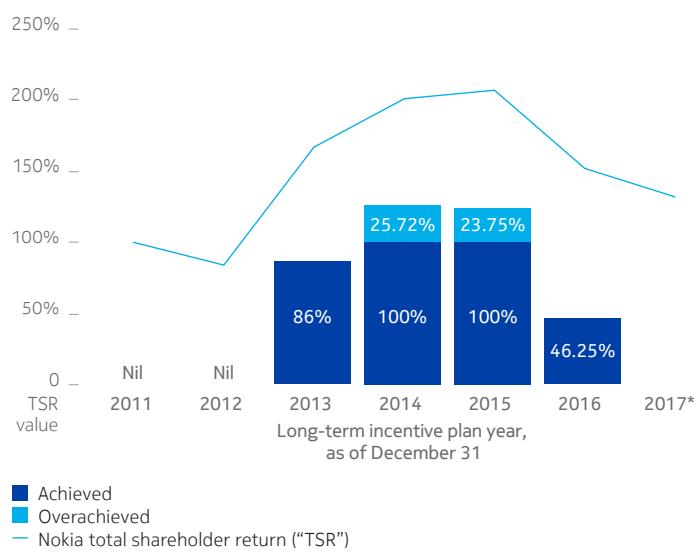
We conduct two tests each year on our long-term incentives:

1. We compare ourselves to a group of peer companies ranking our performance against the peer group based on total shareholder return and total compensation paid. Data are only publicly available for our peer group for financial years to December 31, 2016.
2. Overall total shareholder return is compared to long-term incentive payouts mapping the performance of the plans against the total shareholder return curve.

Relative degree of alignment pay vs total shareholder return ranking



Share price and total shareholder return vs long-term incentive performance



■ Achieved
■ Overachieved
— Nokia total shareholder return ("TSR")

* Performance period not yet completed.

Compensation continued

The first test is a snapshot at any given point in time, showing the compensation received in a year compared to peers versus total shareholder return over the three years prior. The second test looks over time at the progress of the long-term incentive plans. While the comparison to a group of peers shows Nokia with a low performance rank and relatively high pay compared to its peers the comparison of long-term incentive payouts over time aligns well to the total shareholder return performance of the business over a longer time frame. The key driver of much of this is timing with long-term incentives paid sometime after the share price (and total shareholder return) has moved. To highlight this point, in 2019 Nokia would expect to see 46.25% of the 2016 performance share plan award vest to the President and CEO.

Based on the peer group comparison, Nokia was tenth over the three preceding years, as measured by total shareholder return. Whilst the compensation paid out to the President and CEO (as opposed to awarded) was ranked second, reflecting the final payment to him of the Nokia Networks equity incentive plan award granted in 2012 and rewarding the transformation of the Nokia Networks business which has since become the core of Nokia.

However, looking at the performance of our long-term incentive plans against total shareholder return there is a stronger alignment with the performance of the plans declining as total shareholder return declines and the trend lines are reasonably aligned.

The Board continues to actively monitor the performance of its long-term incentive plans to ensure that they deliver value for shareholders. Accordingly, the Board has changed the performance metrics in the 2018 long-term incentive plan to better fit with the needs of the business.

Our Peers

In looking for suitable comparators, we have considered ourselves a European technology company and looked at businesses of similar size, global scale and complexity, such as:

ABB	Infineon
ASML	Kone
BT	Phillips
Deutsche Telekom	Rolls-Royce
Ericsson	SAP
Hexagon	Vodafone

Share ownership

Share ownership of the Board of Directors

As of December 31, 2017, the members of our Board held a total of 4 915 481 shares and ADSs in Nokia, which represented approximately 0.09% of our outstanding shares and total voting rights excluding shares held by Nokia Group.

The following table sets forth the number of shares and ADSs held by the members of the Board as of December 31, 2017:

Name ⁽¹⁾	Shares ⁽¹⁾	ADSs ⁽¹⁾
Risto Siilasmaa	1 313 205	–
Olivier Piou	265 583	–
Bruce Brown	–	113 130
Jeanette Horan	12 129	–
Louis R. Hughes	53 956	–
Edward Kozel	12 129	20 525
Jean C. Monty	2 778 647	–
Elizabeth Nelson	–	59 037
Carla Smits-Nusteling	26 050	–
Kari Stadigh	261 090	–

(1) The number of shares or ADSs includes shares and ADSs received as director compensation as well as shares and ADSs acquired through other means. Stock options or other equity awards that are deemed as being beneficially owned under the applicable SEC rules are not included. For the number of shares or ADSs received as director compensation, refer to Note 35, Related party transactions, of our consolidated financial statements included in this annual report.

Share ownership of the Nokia Group Leadership Team

The following table sets forth the share ownership of the President and CEO, and the other members of the Group Leadership Team in office as of December 31, 2017. The share ownership of all members of the Group Leadership Team, including the President and CEO, was 2 569 891 Nokia shares, which represented 0.05% of the outstanding shares and total voting rights excluding shares held by Nokia Group as of December 31, 2017.

Name	Position in 2017	Beneficially owned shares number
Rajeev Suri	President and Chief Executive Officer	1 366 994
Federico Guillén	President of Fixed Networks	24 761
Basil Alwan	President of IP/Optical Networks	176 716
Bhaskar Gorti	President of Nokia Software	25 417
Igor Leprince	President of Global Services	50 288
Marc Rouanne	President of Mobile Networks	239 362
Gregory Lee	President of Nokia Technologies	–
Kristian Pullola	Chief Financial Officer	126 156
Joerg Erlemeier	Chief Operating Officer	5 125
Hans-Jürgen Bill	Chief Human Resources Officer	150 853
Kathrin Buvac	Chief Strategy Officer	38 569
Ashish Chowdhary	Chief Customer Operations Officer	88 481
Barry French	Chief Marketing Officer	108 603
Maria Varsellona	Chief Legal Officer	149 613
Marcus Weldon	Chief Technology Officer and President of Nokia Bell Labs	18 953

Stock-option ownership of the Nokia Group Leadership Team

The following table sets forth the aggregate stock option ownership of the Group Leadership Team in office as of December 31, 2017.

Category	Number of stock options	Exercise price (EUR)	Expiration date
2012 Q2	40 000	2.08	December 27, 2018
2012 Q3	50 000	1.82	December 27, 2018
2013 Q2	45 000	2.35	December 27, 2019

Unvested equity awards held by the Nokia Group Leadership Team

The following table sets forth the potential aggregate ownership interest through the holding of equity-based incentives of the Group Leadership Team in office, including the President and CEO, as of December 31, 2017:

	Shares receivable through stock options	Shares receivable through performance shares at grant	Shares receivable through performance shares at maximum ⁽⁴⁾	Shares receivable through restricted shares
Number of equity awards held by the Group Leadership Team ⁽¹⁾	135 000	4 625 484	9 250 968	1 440 039
% of the outstanding shares ⁽²⁾	0.002%	0.08%	0.16%	0.02%
% of the total outstanding equity incentives (per instrument) ⁽³⁾	30.17%	7.64%	7.64%	25.86%

(1) Includes the 15 members of the Group Leadership Team in office as of December 31, 2017. The number of units held under awards made before June 30, 2016 was adjusted to reflect the impact of the special dividend paid in 2016.

(2) The percentages are calculated in relation to the outstanding number of shares and total voting rights of Nokia as of December 31, 2017, excluding shares held by Nokia Group. No member of the Group Leadership Team owns more than 1% of the outstanding Nokia shares.

(3) The percentages are calculated in relation to the total outstanding equity incentives per instrument. The number of units outstanding under awards made before June 30, 2016 reflects the impact of the special dividend paid in 2016.

(4) At maximum performance, under the performance share plans outstanding as of December 31, 2017, the payout would be 200% and the table reflects this potential maximum payout. The restriction period for the performance share plan 2015 and the performance period for the performance share plan 2016 ended on December 31, 2017 and Nokia's performance against the performance criteria set out in the plan rules, was above the threshold performance level for both plans. The settlement to the participants under the performance share 2015 plan took place in February 2018 and the settlement for the performance share 2016 plan is expected to take place in the beginning of 2019 after the restriction period ends.

General facts on Nokia

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General facts on Nokia

Our history

Few companies have Nokia's storied capacity for transforming, developing new technologies and adapting to shifts in market conditions. From its beginning in 1865 as a single paper mill operation, Nokia has found and nurtured success in several sectors over the years, including cable, paper products, rubber boots and tires, mobile devices and telecommunications infrastructure equipment.

Nokia's sector-by-sector success over the years has mirrored its geographical rise: from a Finnish-focused company until the 1980s with a growing Nordic and European presence; to a genuine European company in the early 1990s; and on to a truly global company from the mid-1990s onward. With our recent acquisitions of Alcatel Lucent, Gainspeed, Withings, Deepfield, and Comptel, we can deliver today a near 100% end-to-end portfolio on a global scale.

Nokia has been producing telecommunications equipment since the 1880s—almost since telephony began.

A storied past

When Finnish engineer Fredrik Idestam set up his initial wood pulp mill in Southern Finland in 1865, he took the first step in laying the foundation of Nokia's capacity for innovating and finding opportunity. Sensing growing pulp product demand, Idestam opened a second mill a short time later on the Nokianvirta River, inspiring him to name his company Nokia AB.

Idestam's sense of endeavor would continue to prevail in the different phases Nokia would take.

In the 1960s, Nokia became a conglomerate, comprised of rubber, cable, forestry, electronics and power generation businesses, resulting from the merger of Idestam's Nokia AB, and Finnish Cable Works Ltd, a phone and power cable producer founded in 1912, and other businesses.

Transformation anew

It was not long before transformation would occur again.

Deregulation of the European telecommunications industries in the 1980s triggered new thinking and fresh business models.

In 1982, Nokia introduced both the first fully-digital local telephone exchange in Europe and the world's first car phone for the Nordic Mobile Telephone analog standard. The breakthrough of GSM (global system for mobile communications) in the 1980s introduced more efficient use of radio frequencies and higher-quality sound. The first GSM call was made with a Nokia phone over the Nokia-built network of a Finnish operator called Radiolinja in 1991.

It was around this time that Nokia made the strategic decision to make telecommunications and mobile phones our core business. Our other businesses, including aluminum, cable, chemicals, paper, rubber, power plant, and television businesses were subsequently divested.

By 1998, Nokia was the world leader in mobile phones, a position it enjoyed for more than a decade.

And still, the business and technology worlds would continue to evolve, as would Nokia.

A shifting industry

In 2007, Nokia combined its telecoms infrastructure operations with those of Siemens to create the NSN joint venture. We later bought Siemens' stake in NSN in 2013 as the business was emerging from a successful strategy shift and the reality of what Nokia calls a Programmable World of connected devices, sensors and people was starting to take shape.

In 2011, we joined with Microsoft to strengthen our position in the highly competitive smartphone market, which in 2014 resulted in the closing of the Sale of the D&S Business. Nokia emerged from the transaction with a firm financial footing and three strong businesses—Nokia Networks, HERE and Nokia Technologies—focused on connecting the things and people of the Programmable World.

Nokia's transformation was not complete. Our former HERE digital mapping and location services business, an arena we entered in 2006, had been a key pillar of Nokia's operational performance. However, following a strategic review of the business by the Board in light of plans to acquire Alcatel Lucent, Nokia decided to sell its HERE Business.

Acquisition of Alcatel Lucent and beyond

The acquisition of Alcatel Lucent positions Nokia as an innovation leader in next-generation technology and services.

Our reputation as an innovation powerhouse has been bolstered by the addition of Bell Labs, now known as Nokia Bell Labs. It joins a future-focused business backed by tens of thousands of engineers and thousands of patent families, a reflection of Nokia's innovation pedigree which has produced a huge array of benefits for consumers, business, and society as a whole.

The acquisition helps us shape the connectivity and digitization revolution before us—the Programmable World—in which billions of people, devices, and sensors are connected in a way that opens up a world of possibilities. These can make our planet safer, cleaner, healthier, more sustainable, more efficient and more productive.

Nokia's long history is marked by change and reinvention. We have always been excited by where technology will lead us as we seek to enable the human possibilities of a connected world. We will continue to innovate, reimagining how technology works for us discreetly while blending into, and enriching, our daily lives.

Memorandum and Articles of Association

Registration

Nokia is organized under the laws of the Republic of Finland and registered under the business identity code 0112038-9. Under its current Articles of Association, Nokia's corporate purpose is to research, develop, manufacture, market, sell and deliver products, software and services in a wide range of consumer and business-to-business markets. These products, software and services relate to, among others, network infrastructure for telecommunication operators and other enterprises, the IoT, human health and well-being, multimedia, big data and analytics, mobile devices and consumer wearables and other electronics. The company may also create, acquire and license intellectual property and software as well as engage in other industrial and commercial operations, including securities trading and other investment activities. The company may carry on its business operations directly, through subsidiary companies, affiliate companies and joint ventures.

Director's voting powers

Under Finnish law, resolutions of the Board shall be made by a majority vote. A director shall refrain from taking any part in the consideration of an agreement between the director and the company or third party, or any other issue that may provide any material benefit to him or her, which may be contradictory to the interests of the company. Under Finnish law, there is no age limit requirement for directors, and there are no requirements under Finnish law that a director must own a minimum number of shares in order to qualify to act as a director. However, in accordance with the current company policy, approximately 40% of the annual fee payable to the Board members is paid in Nokia shares purchased from the market or alternatively by using treasury shares held by Nokia, and the directors shall retain until the end of their directorship such number of shares that corresponds to the number of shares they have received as Board remuneration during their first three years of service (the net amount received after deducting those shares used for offsetting any costs relating to the acquisition of the shares, including taxes).

Share rights, preferences and restrictions

Each share confers the right to one vote at general meetings. According to Finnish law, a company generally must hold an Annual General Meeting called by the Board within six months from the end of the fiscal year. Additionally, the Board is obliged to call an Extraordinary General Meeting, whenever such meeting is deemed necessary, or at the request of the auditor or shareholders representing a minimum of one-tenth of all outstanding shares. Under our Articles of Association, the Board is elected at least annually at the Annual General Meeting of the shareholders for a term ending at the end of the next Annual General Meeting.

Under Finnish law, shareholders may attend and vote at general meetings in person or by proxy. It is not customary in Finland for a company to issue forms of proxy to its shareholders. Accordingly, Nokia does not do so. However, registered holders and beneficial owners of ADSs are issued forms of proxy by the Depositary.

To attend and vote at a general meeting, a shareholder must be registered in the register of shareholders in the Finnish book-entry system on or prior to the record date set forth in the notice of the general meeting. A registered holder or a beneficial owner of the ADSs, like other beneficial owners whose shares are registered in the company's register of shareholders in the name of a nominee, may vote with their shares provided that they arrange to have their name entered in the temporary register of shareholders for the general meeting.

The record date is the eighth business day preceding the meeting. To be entered in the temporary register of shareholders for the general meeting, a holder of ADSs must provide the Depositary, or have his broker or other custodian provide the Depositary, on or before the voting deadline, as defined in the proxy material issued by the Depositary, a proxy with the following information: the name, address, and social security number or another corresponding personal identification number of the holder of the ADSs, the number of shares to be voted by the holder of the ADSs and the voting instructions. The register of shareholders as of the record date of each general meeting is public until the end of the respective meeting. Other nominee registered shareholders can attend and vote at the general meetings by instructing their broker or other custodian to register the shareholder in Nokia's temporary register of shareholders and give the voting instructions in accordance with the broker's or custodian's instructions.

By completing and returning the form of proxy provided by the Depositary, a holder of ADSs also authorizes the Depositary to give notice to us, required by our Articles of Association, of the holder's intention to attend the general meeting.

Each of our shares confers equal rights to share in the distribution of the company's funds. For a description of dividend rights attaching to our shares, refer to "—Shares and shareholders". Dividend entitlement lapses after three years if a dividend remains unclaimed for that period, in which case the unclaimed dividend will be retained by Nokia.

Under Finnish law, the rights of shareholders are related to the shares as set forth in law and our Articles of Association. Neither Finnish law nor our Articles of Association sets limitations on the rights to own Nokia securities, including the rights of foreign shareholders to hold or exercise voting rights in the said securities. Amendment of the Articles of Association requires a decision of the general meeting, supported by two-thirds of the votes cast and two-thirds of the shares represented at the meeting.

Disclosure of shareholder ownership or voting power

According to the Finnish Securities Market Act, which entered into effect on January 1, 2013, a shareholder shall disclose their ownership or voting power to the company and the Finnish Financial Supervisory Authority when the ownership or voting power reaches, exceeds or falls below 5, 10, 15, 20, 25, 30, 50 or 90% of all the shares or the voting rights outstanding. The term "ownership" includes ownership by the shareholder, as well as selected related parties, and calculating the ownership or voting power covers agreements or other arrangements, which when concluded would cause the proportion of voting rights or number of shares to reach, exceed or fall below the aforementioned limits. Upon receiving such notice, the company shall disclose it by a stock exchange release without undue delay.

General facts on Nokia continued

Purchase obligation

Our Articles of Association require a shareholder that holds one-third or one-half of all of our shares to purchase the shares of all other shareholders that so request, at a price generally based on the historical weighted average trading price of the shares. A shareholder who becomes subject to the purchase obligation is also obligated to purchase any subscription rights, stock options or convertible bonds issued by the company if so requested by the holder. The purchase price of the shares under our Articles of Association is the higher of: (a) the weighted average trading price of the shares on Nasdaq Helsinki during the ten business days prior to the day on which we have been notified by the purchaser that its holding has reached or exceeded the threshold referred to above or, in the absence of such notification or its failure to arrive within the specified period, the day on which our Board otherwise becomes aware of this; or (b) the average price, weighted by the number of shares, which the purchaser has paid for the shares it has acquired during the last 12 months preceding the date referred to in (a).

Under the Finnish Securities Market Act, a shareholder whose voting power exceeds 30% or 50% of the total voting rights in a company shall, within one month, offer to purchase the remaining shares of the company, as well as any other rights entitling to the shares issued by the company, such as subscription rights, convertible bonds or stock options issued by the company. The purchase price shall be the market price of the securities in question. The market price is determined on the basis of the highest price paid for the security during the preceding six months by the shareholder or any party in close connection to the shareholder. This price can be deviated from for a specific reason. If the shareholder or any related party has not during the six months preceding the offer acquired any securities that are the target for the offer, the market price is determined based on the average of the prices paid for the security in public trading during the preceding three months weighted by the volume of trade. This price can be deviated from for a specific reason.

Under the Finnish Companies Act, a shareholder whose holding exceeds nine-tenths of the total number of shares or voting rights in Nokia has both the right and, upon a request from the minority shareholders, the obligation to purchase all the shares of the minority shareholders for the current market price. The market price is determined, among other things, on the basis of the recent market price of the shares. The purchase procedure under the Finnish Companies Act differs, and the purchase price may differ, from the purchase procedure and price under the Finnish Securities Market Act, as discussed above. However, if the threshold of nine-tenths has been exceeded through either a mandatory or a voluntary public offer pursuant to the Finnish Securities Market Act, the market price under the Finnish Companies Act is deemed to be the price offered in the public offer, unless there are specific reasons to deviate from it.

Pre-emptive rights

In connection with any offering of shares, the existing shareholders have a pre-emptive right to subscribe for shares offered in proportion to the amount of shares in their possession. However, a general meeting of shareholders may vote, by a majority of two-thirds of the votes cast and two-thirds of the shares represented at the meeting, to waive this pre-emptive right provided that, from the company's perspective, weighty financial grounds exist.

Under the Finnish Act on the Monitoring of Foreign Corporate Acquisitions (2012/172 as amended), a notification to the Ministry of Employment and the Economy is required for a non-resident of Finland, directly or indirectly, when acquiring one-tenth or more of the voting power or corresponding factual influence in a company. The Ministry of Employment and the Economy has to confirm the acquisition unless the acquisition would jeopardize important national interests, in which case the matter is referred to the Council of State. If the company in question is operating in the defense sector, an approval by the Ministry of Employment and the Economy is required before the acquisition is made. These requirements are not applicable if, for instance, the voting power is acquired in a share issue that is proportional to the holder's ownership of the shares. Moreover, the requirements do not apply to residents of countries in the European Economic Area or EFTA countries.

Selected financial data

The financial data for our Continuing operations set forth below at and for the years ended December 31, 2017 and 2016 and for each of the years in the three-year period ended December 31, 2017 has been derived from our audited consolidated financial statements included in this annual report. Financial data at December 31, 2015 has been derived from our historical audited consolidated financial statements not included in this annual report. The financial data at December 31, 2017 and 2016 and for each of the years in the three-year period ended December 31, 2017 should be read in conjunction with, and are qualified in their entirety by reference to, our audited consolidated financial statements.

	2017	2016	2015
For the year ended December 31		(in EURm, except for percentage and personnel data)	
From the consolidated income statement			
Net sales	23 147	23 641	12 560
Change %	(2.1)%	88.2%	6.8%
Operating profit/(loss)	16	(1 100)	1 697
% of net sales	0.1%	(4.7)%	13.5%
Financial income and expenses	(537)	(287)	(186)
(Loss)/profit before tax	(510)	(1 369)	1 540
Income tax (expense)/benefit	(927)	457	(346)
(Loss)/profit attributable to equity holders of the parent	(1 473)	(751)	1 192
(Loss)/profit attributable to non-controlling interests	36	(161)	2
(Loss)/profit for the year from Continuing operations	(1 437)	(912)	1 194
Earnings per share (for (loss)/profit attributable to equity holders of the parent)	(0.26)	(0.13)	0.32
Basic earnings per share, EUR	(0.26)	(0.13)	0.31
Diluted earnings per share, EUR			
From the statement of financial position			
Non-current assets	21 160	24 182	5 102
Cash and other liquid assets ⁽¹⁾	8 280	9 326	9 849
Other current assets	11 561	11 349	5 975
Assets held for sale and assets of disposal groups classified as held for sale	23	44	–
Total assets	41 024	44 901	20 926
Capital and reserves attributable to equity holders of the parent	16 138	20 094	10 503
Non-controlling interests	80	881	21
Non-interest bearing liabilities ⁽²⁾	21 040	19 899	8 328
Interest-bearing liabilities ⁽³⁾	3 766	4 027	2 074
Total equity and liabilities	41 024	44 901	20 926
Other information			
Research and development expenses	(4 916)	(4 997)	(2 080)
% of net sales	(21.2)%	(21.1)%	(16.6)%
Purchases of property, plant and equipment, and intangible assets ⁽⁴⁾	(601)	(477)	(278)
% of net sales	(2.6)%	(2.0)%	(2.2)%
Salaries and social expenses	(7 845)	(7 814)	(3 738)
Average number of employees	101 731	102 687	56 690
Key financial indicators			
Cash dividends per share, EUR ⁽⁵⁾	0.19	0.17	0.26
Dividends ⁽⁶⁾	1 060	963	1 501
Return of capital employed, %	neg.	neg.	14.1%
Return on shareholders' equity, %	neg.	neg.	12.5%
Equity ratio, %	45.9%	51.7%	59.0%
Net debt to equity (gearing), %	(27.8)%	(25.3)%	(73.9)%
Net cash	4 514	5 299	7 775
Free cash flow	1 210	(1 931)	193

(1) Cash and other liquid assets consist of the following line items from our consolidated statement of financial position: cash and cash equivalents, available-for-sale investments, liquid assets and investments at fair value through profit and loss, liquid assets.

(2) Includes deferred tax liabilities, deferred revenue and other long-term liabilities, provisions, other financial liabilities, current income tax liabilities, accounts payable and accrued expenses and deferred revenue and other liabilities.

(3) Includes long-term interest-bearing liabilities, current portion of long-term interest-bearing liabilities and short-term borrowings.

(4) Includes purchases of property, plant and equipment and intangible assets for Continuing operations.

(5) The Board proposes a cash dividend of EUR 0.19 per share for 2017 for the shareholders' approval at the Annual General Meeting convening on May 30, 2018.

(6) Maximum amount to be distributed as dividends based on the number of shares at December 31, 2017 excluding the number of shares owned by the Group companies. Comparative figures represents the total actual amounts paid.

General facts on Nokia continued

Exchange rate data

Our business and results of operations are, from time to time, affected by changes in exchange rates, particularly between the euro, our reporting currency, and other currencies such as the U.S. dollar, the Chinese yuan, the Japanese yen and the Korean won. The following table sets forth information concerning the noon buying rate for the years 2013 to 2017 and for each of the months in the six-month period ended February 28, 2018, expressed in U.S. dollars per euro. The average rate for a year means the average of the exchange rates on the last day of each month during a year. The average rate for a month means the average of the daily exchange rates during that month.

For the year ended December 31 (unless otherwise specified)	End of period rate	Average rate	Highest rate	Lowest rate
	(USD per EUR)			
2013	1.3779	1.3303	1.3816	1.2774
2014	1.2101	1.3210	1.3927	1.2101
2015	1.0859	1.1032	1.2015	1.0524
2016	1.0552	1.1029	1.1516	1.0375
2017	1.2022	1.1396	1.2041	1.0416
September 30, 2017	1.1813	1.1913	1.2041	1.1747
October 31, 2017	1.1648	1.1755	1.1847	1.1580
November 30, 2017	1.1898	1.1743	1.1936	1.1577
December 30, 2017	1.2022	1.1836	1.2022	1.1725
January 31, 2018	1.2428	1.2197	1.2488	1.1922
February 28, 2018	1.2211	1.2340	1.2482	1.2211
March 1, 2018 to March 9, 2018	1.2326	1.2330	1.2415	1.2216

On March 9, 2018, the noon buying rate was USD 1.2326 per EUR 1.00.

Shares and shareholders

Shares and share capital

Nokia has one class of shares. Each Nokia share entitles the holder to one vote at General Meetings of Nokia.

As of December 31, 2017, the share capital of Nokia Corporation equaled EUR 245 896 461.96 and the total number of shares issued was 5 839 404 303. As of December 31, 2017, the total number of shares included 259 887 597 shares owned by Group companies representing approximately 4.5% of the total number of shares and the total voting rights.

Nokia does not have minimum or maximum share capital or a par value of a share.

As of December 31	2017	2016	2015	2014	2013
Share capital, EURm	246	246	246	246	246
Shares, (000s)	5 839 404	5 836 055	3 992 864	3 745 044	3 744 994
Shares owned by the Group, (000s)	259 887	115 552	53 669	96 901	32 568
Number of shares excluding shares owned by the Group, (000s)	5 579 517	5 720 503	3 939 195	3 648 143	3 712 427
Average number of shares excluding shares owned by the Group during the year, (000s), basic	5 651 814	5 732 371	3 670 934	3 698 723	3 712 079
Average number of shares excluding shares owned by the Group during the year, (000s), diluted	5 651 814	5 741 117	3 949 312	4 131 602	3 712 079
Number of registered shareholders ⁽¹⁾	247 717	237 700	209 509	216 830	225 587

(1) Each account operator is included in the figure as only one registered shareholder.

Key ratios

As of December 31, Continuing operations	2017	2016	2015	2014	2013
Earnings per share for (loss)/profit attributable to equity holders of the parent					
Earnings per share, basic, EUR	(0.26)	(0.13)	0.32	0.73	0.07
Earnings per share, diluted, EUR	(0.26)	(0.13)	0.31	0.67	0.07
P/E ratio, basic ⁽¹⁾	neg.	neg.	20.63	8.99	83.14
Dividend per share, EUR ⁽²⁾	0.19	0.17	0.26	0.14	0.37
Total dividends paid, EURm ⁽²⁾⁽³⁾	1 060	963	1 501	511	1 374
Payout ratio, basic ⁽²⁾	neg.	neg.	0.81	0.19	5.29
Dividend yield, % ⁽²⁾	4.88	3.70	3.94	2.13	6.36
Shareholders' equity per share, EUR ⁽⁴⁾	2.89	3.51	2.67	2.36	1.74
Market capitalization, EURm ⁽⁴⁾	21 704	26 257	25 999	23 932	21 606

(1) Based on Nokia closing share price at year-end.

(2) The Board proposes a cash dividend of EUR 0.19 per share for 2017, subject to shareholders' approval at the Annual General Meeting convening on May 30, 2018.

(3) For 2017, the figure represents the maximum amount to be distributed as dividends, based on the number of shares as of December 31, 2017, excluding the number of shares owned by the Group companies. Comparative figures represent the total actual amounts paid.

(4) Excludes shares owned by Group companies.

Reductions of share capital and number of shares

Type of reduction	Year	Number of shares 000s	Amount of reduction of the share capital EURm	Amount of reduction of the restricted capital EURm	Amount of reduction of the retained earnings EURm
Cancellation of shares	2013	–	–	–	–
Cancellation of shares	2014	–	–	–	–
Cancellation of shares	2015	66 904	–	–	–
Cancellation of shares	2016	–	–	–	–
Cancellation of shares	2017	–	–	–	–

General facts on Nokia continued

Share turnover

	2017	2016	2015	2014	2013
Share turnover (000s) ⁽¹⁾	8 839 680	9 604 722	8 490 823	9 278 853	16 748 295
Total number of shares (000s)	5 839 404	5 836 055	3 992 823	3 745 044	3 744 956
% of total number of shares	151	165	213	248	447

(1) Source: Nasdaq Helsinki, the NYSE composite tape and Euronext Paris (since November 2015).

The principal trading markets for the shares are Nasdaq Helsinki and Euronext Paris, in the form of shares, and the NYSE, in the form of ADSs.

Nasdaq Helsinki share prices⁽¹⁾

EUR	2017	2016	2015	2014	2013
Low/high	3.81/5.96	3.66/6.99	4.91/7.87	4.89/6.97	2.30/6.03
Average ⁽²⁾	4.88	5.07	6.53	5.99	3.57
Year-end	3.89	4.59	6.60	6.56	5.82

(1) Source: Nasdaq Helsinki.

(2) Total turnover divided by total volume.

Euronext Paris share prices⁽¹⁾

EUR	2017	2016	2015	2014	2013
Low/high	3.81/5.93	3.66/6.99	6.29/7.15	—	—
Average ⁽²⁾	5.07	4.98	6.66	—	—
Year-end	3.89	4.57	6.59	—	—

(1) Source: Euronext Paris.

(2) Total turnover divided by total volume.

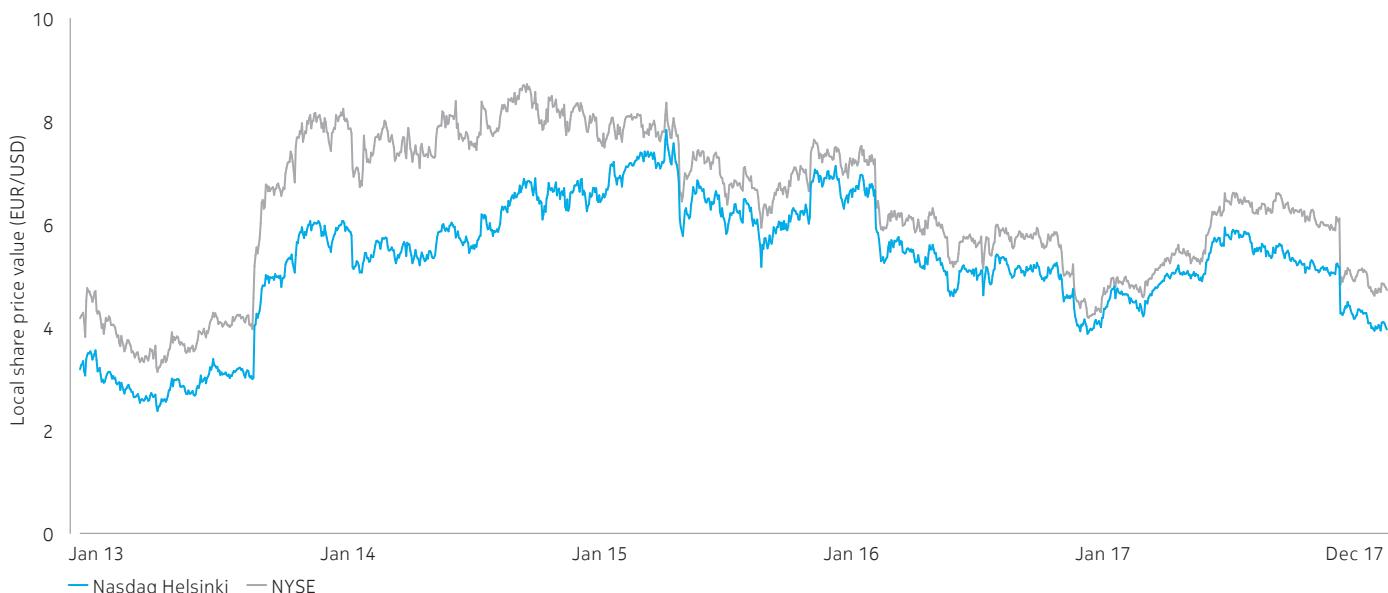
NYSE share prices (ADS)⁽¹⁾

USD	2017	2016	2015	2014	2013
Low/high	4.50/6.65	4.04/7.55	5.71/8.37	6.64/8.73	3.02/8.18
Average ⁽²⁾	5.59	5.64	7.28	7.79	4.82
Year-end	4.66	4.81	7.02	7.86	8.11

(1) Source: The NYSE composite tape.

(2) Total turnover divided by total volume.

Nokia share prices on Nasdaq Helsinki (EUR) and the NYSE (USD) 2013–2017



Stock option exercises 2013–2017

Year	Stock option category	Subscription price EUR	Number of new shares 000s	Date of payment	Net proceeds EURm	New share capital EURm
2013	Nokia Stock Option Plan 2008 1Q	24.15	0	2013	0.00	–
	Nokia Stock Option Plan 2008 2Q	19.16	0	2013	0.00	–
	Nokia Stock Option Plan 2008 3Q	17.80	0	2013	0.00	–
	Nokia Stock Option Plan 2008 4Q	12.43	0	2013	0.00	–
	Nokia Stock Option Plan 2009 1Q	9.82	0	2013	0.00	–
	Nokia Stock Option Plan 2009 2Q	11.18	0	2013	0.00	–
	Nokia Stock Option Plan 2009 3Q	9.28	0	2013	0.00	–
	Nokia Stock Option Plan 2009 4Q	8.76	0	2013	0.00	–
	Nokia Stock Option Plan 2010 1Q	10.11	0	2013	0.00	–
	Nokia Stock Option Plan 2010 2Q	8.86	0	2013	0.00	–
	Nokia Stock Option Plan 2010 3Q	7.29	0	2013	0.00	–
	Nokia Stock Option Plan 2010 4Q	7.59	0	2013	0.00	–
Total		0	0		0.00	
2014	Nokia Stock Option Plan 2009 1Q	9.56	0	2014	0.00	–
	Nokia Stock Option Plan 2009 2Q	10.92	0	2014	0.00	–
	Nokia Stock Option Plan 2009 3Q	9.02	0	2014	0.00	–
	Nokia Stock Option Plan 2009 4Q	8.50	0	2014	0.00	–
	Nokia Stock Option Plan 2010 1Q	9.85	0	2014	0.00	–
	Nokia Stock Option Plan 2010 2Q	8.60	0	2014	0.00	–
	Nokia Stock Option Plan 2010 3Q	7.03	0	2014	0.00	–
	Nokia Stock Option Plan 2010 4Q	7.33	0	2014	0.00	–
	Nokia Stock Option Plan 2011 2Q	5.76	50	2014	0.29	–
	Nokia Stock Option Plan 2011 3Q	3.50	0	2014	0.00	–
Total		50	50		0.29	
2015	Nokia Stock Option Plan 2010 1Q	9.85	0	2015	0.00	–
	Nokia Stock Option Plan 2010 2Q	8.60	0	2015	0.00	–
	Nokia Stock Option Plan 2010 3Q	7.03	0	2015	0.00	–
	Nokia Stock Option Plan 2010 4Q	7.33	0	2015	0.00	–
	Nokia Stock Option Plan 2011 2Q	5.76	442	2015	2.55	–
	Nokia Stock Option Plan 2011 3Q	3.50	212	2015	0.74	–
	Nokia Stock Option Plan 2011 4Q	4.58	90	2015	0.41	–
	Nokia Stock Option Plan 2012 1Q	3.58	0	2015	0.00	–
	Nokia Stock Option Plan 2012 2Q	2.18	213	2015	0.47	–
	Nokia Stock Option Plan 2012 3Q	1.92	285	2015	0.55	–
Total		1 242	1 242		4.72	

General facts on Nokia continued

Year	Stock option category	Subscription price EUR	Number of new shares 000s	Date of payment	Net proceeds EURm	New share capital EURm
2016	Nokia Stock Option Plan 2011 2Q	5.66	104	2016	0.60	–
	Nokia Stock Option Plan 2011 3Q	3.40	0	2016	0.00	–
	Nokia Stock Option Plan 2011 4Q	4.48	0	2016	0.00	–
	Nokia Stock Option Plan 2012 1Q	3.48	0	2016	0.00	–
	Nokia Stock Option Plan 2012 2Q	2.08	240	2016	0.51	–
	Nokia Stock Option Plan 2012 3Q	1.82	308	2016	0.57	–
	Nokia Stock Option Plan 2012 4Q	1.76	10	2016	0.02	–
	Nokia Stock Option Plan 2013 1Q	2.58	0	2016	0.00	–
	Nokia Stock Option Plan 2013 2Q	2.35	166	2016	0.39	–
	Nokia Stock Option Plan 2013 3Q	2.72	5	2016	0.01	–
Total			833		2.10	
2017	Nokia Stock Option Plan 2011 2Q	5.66	0	2017	0.00	–
	Nokia Stock Option Plan 2011 3Q	3.40	0	2017	0.00	–
	Nokia Stock Option Plan 2011 4Q	4.48	5	2017	0.02	–
	Nokia Stock Option Plan 2012 1Q	3.48	0	2017	0.00	–
	Nokia Stock Option Plan 2012 2Q	2.08	61	2017	0.13	–
	Nokia Stock Option Plan 2012 3Q	1.82	148	2017	0.27	–
	Nokia Stock Option Plan 2012 4Q	1.76	9	2017	0.02	–
	Nokia Stock Option Plan 2013 1Q	2.58	0	2017	0.00	–
	Nokia Stock Option Plan 2013 2Q	2.35	193	2017	0.45	–
	Nokia Stock Option Plan 2013 3Q	2.72	0	2017	0.00	–
	Nokia Stock Option Plan 2013 4Q	5.41	0	2017	0.00	–
Total			416		0.87	

Shareholders

As of December 31, 2017, shareholders registered in Finland represented 21.00% and shareholders registered in the name of a nominee represented 79.00% of the total number of shares of Nokia Corporation. The number of directly registered shareholders was 247 717 as of December 31, 2017. Each account operator (13) is included in this figure as only one registered shareholder.

Largest shareholders registered in Finland as of December 31, 2017⁽¹⁾

Shareholder	Total number of shares 000s	% of all shares	% of all voting rights
Varma Mutual Pension Insurance Company	57 222	0.98	1.02
The State Pension Fund	42 000	0.72	0.75
Ilmarinen Mutual Pension Insurance Company	31 565	0.54	0.56
Folketrygdfonden	26 605	0.46	0.48
Schweizerische Nationalbank	25 881	0.44	0.46
Elo Mutual Pension Insurance Company	23 300	0.40	0.42
OP-Finland Fund	18 758	0.32	0.34
Lival Oy Ab	16 369	0.28	0.29
Nordea Pro Finland Fund	16 059	0.28	0.29
Svenska Litteratursällskapet i Finland rf	15 431	0.26	0.28

(1) Excluding nominee registered shares and shares owned by Nokia Corporation. Nokia Corporation owned 248 428 936 shares as of December 31, 2017.

Breakdown of share ownership as of December 31, 2017⁽¹⁾

By number of shares owned	Number of shareholders	% of shareholders	Total number of shares	% of all shares
1-100	50 000	20.18	2 832 324	0.05
101-1 000	119 783	48.35	55 281 401	0.95
1 001-10 000	68 363	27.60	215 685 638	3.69
10 001-100 000	9 022	3.64	220 190 388	3.77
100 001-500 000	424	0.17	81 577 276	1.40
500 001-1 000 000	45	0.02	31 401 574	0.54
1 000 001-5 000 000	51	0.02	110 898 260	1.90
Over 5 000 000	29	0.01	5 121 537 442	87.71
Total	247 717	100.00	5 839 404 303	100.00

(1) The breakdown covers only shareholders registered in Finland, and each account operator (13) is included in the number of shareholders as only one registered shareholder. As a result, the breakdown is not illustrative of the entire shareholder base of Nokia.

By nationality	% of shares
Non-Finnish shareholders	79.00
Finnish shareholders	21.00
Total	100.00

By shareholder category (Finnish shareholders)	% of shares
Corporations	6.24
Households	8.20
Financial and insurance institutions	2.19
Non-profit organizations	1.11
Governmental bodies (incl. pension insurance companies)	3.26
Total	21.00

As of December 31, 2017, a total of 640 129 725 ADSs (equivalent to the same number of shares or approximately 10.96% of the total outstanding shares) were outstanding and held of record by 132 478 registered holders in the United States. We are aware that many ADSs are held of record by brokers and other nominees, and accordingly the above number of holders is not necessarily representative of the actual number of persons who are beneficial holders of ADSs or the number of ADSs beneficially held by such persons. Based on information available from Automatic Data Processing Inc., the number of beneficial owners of ADSs as of December 31, 2017 was 392 913.

Based on information known to us as of January 29, 2018, as of December 31, 2017 Blackrock, Inc. beneficially owned 364 870 084 Nokia shares or convertible bonds combined, which at that time corresponded to approximately 6.2% of the total number of shares and voting rights of Nokia.

To the best of our knowledge, Nokia is not directly or indirectly owned or controlled by any other corporation or any government, and there are no arrangements that may result in a change of control of Nokia.

Shares and stock options owned by the members of the Board and the Nokia Group Leadership Team

As of December 31, 2017, the members of our Board and the Group Leadership team held a total of 7 485 372 shares and ADSs in Nokia, which represented approximately 0.13% of our outstanding shares and total voting rights excluding shares held by Nokia Group.

General facts on Nokia continued

Authorizations

Authorizations to issue shares and special rights entitling to shares

At the Extraordinary General Meeting held on December 2, 2015, the shareholders authorized the Board of Directors to issue, in deviation from the shareholders' pre-emptive right, a maximum of 2 100 million shares through one or more share issues. The authorization includes the right for the Board of Directors to resolve on all the terms and conditions of such share issuances. The authorization may be used to issue Parent Company shares to the holders of Alcatel Lucent shares, American Depository Shares and convertible bonds as well as to beneficiaries of Alcatel Lucent employee equity compensation arrangements for the purpose of implementing the transaction with Alcatel Lucent, including the consummation of the public exchange offers made to Alcatel Lucent shareholders as well as other transactions contemplated by the memorandum of understanding between the Group and Alcatel Lucent, and/or otherwise to effect the combination. The authorization is effective until December 2, 2020.

At the Annual General Meeting held on June 16, 2016, the shareholders authorized the Board of Directors to issue a maximum of 1 150 million shares through one or more issues of shares or special rights entitling to shares. The Board of Directors was authorized to issue either new shares or shares held by the Parent Company. The authorization included the right for the Board of Directors to resolve on all the terms and conditions of such share and special rights issuances, including issuance in deviation from the shareholders' pre-emptive rights. The authorization may be used to develop the Parent Company's capital structure, diversify the shareholder base, finance or carry out acquisitions or other arrangements, settle the Parent Company's equity-based incentive plans, or for other purposes resolved by the Board of Directors. The authorization that would have been effective until December 16, 2017 was terminated by a resolution of Annual General Meeting on May 23, 2017.

At the Annual General Meeting held on May 23, 2017, the shareholders authorized the Board of Directors to issue a maximum of 560 million shares through one or more issues of shares or special rights entitling to shares. The Board of Directors is authorized to issue either new shares or shares held by the Parent Company. The authorization included the right for the Board of Directors to resolve on all the terms and conditions of such share and special rights issuances, including issuance in deviation from the shareholders' pre-emptive rights. The authorization may be used to develop the Parent Company's capital structure, diversify the shareholder base, finance or carry out acquisitions or other arrangements, settle the Parent Company's equity-based incentive plans, or for other purposes resolved by the Board of Directors. The authorization is effective until November 23, 2018.

In 2017, under the authorization held by the Board of Directors, the Parent Company issued 415 750 new shares following the holders of stock options issued in 2011, 2012 and 2013 exercising their option rights.

In 2017, the Parent Company issued 2 933 541 new shares without consideration to the Parent Company to fulfil the company's obligation under the Nokia Equity Programs.

In 2017, under the authorization held by the Board of Directors, the Parent Company issued 12 199 284 treasury shares to employees, including certain members of the Group Leadership Team, as settlement under equity-based incentive plans and the employee share purchase plan. The shares were issued without consideration and in accordance with the plan rules.

As of December 31, 2017, the Board of Directors had no other authorizations to issue shares, convertible bonds, warrants or stock options.

Authorization to repurchase shares

At the Annual General Meeting held on June 16, 2016, the shareholders authorized the Board of Directors to repurchase a maximum of 575 million shares. The amount corresponded to less than 10% of the total number of Parent Company's shares. The shares may be repurchased in order to optimize the capital structure of the Parent Company. In addition, the shares may be repurchased in order to finance or carry out acquisitions or other arrangements, to settle the Parent Company's equity-based incentive plans or to be transferred for other purposes. The authorization that would have been effective until December 16, 2017 was terminated by a resolution of the Annual General Meeting on May 23, 2017.

At the Annual General Meeting held on May 23, 2017, the shareholders authorized the Board of Directors to repurchase a maximum of 560 million shares. The amount corresponds to less than 10% of the total number of Parent Company's shares. The shares may be repurchased in order to optimize the capital structure of the Company. In addition, shares may be repurchased in order to meet obligations arising from debt financial instruments that are exchangeable into equity instruments, to settle equity-based incentive plans for employees of the Group or of its associated companies, or to be transferred for other purposes such as financing or carrying out acquisitions. The authorization is effective until November 23, 2018.

Under the authorization held by the Board of Directors and in line with the capital structure optimization program, the Parent Company repurchased 153 601 462 shares in 2017 representing approximately 2.6% of share capital and total voting rights as of December 31, 2017. In 2016, the Parent Company had repurchased 54 296 182 shares. The price paid for the shares was based on the current market price of the Nokia share on the securities market at the time of the repurchase. On February 1, 2018 the Parent Company announced that the Board of Directors had decided to cancel 207 897 644 treasury shares repurchased under the capital structure optimization program. The cancellation of the shares does not have an impact on the Parent Company's share capital.

On November 15, 2016, in line with its previously announced EUR 7 billion capital structure optimization program, the Board resolved to commence a share repurchase program under the authorization granted by the Nokia Annual General Meeting on June 16, 2016. The Board resolved to repurchase a maximum of 575 million Nokia shares up to an equivalent of EUR 1 billion. The share repurchase program was completed in November 2017 with a total of 207 897 644 shares repurchased during 2016 and 2017 and a total spend of EUR 1 billion.

Period	Total number of shares purchased	Average price paid per share, EUR	Total number of shares purchased as part of publicly announced plans or programs ⁽¹⁾	Maximum value of shares that may yet be purchased under the plans or programs, EUR
January	–	–	54 296 182	769 389 815
February	23 146 576	4.67	77 442 758	661 389 853
March	22 923 357	4.97	100 366 115	547 389 895
April	1 136 600	5.28	101 502 715	541 389 897
May	18 135 447	5.59	119 638 162	439 989 947
June	11 914 517	5.76	131 552 679	371 390 053
July	1 997 670	5.41	133 550 349	360 590 071
August	24 487 731	5.34	158 038 080	229 792 560
September	19 822 720	5.15	177 860 800	127 793 146
October	4 236 729	4.25	182 097 529	109 793 275
November	25 800 115	4.26	207 897 644	–
December	–	–	207 897 644	–
Total	153 601 462	5.01	207 897 644	–

(1) On October 29, 2015 Nokia announced a capital structure optimization program including share repurchases. In line with the program, a EUR 1 billion share repurchase program was announced on November 15, 2016. The column includes all the shares purchased as part of the EUR 1 billion share repurchase program.

General facts on Nokia continued

Offer and listing details

Our capital consists of shares traded on Nasdaq Helsinki under the symbol “NOKIA” and Euronext Paris under the symbol “NOKIA”. Our ADSs, each representing one of our shares, are traded on the NYSE under the symbol “NOK”. The ADSs are evidenced by American Depository Receipts (“ADRs”) issued by Citibank, N.A., as the Depositary under the Amended and Restated Deposit Agreement dated as of March 28, 2000 (as amended), among Nokia, Citibank, N.A. and registered holders from time to time of ADRs, as amended on February 6, 2008.

The table below sets forth, for the periods indicated, the reported high and low quoted prices for our shares on Nasdaq Helsinki and Euronext Paris, and the high and low quoted prices for the ADSs, as reported on the NYSE composite tape.

	Nasdaq Helsinki price per share		New York Stock Exchange price per ADS		Euronext Paris price per share ⁽¹⁾	
	High	Low	High	Low	High	Low
	EUR		USD		EUR	
2013	6.03	2.30	8.18	3.02	–	–
2014	6.97	4.89	8.73	6.64	–	–
2015	7.87	4.91	8.37	5.71	7.15	6.29
2016	6.99	3.66	7.55	4.04	6.99	3.66
2017						
First Quarter	5.17	4.12	5.57	4.50	5.17	4.13
Second Quarter	5.96	4.80	6.65	5.17	5.93	4.80
Third Quarter	5.64	4.97	6.59	5.83	5.64	4.97
Fourth Quarter	5.23	3.81	6.11	4.51	5.23	3.81
Full year	5.96	3.81	6.65	4.50	5.93	3.81
Most recent six months						
September 2017	5.29	4.97	6.29	5.83	5.28	4.97
October 2017	5.23	4.16	6.11	4.75	5.23	4.16
November 2017	4.47	4.04	5.14	4.79	4.47	4.04
December 2017	4.22	3.81	4.97	4.51	4.22	3.81
January 2018	4.13	3.85	5.00	4.68	4.12	3.85
February 2018	4.88	3.89	5.95	5.23	4.88	3.89
March 9, 2018 ⁽²⁾	4.83	4.62	5.96	5.68	4.83	4.62

(1) Nokia's listing and trading on Euronext Paris commenced on November 19, 2015.

(2) For the period until March 9, 2018.

Related party transactions

Other than the paid compensation, as described above, there have been no material transactions during the last three fiscal years to which any director, executive officer or 5% shareholder, or any relative or spouse of any of them, was a party. There is no significant outstanding indebtedness owed to Nokia by any director, executive officer or 5% shareholder. Refer to Note 35, Related party transactions, of our consolidated financial statements included in this annual report.

HMD global Oy ("HMD") is a related party to Nokia. As announced in May 2016, Nokia has a strategic agreement covering branding rights and intellectual property licensing to grant HMD an exclusive global license to create Nokia-branded mobile phones and tablets for ten years. Under the agreement, Nokia Technologies receives royalty payments from HMD for sales of Nokia-branded mobile products, covering both brand and intellectual property rights. The Board of Directors of HMD includes a representative from Nokia.

As part of the acquisition of Alcatel Lucent in 2016, Nokia acquired a partly owned consolidated subsidiary, Alcatel-Lucent Shanghai Bell Co., Ltd. On May 18, 2017 Nokia announced the signing of definitive agreements with the China Huaxin Post & Telecommunication Economy Development Center ("China Huaxin"), related to the integration of Alcatel-Lucent Shanghai Bell Co., Ltd. and Nokia's China business into a new joint venture branded as Nokia Shanghai Bell. On July 3, 2017, Nokia and China Huaxin commenced operations of the new joint venture. Nokia holds an ownership interest of 50% plus one share in the parent company, Nokia Shanghai Bell Co., Ltd., with China Huaxin holding the remaining ownership interests. Refer to Note 33, Significant partly-owned subsidiaries, of our consolidated financial statements included in this annual report.

Production of infrastructure equipment and products

Our operations team handles the supply chain management of all its hardware, software and original equipment manufacturer products. This includes supply planning, manufacturing, distribution, procurement, logistics and supply.

On December 31, 2017, we had twelve manufacturing facilities globally: one in Australia, one in Brazil, three in China, one in Finland, two in France, one in Germany, one in India, one in the United Kingdom and one in the United States.

Most of our production and assembly is outsourced, while the remaining portion is carried out in our production sites. This system provides us with considerable flexibility in our manufacturing and enables us to meet demands related to cost, availability and customer requirements more easily.

The table below shows the productive capacity per location of significant manufacturing facilities for our infrastructure equipment on December 31, 2017.

Country	Location and products ⁽¹⁾	Productive capacity, Net (m ²) ⁽²⁾
Australia	Kilsyth: radio frequency systems	5 000
Brazil	Embu: radio frequency systems	7 800
China	Shanghai: fixed access and wireless access systems	22 000
China	Shanghai (cable): radio frequency systems	9 200
China	Shanghai (antenna): radio frequency systems	12 500
Finland	Oulu: base stations	13 800
France	Calais: submarine cables	63 000
France	Trignac: radio frequency systems	10 200
Germany	Hannover: radio frequency systems	21 000
India	Chennai: base stations, radio controllers and transmission systems	12 000
UK	Greenwich: submarine cables	19 500
USA	Meriden: radio frequency systems	31 000

(1) We consider the production capacity of our manufacturing network to be sufficient to meet the requirements of its network infrastructure business. The extent of utilization of our manufacturing facilities varies from plant to plant and from time to time during the year. None of these facilities is subject to a material encumbrance.

(2) Productive capacity equals the total area allotted to manufacturing and to the storage of manufacturing-related materials.

General facts on Nokia continued

Key ratios

Operating profit

Profit before interest and taxes

Earnings per share (basic)

Profit attributable to equity holders of the parent

Average adjusted number of shares during the year

Earnings per share (diluted)

Adjusted profit attributable to equity holders of the parent

Average number of shares during the year adjusted for the effect of dilutive shares

P/E ratio

Closing share price at December 31

Earnings per share (basic) for Continuing operations

Payout ratio

Dividend per share

Earnings per share (basic) for Continuing operations

Dividend yield %

Dividend per share

Closing share price at December 31

Shareholders' equity per share

Capital and reserves attributable to equity holders of the parent

Number of shares at December 31—number of treasury shares at December 31

Market capitalization

(Number of shares at December 31—number of treasury shares at December 31) x closing share price at December 31

Share turnover %

Number of shares traded during the year

Average number of shares during the year

Interest-bearing liabilities

Long-term interest-bearing liabilities (including the current portion thereof) + short-term borrowings

Return on capital employed %

Profit before taxes + interest and other financial expenses

Average capital and reserves attributable to the Company's equity holders + average non-controlling interests + average interest-bearing liabilities

Return on shareholders' equity %

Profit attributable to the equity holders of the parent

Average capital and reserves attributable to the company's equity holders during the year

Equity ratio %

Capital and reserves attributable to equity holders of the parent + non-controlling interests

Total assets—advance payments received

Net debt to equity (gearing) %

Interest-bearing liabilities—cash and other liquid assets

Capital and reserves attributable to the equity holders of the parent + non-controlling interests

Net cash

Total cash and other liquid assets—interest-bearing liabilities

Free cash flow⁽¹⁾

Net cash from/(used in) operating activities—purchases of property, plant and equipment, and intangible assets

(1) The consolidated statement of cash flows combines cash flows from both Continuing operations and Discontinued operations.

Financial statements

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Consolidated income statement

For the year ended December 31	Notes	2017 EURm	2016 ⁽¹⁾ EURm	2015 ⁽¹⁾ EURm
Net sales	4, 7	23 147	23 641	12 560
Cost of sales	8	(14 008)	(15 117)	(6 963)
Gross profit		9 139	8 524	5 597
Research and development expenses	8	(4 916)	(4 997)	(2 080)
Selling, general and administrative expenses	8	(3 615)	(3 767)	(1 772)
Other income	10	363	117	236
Other expenses	8, 10	(955)	(977)	(284)
Operating profit/(loss)		16	(1 100)	1 697
Share of results of associated companies and joint ventures	34	11	18	29
Financial income and expenses	11	(537)	(287)	(186)
(Loss)/profit before tax		(510)	(1 369)	1 540
Income tax (expense)/benefit	12	(927)	457	(346)
(Loss)/profit for the year from Continuing operations		(1 437)	(912)	1 194
(Loss)/profit for the year from Continuing operations attributable to:				
Equity holders of the parent		(1 473)	(751)	1 192
Non-controlling interests		36	(161)	2
(Loss)/profit for the year from Continuing operations	6	(1 437)	(912)	1 194
(Loss)/profit for the year from Discontinued operations attributable to:				
Equity holders of the parent		(21)	(15)	1 274
Non-controlling interests		—	—	—
(Loss)/profit for the year from Discontinued operations	6	(21)	(15)	1 274
(Loss)/profit for the year attributable to:				
Equity holders of the parent		(1 494)	(766)	2 466
Non-controlling interests		36	(161)	2
(Loss)/profit for the year		(1 458)	(927)	2 468
Earnings per share attributable to equity holders of the parent	13	EUR	EUR	EUR
Basic earnings per share				
Continuing operations		(0.26)	(0.13)	0.32
Discontinued operations		0.00	0.00	0.35
(Loss)/profit for the year		(0.26)	(0.13)	0.67
Diluted earnings per share				
Continuing operations		(0.26)	(0.13)	0.31
Discontinued operations		0.00	0.00	0.32
(Loss)/profit for the year		(0.26)	(0.13)	0.63
Average number of shares	13	000s shares	000s shares	000s shares
Basic		5 651 814	5 732 371	3 670 934
Diluted		5 651 814	5 741 117	3 949 312

(1) In 2017, the Group adopted a more activity-based allocation method which resulted in changes to allocation and presentation principles of certain costs. In addition, it changed the presentation of certain hedging gains and losses. Comparatives for 2016 and 2015 have been recasted to reflect these changes.

The notes are an integral part of these consolidated financial statements.

Consolidated statement of comprehensive income

For the year ended December 31	Notes	2017 EURm	2016 EURm	2015 EURm
(Loss)/profit for the year		(1 458)	(927)	2 468
Other comprehensive income				
Items that will not be reclassified to profit or loss:				
Remeasurements on defined benefit plans		723	613	112
Income tax related to items that will not be reclassified to profit or loss		(58)	(269)	(28)
Items that may be reclassified subsequently to profit or loss:				
Translation differences		(1 819)	251	(1 054)
Net investment hedges		440	(103)	322
Cash flow hedges		35	14	(5)
Available-for-sale investments		(88)	(75)	113
Other (decrease)/increase, net		(1)	(6)	2
Income tax related to items that may be reclassified subsequently to profit or loss		(92)	20	(88)
Other comprehensive (loss)/income, net of tax	22	(860)	445	(626)
Total comprehensive (loss)/income for the year		(2 318)	(482)	1 842
Attributable to:				
Equity holders of the parent		(2 304)	(277)	1 837
Non-controlling interests		(14)	(205)	5
Total comprehensive (loss)/income for the year		(2 318)	(482)	1 842
Attributable to equity holders of the parent:				
Continuing operations		(2 283)	(262)	1 513
Discontinued operations		(21)	(15)	324
Total attributable to equity holders of the parent		(2 304)	(277)	1 837
Attributable to non-controlling interests:				
Continuing operations		(14)	(205)	5
Discontinued operations		—	—	—
Total attributable to non-controlling interests		(14)	(205)	5

The notes are an integral part of these consolidated financial statements.

Consolidated statement of financial position

As of December 31	Notes	2017 EURm	2016 EURm
ASSETS			
Non-current assets			
Intangible assets	14, 16	9 219	10 960
Property, plant and equipment	15	1 853	1 981
Investments in associated companies and joint ventures	34	128	116
Available-for-sale investments	24	816	1 040
Deferred tax assets	12	4 582	5 701
Other non-current financial assets	24, 36	215	254
Defined benefit pension assets	27	3 979	3 802
Other non-current assets	19	368	328
Total non-current assets		21 160	24 182
Current assets			
Inventories	17	2 646	2 506
Accounts receivable, net of allowances for doubtful accounts	18, 24, 36	6 880	6 972
Prepaid expenses and accrued income	19	1 259	1 296
Current income tax assets		474	279
Other financial assets	24, 25, 36	302	296
Investments at fair value through profit and loss, liquid assets	24, 36	–	327
Available-for-sale investments, liquid assets	24, 36	911	1 502
Cash and cash equivalents	24, 36	7 369	7 497
Total current assets		19 841	20 675
Assets held for sale		23	44
Total assets		41 024	44 901
SHAREHOLDERS' EQUITY AND LIABILITIES			
Capital and reserves attributable to equity holders of the parent			
Share capital	20	246	246
Share issue premium		447	439
Treasury shares		(1 480)	(881)
Translation differences	21	(932)	483
Fair value and other reserves	21	1 094	488
Reserve for invested non-restricted equity		15 616	15 731
Retained earnings		1 147	3 588
Total capital and reserves attributable to equity holders of the parent		16 138	20 094
Non-controlling interests		80	881
Total equity		16 218	20 975
Non-current liabilities			
Long-term interest-bearing liabilities	23, 24, 36	3 457	3 657
Deferred tax liabilities	12	413	403
Defined benefit pension and post-retirement liabilities	27	4 440	5 000
Deferred revenue and other long-term liabilities	24, 28	2 986	1 453
Provisions	29	766	808
Total non-current liabilities		12 062	11 321
Current liabilities			
Short-term interest-bearing liabilities	23, 24, 36	309	370
Other financial liabilities	24, 25, 36	268	236
Current income tax liabilities		383	536
Accounts payable	24, 36	3 996	3 781
Accrued expenses, deferred revenue and other liabilities	28	6 666	6 412
Provisions	29	1 122	1 270
Total current liabilities		12 744	12 605
Total liabilities		24 806	23 926
Total shareholders' equity and liabilities		41 024	44 901

The notes are an integral part of these consolidated financial statements.

Consolidated statement of cash flows

For the year ended December 31	Notes	2017 EURm	2016 EURm	2015 EURm
Cash flow from operating activities				
(Loss)/profit for the year		(1 458)	(927)	2 468
Adjustments, total	31	3 583	2 407	(261)
Change in net working capital	31	597	(2 207)	(1 377)
Cash from/(used in) operations		2 722	(727)	830
Interest received		53	85	62
Interest paid		(409)	(309)	(99)
Income taxes paid, net		(555)	(503)	(290)
Net cash from/(used in) operating activities		1 811	(1 454)	503
Cash flow from investing activities				
Acquisition of businesses, net of acquired cash		(394)	5 819	(98)
Purchase of current available-for-sale investments, liquid assets ⁽¹⁾		(2 729)	(4 131)	(3 133)
Purchase of investments at fair value through profit and loss, liquid assets		–	–	(311)
Purchase of non-current available-for-sale investments		(104)	(73)	(88)
Purchase of shares in associated companies		(10)	–	–
(Payment of)/proceeds from other long-term loans receivable		(2)	11	(2)
Proceeds from/(payment of) short-term loans receivable		2	19	(17)
Purchases of property, plant and equipment, and intangible assets		(601)	(477)	(314)
Proceeds from disposal of businesses, net of disposed cash		(16)	6	2 586
Proceeds from disposal of shares in associated companies		–	10	–
Proceeds from maturities and sale of current available-for-sale investments, liquid assets ⁽¹⁾		3 265	5 121	3 074
Proceeds from maturities and sale of investments at fair value through profit and loss, liquid assets		324	368	48
Proceeds from sale of non-current available-for-sale investments		207	134	149
Proceeds from sale of property, plant and equipment and other intangible assets		67	28	–
Dividends received		1	1	2
Net cash from investing activities		10	6 836	1 896
Cash flow from financing activities				
Proceeds from stock option exercises		1	6	4
Purchase of treasury shares		(785)	(216)	(173)
Purchase of equity instruments of subsidiaries ⁽¹⁾		(38)	(724)	(52)
Proceeds from long-term borrowings		2 129	225	232
Repayment of long-term borrowings ⁽¹⁾		(2 044)	(2 599)	(24)
Repayment of short-term borrowings		(42)	(100)	(55)
Dividends paid and other contributions to shareholders		(970)	(1 515)	(512)
Net cash used in financing activities		(1 749)	(4 923)	(580)
Translation differences		(200)	43	6
Net (decrease)/increase in cash and cash equivalents		(128)	502	1 825
Cash and cash equivalents as of January 1		7 497	6 995	5 170
Cash and cash equivalents as of December 31		7 369	7 497	6 995

(1) In 2016, Alcatel Lucent ordinary shares and ADSs and OCEANEs acquired in cash by the Group subsequent to the closing of the reopened exchange offer are presented within cash flow from financing activities as purchase of equity instruments of subsidiaries and repayment of long-term borrowings, respectively. In relation to the Public Buy-Out offer/Squeeze-Out, the Group's pledged cash asset of EUR 724 million to cover the purchase of the remaining Alcatel Lucent securities was recorded within cash flow from investing activities as purchase of current available-for-sale investments, liquid assets. The amount of pledged cash released upon acquisition of Alcatel Lucent securities of EUR 724 million was recorded within cash flow from investing activities as proceeds from maturities and sale of current available-for-sale investments, liquid assets.

The consolidated statement of cash flows combines cash flows from both the Continuing and the Discontinued operations. Refer to Note 6, Disposals treated as Discontinued operations.

The amounts in the consolidated statement of cash flows cannot be directly traced from the consolidated statement of financial position without additional information on the acquisitions and disposals of subsidiaries and the net foreign exchange differences arising on consolidation.

The notes are an integral part of these consolidated financial statements.

Consolidated statement of changes in shareholders' equity

EURm	Notes	Number of shares outstanding 000s	Share capital	Share issue premium	Treasury shares	Translation differences	Fair value and other reserves	Reserve for invested non-restricted equity				Equity holders of the parent	Non-controlling interests	Total
As of January 1, 2015		3 648 143	246	439	(988)	1 099	22	3 083	4 710	8 611	58	8 669		
Remeasurements of defined benefit plans, net of tax	21						85		(7)	78		78		
Translation differences	21					(1 057)				(1 057)	4	(1 053)		
Net investment hedge gains, net of tax	21						252			252		252		
Cash flow hedges, net of tax	21						(4)			(4)		(4)		
Available-for-sale investments, net of tax	21						95			95		95		
Other increase, net							6		1	7	(1)	6		
Profit for the year									2 466	2 466	2	2 468		
Total comprehensive income/(loss) for the year			–	–	–	(805)	182	–	2 460	1 837	5	1 842		
Share-based payment					34					34		34		
Excess tax benefit on share-based payment					(2)					(2)		(2)		
Settlement of performance and restricted shares		1 281			(12)	24		(16)		(4)		(4)		
Acquisition of treasury shares		(24 516)				(174)				(174)		(174)		
Cancellation of treasury shares						427			(427)	–		–		
Stock options exercised		1 042						4		4		4		
Dividends ⁽¹⁾									(507)	(507)	(5)	(512)		
Acquisition of non-controlling interests									(15)	(15)	(37)	(52)		
Convertible bond-equity component					(57)				57	–		–		
Convertible bond-conversion to equity		313 681			(30)			750		720		720		
Other movements		(436)			8	(7)	(2)	(1)	1	(1)		(1)		
Total other equity movements			–	(59)	270	(2)	–	737	(891)	55	(42)	13		
As of December 31, 2015		3 939 195	246	380	(718)	292	204	3 820	6 279	10 503	21	10 524		
Remeasurements of defined benefit plans, net of tax	21						348			348	(4)	344		
Translation differences	21					289				289	(38)	251		
Net investment hedge losses, net of tax	21					(83)				(83)		(83)		
Cash flow hedges, net of tax	21						12			12		12		
Available-for-sale investments, net of tax	21						(73)			(73)		(73)		
Other decrease, net							(1)		(3)	(4)	(2)	(6)		
Loss for the year									(766)	(766)	(161)	(927)		
Total comprehensive income/(loss) for the year			–	–	–	206	286	–	(769)	(277)	(205)	(482)		
Share-based payment					117					117		117		
Excess tax benefit on share-based payment					(6)					(6)		(6)		
Settlement of performance and restricted shares		3 408			(22)	68		(52)		(6)		(6)		
Acquisition of treasury shares	20	(54 296)				(231)				(231)		(231)		
Stock options exercised		1 074			3			3		6		6		
Dividends ⁽¹⁾									(1 501)	(1 501)	(14)	(1 515)		
Acquisitions through business combinations	5	1 765 358					11 616			11 616	1 714	13 330		
Equity issuance costs related to acquisitions							(16)			(16)		(16)		
Acquisition of non-controlling interests		65 778				(15)	(2)	359	(459)	(117)	(635)	(752)		
Vested portion of share-based payment awards related to acquisitions	5				6					6		6		
Convertible bond-equity component					(38)				38	–		–		
Other movements		(14)			(1)			1		–		–		
Total other equity movements			–	59	(163)	(15)	(2)	11 911	(1 922)	9 868	1 065	10 933		
As of December 31, 2016		5 720 503	246	439	(881)	483	488	15 731	3 588	20 094	881	20 975		

EURm	Notes	Number of shares outstanding 000s	Share capital	Share issue premium	Treasury shares	Translation differences	Fair value and other reserves	Reserve for Invested non-restricted equity			Equity holders of the parent	Non-controlling interests	Total
As of December 31, 2016		5 720 503	246	439	(881)	483	488	15 731	3 588	20 094	881	20 975	
Remeasurements of defined benefit plans, net of tax	21							662		662		662	
Translation differences	21						(1 768)			(1 768)	(50)	(1 818)	
Net investment hedge losses, net of tax	21						352			352		352	
Cash flow hedges, net of tax	21						28			28		28	
Available-for-sale investments, net of tax	21						(86)			(86)		(86)	
Other increase, net							2			2		2	
Loss for the year								(1 494)	(1 494)		36	(1 458)	
Total comprehensive (loss)/income for the year							(1 416)	606		(1 494)	(2 304)	(14)	(2 318)
Share-based payment					92					92		92	
Excess tax benefit on share-based payment					(7)					(7)		(7)	
Settlement of performance and restricted shares	20	12 199		(79)	170			(116)		(25)		(25)	
Acquisition of treasury shares	20	(153 601)			(769)					(769)		(769)	
Stock options exercised	20	416					1			1		1	
Dividends ⁽¹⁾								(963)	(963)		(7)	(970)	
Acquisitions through business combinations										–	17	17	
Acquisition of non-controlling interests									12	12	(788)	(776)	
Disposal of subsidiaries										–	(9)	(9)	
Other movements				2		1			4	7		7	
Total other equity movements		–	8	(599)		1	–	(115)	(947)	(1 652)	(787)	(2 439)	
As of December 31, 2017		5 579 517	246	447	(1 480)	(932)	1 094	15 616	1 147	16 138	80	16 218	

(1) Dividend declared is EUR 0.19 per share, subject to shareholders' approval (dividend EUR 0.17 per share for 2016; dividend EUR 0.16 per share for 2015; and special dividend EUR 0.10 per share for 2015).

The notes are an integral part of these consolidated financial statements.

Notes to consolidated financial statements

1. Corporate information

Nokia Oyj, a public limited liability company incorporated and domiciled in Helsinki, Finland, is the parent company ("Parent Company" or "Parent") for all its subsidiaries ("Nokia" or "the Group"). The Group's operational headquarters are located in Espoo, Finland. The Group is listed on the Nasdaq Helsinki stock exchange, the New York stock exchange and the Euronext Paris stock exchange. The Group is a leading global provider of mobile and fixed network infrastructure combining hardware, software and services, as well as advanced technologies and licensing that connect people and things.

On March 22, 2018 the Board of Directors authorized the financial statements for 2017 for issuance and filing.

2. Significant accounting policies

Basis of presentation and statement of compliance

The consolidated financial statements are prepared in accordance with International Financial Reporting Standards as issued by the International Accounting Standards Board ("IASB") and as adopted by the European Union ("IFRS"). The consolidated financial statements are presented in millions of euros ("EURm"), except as otherwise noted, and are prepared under the historical cost convention, except as disclosed in the accounting policies below. The notes to the consolidated financial statements also conform to the Finnish accounting legislation.

In 2017, comparative presentation of certain items in the consolidated financial statements has been modified to conform with current year presentation.

Other information

This paragraph is included in connection with statutory reporting requirements in Germany. The fully consolidated German subsidiary, Nokia Solutions and Networks GmbH & Co. KG, registered in the commercial register of Munich under HRA 88537, has made use of the exemption available under § 264b and § 291 of the German Commercial Code ("HGB").

Principles of consolidation

The consolidated financial statements comprise the financial statements of the Parent Company, and each of those companies over which it exercises control. Control over an entity exists when the Group is exposed, or has rights, to variable returns from its involvement with the entity and has the ability to affect those returns through its power over the entity. When the Group has less than a majority of voting or similar rights in an entity, the Group considers all relevant facts and circumstances in assessing whether it has power over an entity, including the contractual arrangements, and voting rights and potential voting rights. The Group reassesses whether or not it controls an entity if facts and circumstances indicate that there are changes to the elements of control.

Consolidation of a subsidiary begins when the Group obtains control over the subsidiary and ceases when the Group loses control over the subsidiary. Assets, liabilities, income and expenses of a subsidiary acquired or disposed of during the year are included in the consolidated financial statements from the date the Group gains control until the date the Group ceases to control the subsidiary. A change in the ownership interest of a subsidiary, without a loss of control, is accounted for as an equity transaction. If the Group loses control in a subsidiary, the related assets, liabilities, non-controlling interest and other components of equity are derecognized with any gain or loss recognized in the consolidated income statement. Any investment retained in the former subsidiary is measured at fair value.

All inter-company transactions are eliminated as part of the consolidation process. Non-controlling interests are presented separately as a component of net profit and are shown as a component of shareholders' equity in the consolidated statement of financial position.

Business combinations

Business combinations are accounted for using the acquisition method. The consideration transferred in a business combination is measured as the aggregate of the fair values of the assets transferred, liabilities incurred towards the former owners of the acquired entity or business and equity instruments issued. Acquisition-related costs are recognized as expenses in the consolidated income statement in the period in which the costs are incurred and the related services are received with the exception of costs directly attributable to the issuance of equity instruments that are accounted for as a deduction from equity.

Identifiable assets acquired and liabilities assumed are measured at the acquisition date fair values. The Group elects whether to measure the non-controlling interests in the acquiree at fair value or at the proportionate share of the acquiree's identifiable net assets on a business combination by business combination basis. The excess of the aggregate of the consideration transferred and the amount recognized for non-controlling interests over the acquisition date fair values of the identifiable net assets acquired is recorded as goodwill.

Investment in associates and joint ventures

An associate is an entity over which the Group exercises significant influence. Significant influence is the power to participate in the financial and operating policy decisions of the entity, but is not control or joint control over those policies.

A joint venture is a type of joint arrangement whereby the parties that have joint control of the arrangement have rights to the net assets of the arrangement. Joint control is the contractually agreed sharing of control of an arrangement, which exists only when decisions about relevant activities require the unanimous consent of the parties sharing control.

The Group's investments in associates and joint ventures are accounted for using the equity method. Under the equity method, the investment in an associate or joint venture is initially recognized at cost. The carrying amount of the investment is adjusted to recognize changes in the Group's share of net assets of the associate or joint venture since the acquisition date. The Group's share of profits and losses of associates and joint ventures is included in the consolidated income statement outside operating profit or loss. Any change in other comprehensive income ("OCI") of associates and joint ventures is presented as part of the Group's OCI.

After application of the equity method, as of each reporting date the Group determines whether there is objective evidence that the investment in an associate or joint venture is impaired. If there is such evidence, the Group recognizes an impairment loss that is calculated as the difference between the recoverable amount of the associate or joint venture and its carrying value. The impairment loss is presented in 'Share of results of associated companies and joint ventures' in the consolidated income statement.

Non-current assets held for sale (or disposal groups) and discontinued operations

Non-current assets or disposal groups are classified as assets held for sale if their carrying amounts will be recovered principally through a sale transaction rather than through continuing use. For this to be the case, the asset, or the disposal group, must be available for immediate sale in its present condition subject only to terms that are usual and customary for sales of such assets or disposal groups, and the sale must be highly probable. These assets, or in the case of disposal groups, assets and liabilities, are presented separately in the consolidated statement of financial position and measured at the lower of the carrying amount and fair value less costs to sell. Non-current assets classified as held for sale, or included in a disposal group classified as held for sale, are not depreciated or amortized.

Discontinued operations are reported when a component of the Group, comprising operations and cash flows that can be clearly distinguished both operationally and for financial reporting purposes from the rest of the Group, is classified as held for sale or has been disposed of, or the component represents a major line of business or geographical area of operations, or is a part of a single coordinated plan to dispose of a separate major line of business or geographical area of operations. Profit or loss from Discontinued operations is reported separately from income and expenses from Continuing operations in the consolidated income statement, with prior periods presented on a comparative basis. Cash flows for Discontinued operations are presented separately in the notes to the consolidated financial statements. Intra-group revenues and expenses between Continuing and Discontinued operations are eliminated.

Revenue recognition

Revenue is recognized when the following criteria for the transaction have been met: significant risks and rewards of ownership have transferred to the buyer; continuing managerial involvement and effective control usually associated with ownership have ceased; the amount of revenue can be measured reliably; it is probable that the economic benefits associated with the transaction will flow to the Group; and the costs incurred or to be incurred in respect of the transaction can be measured reliably. Revenue is measured at the fair value of the consideration received or receivable net of discounts and excluding taxes and duties.

Recurring service revenue which includes managed services and maintenance services is generally recognized on a straight-line basis over the agreed period, unless there is evidence that some other method better represents the rendering of services.

The Group enters into contracts consisting of any combination of hardware, services and software. Within these multiple element arrangements, separate components are identified and accounted for based on the nature of those components, considering the economic substance of the entire arrangement. Revenue is allocated to each separately identifiable component based on the relative fair value of each component. The fair value of each component is determined by taking into consideration factors such as the price of the component when sold separately and the component cost plus a reasonable margin when price references are not available. The revenue allocated to each component is recognized when the revenue recognition criteria for that component have been met.

Revenue from contracts involving the construction of an asset according to customer specifications is recognized using the percentage of completion method. Stage of completion for each contract is measured by either the achievement of contractually defined milestones or costs incurred compared to total project costs.

Revenue on license fees is recognized in accordance with the substance of the relevant agreements. In the majority of cases, the Group retains obligations related to the licensed assets after the initial licensing transaction, and as a result revenue is recognized over a period of time during which the Group is expected to perform. Where the Group has no remaining obligations to perform subsequent to the initial licensing transaction, and licensing fees are non-refundable, revenue is recognized after the customer has been provided access to the underlying assets. In some multiple element licensing transactions, the Group applies the residual method in the absence of reference information.

Net sales includes revenue from all licensing negotiations, litigations and arbitrations to the extent that the criteria for revenue recognition have been met.

Government grants

Government grants are recognized when there is reasonable assurance that the Group will comply with the conditions attached to them and the grants will be received. Government grants received as compensation for expenses or losses incurred are recognized in the consolidated income statement as a deduction against the related expenses. Government grants related to assets are presented in the consolidated statement of financial position as deferred income and recognized as income over the same period the asset is depreciated or amortized.

Government grants received in the form of R&D tax credits are recognized as a deduction against R&D expenses if the amount of the tax credit is linked to the amount of R&D expenditures incurred by the Group and the tax credit is a fully collectible asset which will be paid in cash by the government in case the Group is not able to offset it against its income tax payable. R&D tax credits that do not meet both conditions are recognized as income tax benefit.

Employee benefits

Pensions and other post-employment benefits

The Group companies have various post-employment plans in accordance with the local conditions and practices in the countries in which they operate. The plans are generally funded through payments to insurance companies or contributions to trustee-administered funds as determined by periodic actuarial calculations.

In a defined contribution plan, the Group's legal or constructive obligation is limited to the amount that it agrees to contribute to the fund. The Group's contributions to defined contribution plans, multi-employer and insured plans are recognized in the consolidated income statement in the period to which the contributions relate. If a pension plan is funded through an insurance contract where the Group does not retain any legal or constructive obligations, the plan is treated as a defined contribution plan. All arrangements that do not fulfill these conditions are considered defined benefit plans.

For defined benefit plans, including pension and post-retirement healthcare and life insurance, costs are assessed using the projected unit credit method: the cost is recognized in the consolidated income statement so as to spread the benefit over the service lives of employees. The defined benefit obligation is measured as the present value of the estimated future cash outflows using interest rates on high-quality corporate bonds or government bonds with maturities that most closely match expected payouts of benefits. Actuarial gains and losses arising from experience adjustments and changes in actuarial assumptions are charged or credited to equity in other comprehensive income in the period in which they arise. Past service costs and settlement gains and losses are recognized immediately in the consolidated income statement as part of service cost, when the plan amendment, curtailment or settlement occurs. Curtailment gains and losses are accounted for as past service costs.

Notes to consolidated financial statements continued

The liability or asset recognized in the consolidated statement of financial position is the defined benefit obligation as of the closing date less the fair value of plan assets including effects relating to any asset ceiling.

Remeasurements, comprising actuarial gains and losses, the effect of the asset ceiling and the return on plan assets, excluding amounts recognized in net interest, are recognized immediately in the consolidated statement of financial position with a corresponding debit or credit to Fair Value and Other Reserves in Equity through the consolidated statement of other comprehensive income in the period in which they occur. Remeasurements are not reclassified to the consolidated income statement in subsequent periods.

Actuarial valuations for the Group's defined benefit post-employment plans are performed annually or when a material curtailment or settlement of a defined benefit plan occurs.

Termination benefits

Termination benefits are payable when employment is terminated before the normal retirement date, or whenever an employee accepts voluntary redundancy in exchange for these benefits. The Group recognizes termination benefits when it is demonstrably committed to either terminating the employment of current employees according to a detailed formal plan without possibility of withdrawal, or providing termination benefits as a result of an offer made to encourage voluntary redundancy. Local laws may provide employees with the right to benefits from the employer upon termination whether the termination is voluntary or involuntary. For these specific termination benefits, the portion of the benefit that the Group would be required to pay to the employee in the case of voluntary termination is treated as a legal obligation determined by local law and accounted for as a defined benefit arrangement as described in the pensions section above.

Share-based payment

The Group offers three types of global equity-settled share-based compensation plans for employees: performance shares, restricted shares and the employee share purchase plan.

Employee services received and the corresponding increase in equity are measured by reference to the fair value of the equity instruments as of the grant date, excluding the impact of any non-market vesting conditions. Non-market vesting conditions attached to the performance shares are included in assumptions about the number of shares that the employee will ultimately receive. The Group reviews the assumptions made on a regular basis and, where necessary, revises its estimates of the number of performance shares that are expected to be settled. Plans that apply tranches of vesting are accounted for under the graded vesting model.

Share-based compensation is recognized as an expense in the consolidated income statement over the relevant service periods.

Income taxes

The income tax expense comprises current tax and deferred tax. Tax is recognized in the consolidated income statement except to the extent that it relates to items recognized in other comprehensive income, or directly in equity; then the related tax is recognized in other comprehensive income or equity, respectively.

Current taxes are based on the results of group companies and are calculated using the local tax laws and tax rates that are enacted or substantively enacted as of each reporting date. Corporate taxes withheld at the source of the income on behalf of group companies, both recoverable and irrecoverable, are accounted for in income taxes.

Following the IFRS Interpretations Committee agenda decision in September 2017 on interest and penalties related to income taxes, the Group no longer accounts for these items as income taxes. Interest expenses and income are presented in financial expenses and income, respectively, and penalties are presented in other operating expenses in the consolidated income statement. In relation to this, the Group has retrospectively revised the presentation of interest and penalties related to income taxes from current income tax liabilities to provisions in the consolidated statement of financial position. The impact of the revision was EUR 98 million as of December 31, 2016 and EUR 93 million as of December 31, 2015.

The Group periodically evaluates positions taken in tax returns with respect to situations in which applicable tax regulation is subject to interpretation. It adjusts the amounts recorded, where appropriate, on the basis of amounts expected to be paid to the tax authorities. The amount of current income tax liabilities for uncertain income tax positions is recognized when it is more likely than not that certain tax positions may not be fully sustained upon review by tax authorities. The amounts recorded are based upon the estimated future settlement amount as of each reporting date.

Deferred tax assets and liabilities are determined using the liability method for all temporary differences arising between the tax bases of assets and liabilities and their carrying amounts in the consolidated financial statements. Deferred tax assets are recognized to the extent that it is probable that future taxable profit will be available against which the unused tax losses, unused tax credits or deductible temporary differences can be utilized before the unused tax losses or unused tax credits expire. Deferred tax assets are assessed for realizability as of each reporting date. When circumstances indicate it is no longer probable that deferred tax assets will be utilized, adjustments are made as necessary. Deferred tax liabilities are recognized for temporary differences that arise between the fair value and the tax base of identifiable net assets acquired in business combinations.

Deferred tax assets and deferred tax liabilities are offset for presentation purposes when there is a legally enforceable right to set off current tax assets against current tax liabilities, and the deferred tax assets and deferred tax liabilities relate to income taxes levied by the same taxation authority on either the same taxable entity or different taxable entities which intend either to settle current tax liabilities and assets on a net basis, or to realize the assets and settle the liabilities simultaneously in each future period in which significant amounts of deferred tax liabilities or deferred tax assets are expected to be settled or recovered.

Deferred tax liabilities are not recognized if they arise from the initial recognition of goodwill. Deferred tax liabilities are provided on taxable temporary differences arising from investments in subsidiaries, associates and joint arrangements, except for deferred tax liability where the timing of the reversal of the temporary difference is controlled by the Group, and it is probable that the temporary difference will not reverse in the foreseeable future.

The enacted or substantively enacted tax rates as of each reporting date that are expected to apply in the period when the asset is realized or the liability is settled are used in the measurement of deferred tax assets and deferred tax liabilities. Deferred tax assets and liabilities are not discounted.

Foreign currency translation

Functional and presentation currency

The financial statements of all group companies are measured using functional currency, which is the currency of the primary economic environment in which the entity operates. The consolidated financial statements are presented in euro, the functional and presentation currency of the Parent Company.

Transactions in foreign currencies

Transactions in foreign currencies are recorded at exchange rates prevailing as of the dates of the individual transactions. For practical reasons, a rate that approximates the actual rate as of the date of the transaction is often used. At the end of the reporting period, monetary assets and liabilities denominated in foreign currency are valued at the exchange rates prevailing at the end of the reporting period. Foreign exchange gains and losses arising from monetary assets and liabilities as well as fair value changes of related hedging instruments are recognized in financial income and expenses. Unrealized foreign exchange gains and losses related to non-monetary non-current available-for-sale investments are included in the fair value measurement of these investments and recognized in other comprehensive income.

Foreign group companies

All income and expenses of foreign group companies where the functional currency is not the euro are translated into euro at the average foreign exchange rates for the reporting period. All assets and liabilities of foreign group companies are translated into euro at foreign exchange rates prevailing at the end of the reporting period. Differences resulting from the translation of income and expenses at the average rate and assets and liabilities at the closing rate are recognized as translation differences in consolidated statement of comprehensive income. On the disposal of all or part of a foreign group company through sale, liquidation, repayment of share capital or abandonment, the cumulative amount or proportionate share of translation differences is recognized as income or expense when the gain or loss on disposal is recognized.

Intangible assets

Intangible assets acquired separately are measured on initial recognition at cost. The cost of intangible assets acquired in a business combination is their fair value as of the date of acquisition. Internally generated intangibles, except for development costs that may be capitalized, are expensed as incurred. Development costs are capitalized only if the Group has the technical feasibility to complete the asset; has an ability and intention to use or sell the asset; can demonstrate that the asset will generate future economic benefits; has resources available to complete the asset; and has the ability to measure reliably the expenditure during development.

Following initial recognition, intangible assets are carried at cost less accumulated amortization and accumulated impairment losses. Intangible assets are amortized over their useful lives, generally three to ten years, using the straight-line method which is considered reflecting best the pattern in which the asset's future economic benefits are expected to be consumed. The amortization charges are presented within cost of sales, research and development expenses and selling, general and administrative expenses in the consolidated income statement.

Property, plant and equipment

Property, plant and equipment are stated at cost less accumulated depreciation and accumulated impairment losses. Depreciation is recorded on a straight-line basis over the expected useful lives of the assets as follows:

Buildings and constructions

Buildings and constructions	20-33 years
Light buildings and constructions	3-20 years

Machinery and equipment

Production machinery, measuring and test equipment	1-5 years
Other machinery and equipment	3-10 years

Land and water areas are not depreciated.

Maintenance, repairs and renewals are generally expensed in the period in which they are incurred. However, major renovations are capitalized and included in the carrying amount of the asset when it is probable that future economic benefits in excess of the originally assessed standard of performance of the existing asset will flow to the Group. Major renovations are depreciated over the remaining useful life of the related asset. Leasehold improvements are depreciated over the shorter of the lease term and the useful life. Gains and losses on the disposal of property, plant and equipment are included in operating profit or loss.

Leases

Leases are classified as finance leases whenever the terms of the lease transfer substantially all the risks and rewards incidental to ownership to the lessee. All other leases are classified as operating leases.

The Group has entered into various operating lease contracts as a lessee. The related payments are treated as rental expenses and recognized in the consolidated income statement on a straight-line basis over the lease terms unless another systematic approach is more representative of the pattern of the benefit.

The Group does not have any significant finance lease arrangements.

Impairment of goodwill, other intangible assets and property, plant and equipment

The Group assesses the recoverability of the carrying value of goodwill, other intangible assets and property, plant and equipment if events or changes in circumstances indicate that the carrying value may be impaired. In addition, the Group tests the carrying value of goodwill for impairment annually even if there is no indication of impairment.

Factors that the Group considers when it reviews indications of impairment include, but are not limited to, underperformance of the asset relative to its historical or projected future results, significant changes in the manner of using the asset or the strategy for the overall business, and significant negative industry or economic trends.

Goodwill is allocated to the cash-generating units or groups of cash-generating units that are expected to benefit from the synergies of the related business combination and that reflect the lowest level at which goodwill is monitored for internal management purposes. A cash-generating unit, as determined for the purposes of the Group's goodwill impairment testing, is the smallest group of

Notes to consolidated financial statements continued

assets, including goodwill, generating cash inflows that are largely independent of the cash inflows from other assets or groups of assets. The carrying value of a cash-generating unit includes its share of relevant corporate assets allocated to it on a reasonable and consistent basis. When the composition of one or more groups of cash generating units to which goodwill has been allocated is changed, the goodwill is reallocated based on the relative fair value of the affected groups of cash generating units.

The Group conducts its impairment testing by determining the recoverable amount for an asset or a cash-generating unit. The recoverable amount of an asset or a cash-generating unit is the higher of its fair value less costs of disposal and its value-in-use. The recoverable amount is compared to the asset's or cash-generating unit's carrying value. If the recoverable amount for the asset or cash-generating unit is less than its carrying value, the asset is considered impaired and is written down to its recoverable amount. Impairment losses are presented in other expenses, or as a separate line item if significant, in the consolidated income statement.

Inventories

Inventories are stated at the lower of cost and net realizable value. Cost is determined using standard cost, which approximates actual cost on a first-in first-out ("FIFO") basis. Net realizable value is the amount that can be realized from the sale of the inventory in the normal course of business after allowing for the costs of realization. In addition to the cost of materials and direct labor, an appropriate proportion of production overhead is included in the inventory values. An allowance is recorded for excess inventory and obsolescence based on the lower of cost and net realizable value.

Fair value measurement

A number of financial instruments are measured at fair value as of each reporting date after initial recognition. Fair value is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. The fair value of an asset or a liability is measured using the assumptions that market participants would use when pricing the asset or liability, assuming that market participants act in their economic best interest by using quoted market rates, discounted cash flow analyses and other appropriate valuation models. The Group uses valuation techniques that are appropriate in the circumstances and for which sufficient data is available to measure fair value, maximizing the use of relevant observable inputs and minimizing the use of unobservable inputs. All assets and liabilities for which fair values are being measured or disclosed in the consolidated financial statements are categorized within the fair value hierarchy, described as follows, based on the lowest level input that is significant to the fair value measurement as a whole:

Level 1—Quoted (unadjusted) market prices for exchange-traded products in active markets for identical assets or liabilities;

Level 2—Valuation techniques for which significant inputs other than quoted prices are directly or indirectly observable; and

Level 3—Valuation techniques for which significant inputs are unobservable.

The Group categorizes assets and liabilities that are measured at fair value on a recurring basis into an appropriate level of the fair value hierarchy at the end of each reporting period.

Financial assets

The Group has classified its financial assets in the following categories: available-for-sale investments, derivative and other current financial assets, loans receivable, accounts receivable, financial assets at fair value through profit or loss, and cash and cash equivalents. Derivatives are described in the section on derivative financial instruments.

Available-for-sale investments

The Group invests a portion of the cash needed to cover the projected cash outflows of its ongoing business operations in highly liquid, interest-bearing investments and certain equity instruments. The following investments are classified as available-for-sale based on the purpose of the investment and the Group's ongoing intentions:

- Available-for-sale investments, liquid assets consist of highly liquid, fixed-income and money-market investments with maturities at acquisition of more than three months, as well as bank deposits with maturities or contractual call periods at acquisition of more than three months.
- Investments in technology-related publicly quoted equity shares or unlisted private equity shares and unlisted venture funds, classified in the consolidated statement of financial position as non-current available-for-sale investments.

Current fixed-income and money-market investments are fair valued by using quoted market rates, discounted cash flow analyses and other appropriate valuation models as of the reporting date.

Investments in publicly quoted equity shares are measured at fair value using exchange quoted bid prices. Other available-for-sale investments carried at fair value include holdings in unlisted shares. Fair value is estimated using a number of methods, including, but not limited to: the current market value of similar instruments; prices established from a recent arm's-length financing transaction of target companies; and analysis of market prospects and operating performance of target companies, taking into consideration public market comparable companies in similar industry sectors. The Group uses judgment in selecting the appropriate valuation methodology as well as underlying assumptions based on existing market practice and conditions. Changes in these assumptions may cause the Group to recognize impairments or losses in future periods.

The remaining available-for-sale investments are carried at cost less impairment. These are technology-related investments in private equity shares and unlisted venture funds for which fair value cannot be measured reliably due to non-existent public markets or reliable valuation methods.

All purchases and sales of investments are recorded on the trade date, that is, when the Group commits to purchase or sell the asset.

Changes in the fair value of available-for-sale investments are recognized in fair value and other reserves as part of other comprehensive income, with the exception of interest calculated using the effective interest method and foreign exchange gains and losses on monetary available-for-sale investments recognized directly in the consolidated income statement. Dividends on available-for-sale equity instruments are recognized in the consolidated income statement when the Group's right to receive payment is established. When the investment is disposed of, the related accumulated fair value changes are released from other comprehensive income and recognized in the consolidated income statement. The weighted average method is used to determine the cost basis of publicly listed equities being disposed of. The FIFO method is used to determine the cost basis of fixed-income securities being disposed of. An impairment charge is recorded if the carrying amount of an available-for-sale investment is greater than the estimated fair value and there is objective evidence that the

asset is impaired including, but not limited to, counterparty default and other factors causing a reduction in value that can be considered other than temporary. The cumulative net loss relating to the investment is removed from equity and recognized in the consolidated income statement for the period. If, in a subsequent period, the fair value of the investment in a non-equity instrument increases and the increase can be objectively related to an event occurring after the loss was recognized, the loss is reversed and the reversal is recognized in the consolidated income statement.

Investments at fair value through profit and loss, liquid assets

Certain highly liquid financial assets are designated at inception as investments at fair value through profit and loss, liquid assets. These investments must meet one of the following two criteria: the designation eliminates or significantly reduces an inconsistent treatment that would otherwise arise from measuring the assets or recognizing gains or losses on a different basis; or the assets are part of a group of financial assets, which are managed and their performance evaluated on a fair value basis in accordance with a documented risk management or investment strategy. These investments are initially recognized and subsequently remeasured at fair value. Fair value adjustments and realized gains and losses are recognized in the consolidated income statement.

Loans receivable

Loans receivable include loans to customers and suppliers and are measured initially at fair value and subsequently at amortized cost less impairment using the effective interest method. Loans are subject to regular review as to their collectability and available collateral. A valuation allowance is made if a loan is deemed not to be fully recoverable. The related cost is recognized in other expenses or financial expenses, depending on the nature of the receivable to reflect the shortfall between the carrying amount and the present value of expected future cash flows. Interest income on loans receivable is recognized in financial income and expenses in the consolidated income statement by applying the effective interest rate.

Cash and cash equivalents

Cash and cash equivalents consist of cash at bank and in hand and available-for-sale investments, cash equivalents. Available-for-sale investments, cash equivalents consist of highly liquid, fixed-income and money-market investments that are readily convertible to known amounts of cash with maturities at acquisition of three months or less, as well as bank deposits with maturities or contractual call periods at acquisition of three months or less. Due to the high credit quality and short-term nature of these investments, there is an insignificant risk of change in value. Investments in money-market funds that have a risk profile consistent with the aforementioned criteria are also classified as cash equivalents.

Accounts receivable

Accounts receivable include amounts invoiced to customers, amounts where revenue recognition criteria have been fulfilled but the customers have not yet been invoiced, and amounts where the contractual rights to the cash flows have been confirmed but the customers have not yet been invoiced. Billed accounts receivable are carried at the amount invoiced to customers less allowances for doubtful accounts. Allowances for doubtful accounts are based on a periodic review of all outstanding amounts, including an analysis of historical bad debt, customer concentrations, customer creditworthiness, past due amounts, current economic trends and changes in customer payment terms. Impairment charges on receivables identified as uncollectible are included in other operating expenses in the consolidated income statement.

Financial liabilities

The Group has classified its financial liabilities into the following categories: derivative and other current financial liabilities, compound financial instruments, loans payable, and accounts payable. Derivatives are described in the section on derivative financial instruments.

Compound financial instruments

Compound financial instruments have both a financial liability and an equity component from the issuers' perspective. The components are defined based on the terms of the financial instrument and presented and measured separately according to their substance. The financial liability component is initially recognized at fair value, the residual being allocated to the equity component. The allocation remains the same for the life of the compound financial instrument. The financial liability components of convertible bonds issued by the Group are accounted for as loan payables.

Loans payable

Loans payable are recognized initially at fair value net of transaction costs. In subsequent periods, loans payable are presented at amortized cost using the effective interest method. Transaction costs and loan interest are recognized in the consolidated income statement as financial expenses over the life of the instrument.

Accounts payable

Accounts payable are carried at invoiced amount which is considered to be the fair value due to the short-term nature of the Group's accounts payable.

Derivative financial instruments

All derivatives are recognized initially at fair value on the date a derivative contract is entered into and subsequently remeasured at fair value. The method of recognizing the resulting gain or loss varies according to whether the derivatives are designated and qualify under hedge accounting. Generally, the cash flows of a hedge are classified as cash flows from operating activities in the consolidated statement of cash flows as the underlying hedged items relate to the Group's operating activities. When a derivative contract is accounted for as a hedge of an identifiable position relating to financing or investing activities, the cash flows of the contract are classified in the same way as the cash flows of the position being hedged.

Derivatives not designated in hedge accounting relationships carried at fair value through profit and loss

Forward foreign exchange contracts are valued at market-forward exchange rates. Changes in fair value are measured by comparing these rates with the original contract-forward rate. Currency options are valued as of each reporting date by using the Garman & Kohlhagen option valuation model. Changes in fair value are recognized in the consolidated income statement.

Fair values of forward rate agreements, interest rate options, futures contracts and exchange-traded options are calculated based on quoted market rates as of each reporting date. Discounted cash flow analyses are used to value interest rate and cross-currency interest rate swaps. Changes in fair value are recognized in the consolidated income statement.

For derivatives not designated under hedge accounting but hedging identifiable exposures such as anticipated foreign currency denominated sales and purchases, the gains and losses are recognized in other income or expenses. The gains and losses on all other derivatives not designated under hedge accounting are recognized in financial income and expenses in the consolidated income statement.

Notes to consolidated financial statements continued

Embedded derivatives, if any, are identified and monitored by the Group and measured at fair value as of each reporting date with changes in fair value recognized in the consolidated income statement.

Hedge accounting

The Group applies hedge accounting on certain forward foreign exchange contracts, options or option strategies, and interest rate derivatives. Qualifying options and option strategies have zero net premium or a net premium paid. For option structures, the critical terms of the bought and sold options are the same and the nominal amount of the sold option component is not greater than that of the bought option.

Cash flow hedges: hedging of forecast foreign currency denominated sales and purchases

The Group applies hedge accounting for qualifying hedges. Qualifying hedges are those properly documented cash flow hedges of foreign exchange rate risk of future forecast foreign currency denominated sales and purchases that meet the requirements set out in IAS 39, Financial Instruments: Recognition and Measurement. The hedged item must be highly probable and present an exposure to variations in cash flows that could ultimately affect profit or loss. The hedge must be highly effective, both prospectively and retrospectively.

For qualifying foreign exchange forwards, the change in fair value that reflects the change in spot exchange rates and, for qualifying foreign exchange options or option strategies, the change in intrinsic value are deferred in fair value and other reserves in shareholders' equity to the extent that the hedge is effective. The ineffective portion is recognized immediately in the consolidated income statement. Hedging costs, expressed either as the change in fair value that reflects the change in forward exchange rates less the change in spot exchange rates for forward foreign exchange contracts, or as changes in the time value for options or options strategies, are recognized in other income or expenses in the consolidated income statement.

Accumulated changes in fair value from qualifying hedges are released from fair value and other reserves into the consolidated income statement as adjustments to other operating income and expenses when the hedged cash flow affects the consolidated income statement. Forecast foreign currency sales and purchases affect the consolidated income statement at various dates up to approximately one year from the reporting date. If the forecasted transaction is no longer expected to take place, all deferred gains or losses are released immediately into the consolidated income statement. If the hedged item ceases to be highly probable but is still expected to take place, accumulated gains and losses remain in fair value and other reserves until the hedged cash flow affects the consolidated income statement.

Cash flow hedges: hedging of foreign currency risk of highly probable business acquisitions and other transactions

From time to time, the Group hedges cash flow variability caused by foreign currency risk inherent in highly probable business acquisitions and other future transactions that result in the recognition of non-financial assets. When those non-financial assets are recognized in the consolidated statement of financial position, the gains and losses previously deferred in fair value and other reserves are transferred to the initial acquisition cost of the asset. The deferred amounts are ultimately recognized in the consolidated income statement as a result of goodwill assessments for business acquisitions and through depreciation or amortization for other assets. The application of hedge accounting is conditional on the forecast transaction being highly probable and the hedge being highly effective, prospectively and retrospectively.

Cash flow hedges: hedging of cash flow variability on variable rate liabilities

From time to time, the Group applies cash flow hedge accounting for hedging cash flow variability on certain variable rate liabilities. The effective portion of the gain or loss relating to interest rate swaps hedging variable rate borrowings is deferred in fair value and other reserves. The gain or loss related to the ineffective portion is recognized immediately in the consolidated income statement. If hedging instruments are settled before the maturity date of the related liability, hedge accounting is discontinued and all cumulative gains and losses recycled gradually to the consolidated income statement when the hedged variable interest cash flows affect the consolidated income statement.

Fair value hedges: hedging of foreign exchange exposure

The Group applies fair value hedge accounting for foreign exchange risk with the objective to reduce the exposure to fluctuations in the fair value of firm commitments due to changes in foreign exchange rates. Changes in the fair value of derivatives designated and qualifying as fair value hedges, together with any changes in the fair value of the hedged firm commitments attributable to the hedged risk, are recorded in financial income and expenses in the consolidated income statement.

Fair value hedges: hedging of interest rate exposure

The Group applies fair value hedge accounting to reduce exposure to fair value fluctuations of interest-bearing liabilities due to changes in interest rates and foreign exchange rates. Changes in the fair value of derivatives designated and qualifying as fair value hedges, together with any changes in the fair value of hedged liabilities attributable to the hedged risk, are recognized in financial income and expenses. If the hedged item no longer meets the criteria for hedge accounting, hedge accounting ceases and any fair value adjustments made to the carrying amount of the hedged item while the hedge was effective are recognized in financial income and expenses based on the effective interest method.

Hedges of net investments in foreign operations

The Group applies hedge accounting for its foreign currency hedging on net investments. Qualifying hedges are those properly documented hedges of foreign exchange rate risk of foreign currency denominated net investments that are effective both prospectively and retrospectively.

The change in fair value that reflects the change in spot exchange rates for qualifying foreign exchange forwards, and the change in intrinsic value for qualifying foreign exchange options, are deferred in translation differences in the consolidated statement of shareholder's equity. The change in fair value that reflects the change in forward exchange rates less the change in spot exchange rates for forwards, and changes in time value for options are recognized in financial income and expenses. If a foreign currency denominated loan is used as a hedge, all foreign exchange gains and losses arising from the transaction are recognized in translation differences. The ineffective portion is recognized immediately in the consolidated income statement.

Accumulated changes in fair value from qualifying hedges are released from translation differences on the disposal of all or part of a foreign Group company by sale, liquidation, repayment of share capital or abandonment. The cumulative amount or proportionate share of changes in the fair value of qualifying hedges deferred in translation differences is recognized as income or expense when the gain or loss on disposal is recognized.

Provisions

Provisions are recognized when the Group has a present legal or constructive obligation as a result of past events, it is probable that an outflow of resources will be required to settle the obligation and a reliable estimate of the amount can be made. When the Group expects a provision to be reimbursed, the reimbursement is recognized as an asset only when the reimbursement is virtually certain. The Group assesses the adequacy of its existing provisions and adjusts the amounts as necessary based on actual experience and changes in facts and circumstances as of each reporting date.

Restructuring provisions

The Group provides for the estimated cost to restructure when a detailed formal plan of restructuring has been completed, approved by management, and announced. Restructuring costs consist primarily of personnel restructuring charges. The other main components are costs associated with exiting real estate locations, and costs of terminating certain other contracts directly linked to the restructuring.

Warranty provisions

The Group provides for the estimated liability to repair or replace products under standard warranty at the time revenue is recognized. The provision is an estimate based on historical experience of the level of repairs and replacements.

Litigation provisions

The Group provides for the estimated future settlements related to litigation based on the probable outcome of potential claims.

Environmental provisions

The Group provides for estimated costs of environmental remediation relating to soil, groundwater, surface water and sediment contamination when the Group becomes obliged, legally or constructively, to rectify the environmental damage, or to perform restorative work.

Project loss provisions

The Group provides for onerous contracts based on the lower of the expected cost of fulfilling the contract and the expected cost of terminating the contract. An onerous contract is a contract in which the unavoidable costs of meeting the obligations under the contract exceed the economic benefits expected to be received under it.

Divestment-related provisions

The Group provides for indemnifications it is required to make to the buyers of its disposed businesses.

Material liability provisions

The Group recognizes the estimated liability for non-cancellable purchase commitments for inventory in excess of forecasted requirements at each reporting date.

Other provisions

The Group provides for other legal and constructive obligations based on the expected cost of executing any such commitments.

Treasury shares

The Group recognizes its own equity instruments that are acquired ("treasury shares") as a reduction of equity at cost of acquisition. When cancelled, the acquisition cost of treasury shares is recognized in retained earnings.

Dividends

Dividends proposed by the Board of Directors are recognized in the consolidated financial statements when they have been approved by the shareholders at the Annual General Meeting.

New and amended standards and interpretations adopted

On January 1, 2017, the Group adopted amendments to IAS 7, Statement of Cash Flows ("IAS 7") and IAS 12, Income Taxes ("IAS 12"). The amendments to IAS 7 are part of the IASB's Disclosure Initiative and help users of financial statements to better understand changes in an entity's debt arising from financing activities, including both changes arising from cash flows and non-cash changes. The amendments to IAS 12 relate to potential restrictions of tax laws to sources of taxable profits against which an entity may make deductions on the reversal of deductible temporary difference, as well as to provide additional guidance on how an entity should determine future taxable profits. The amendments did not have a material impact on the Group's consolidated financial statements.

Standards issued but not yet effective

The Group will adopt the following new and revised standards, amendments and interpretations to existing standards issued by the IASB that are expected to be relevant to its operations and financial position when they become effective and are endorsed by the EU. Other revisions, amendments and interpretations to existing standards issued by the IASB that are not yet effective, except what has been described below, are not expected to have a material impact on the consolidated financial statements of the Group when adopted.

The Group has not early adopted any standard, interpretation or amendment that has been issued but is not yet effective.

IFRS 9 Financial Instruments

IFRS 9, Financial Instruments ("IFRS 9"), was issued in July 2014 and it replaces IAS 39, Financial Instruments: Recognition and Measurement ("IAS 39"). IFRS 9 addresses the classification and measurement of financial assets and liabilities, introduces a new impairment model and a new hedge accounting model. The Group will adopt the standard on the effective date of January 1, 2018. On adoption, the Group does not restate comparative periods but will present the cumulative effect of adopting IFRS 9 as a transition adjustment to the opening balance of retained earnings as of January 1, 2018.

Classification and measurement

Based on assessment of the Group's business models for holding financial assets, the Group has identified the following to be the most significant impacts in the classification and measurement of financial assets:

- The Group's investments in venture funds that are under IAS 39 classified as non-current available-for-sale investments will be classified at fair value through profit or loss with value changes included to other operating income and expenses. Upon initial application of the standard, the accumulated net positive fair value changes of approximately EUR 200 million, formerly recorded to other comprehensive income, will be presented as an adjustment to opening balance of retained earnings. There will be no change in the valuation nor carrying amount of these assets.
- Certain restricted bank deposits currently classified as non-current available-for-sale investments under IAS 39 will be classified as amortized cost. There will be no change in the carrying amount of these deposits.
- Trade receivables are under IAS 39 carried at the invoiced amount less allowances for doubtful accounts. The Group's business model for managing trade receivables is both to collect contractual cash flows and to sell assets and hence trade receivables will be measured at fair value through other comprehensive income. The initial fair value adjustment, which will be presented in other comprehensive income as a transition adjustment upon initial application of the standard, is not material.

Notes to consolidated financial statements continued

- The Group's business model for managing customer finance assets is both to collect contractual cash flows and to sell assets and hence customer finance assets will be measured at fair value through other comprehensive income. The initial fair value adjustment, which will be presented in other comprehensive income as a transition adjustment upon initial application of the standard, is not material.
- The Group has assessed the investments currently classified as current available-for-sale, liquid assets, and will classify certain investment funds to be measured at fair value through profit or loss at the adoption of the new standard. The rest of these investments satisfy the conditions for classification at fair value through other comprehensive income.
- Certain term deposits used as collaterals for derivative transactions that are under IAS 39 classified as cash equivalents will be classified to current financial investments based on IFRS 9 business model assessment.

Impairment model

The Group has assessed the impact of the new impairment model. As the credit quality of the Group's fixed income and money market investments is high, there will be no significant impact from the new model. There will be a limited impact to loans extended to the Group's customers as the new model results in an earlier recognition of credit losses.

Hedge accounting model

The new hedge accounting model will align the accounting for hedging instruments more closely with the Group's risk management practices. The Group's foreign exchange risk management policy and hedge accounting model have been aligned with the requirements from IFRS 9 and hence there is no impact on the accounting for its hedging relationships. For cash flow hedge accounting, the Group has elected to defer cost of hedging in other comprehensive income until the hedged item impacts profit and loss. For net investment hedge accounting, the Group has elected to defer cost of hedging in other comprehensive income and amortize it over the duration of the hedge. The initial adjustment related to treatment of cost of hedging, that is recorded between other comprehensive income and retained earnings as a transition adjustment upon initial application of the standard, is not material.

Disclosure

The new standard also introduces expanded disclosure requirements and changes in presentation that are expected to change the nature and extent of the Group's disclosures about its financial instruments, particularly in the year of the adoption of the new standard. The financial effect of the IFRS 9 transition will be presented in the 2018 annual report.

IFRS 15 Revenue from Contracts with Customers

IFRS 15, Revenue from Contracts with Customers, ("IFRS 15") was issued in May 2014 and establishes a new five-step model that will apply to revenue arising from contracts with customers. Under IFRS 15, revenue is recognized to reflect the transfer of promised goods and services to customers for amounts that reflect the consideration to which an entity expects to be entitled in exchange for those goods and services. The Group will adopt the standard on the effective date of January 1, 2018. The new standard replaces IAS 18, Revenue, and IAS 11, Construction contracts. The Group adopted the standard by applying the modified retrospective method and will present the cumulative effect of adopting IFRS 15 as an adjustment to the opening balance of retained earnings as of January 1, 2018.

Management has analyzed the impact of the adoption of IFRS 15 and concluded that the new standard will not have a material impact on the Group's consolidated financial statements. The procedures performed by management focused on a review of existing contracts through December 31, 2017, focusing on the following areas:

Arrangements with customers

Management considered the definition of a contract in accordance with the new standard and concluded that only legally binding commitments should be considered in evaluating the accounting for arrangements with customers. As such, frame agreements will be accounted for based on purchase orders, initial discounts and other material rights. Previously, a broader contract definition was permitted for accounting purposes.

Identification of performance obligations and allocation of transaction price

In accordance with IFRS 15, the identification of performance obligations and allocation of transaction price is based on a fair value model. The Group's application of previous accounting standards is consistent with IFRS 15.

Transfer of control of hardware

The point at which control transfers to the customer under IFRS 15 is consistent with the Group's assessed point of transfer of the significant risks and rewards of ownership to the customer under the previous standard.

Software revenue

In accordance with IFRS 15, revenue related to software arrangements will be recognized at points in time. Under previous standards, certain software revenue arrangements were recorded as revenue over the terms of the arrangements where customers had access to a portfolio of software solutions. After the adoption of IFRS 15, this change may result in larger fluctuations in revenue between quarters than under the previous standard.

Patent license agreements in Nokia Technologies

The Group's current revenue recognition principles for license agreements, which contain future commitments to perform, are in line with IFRS 15 and continue to be recorded over time. Further, the Group has determined that, upon transition to IFRS 15, one specific license agreement is a completed contract as it has no such future commitments (refer to Application of transition guidance below).

Application of transition guidance

In April 2014, the Group entered into an agreement to license certain technology patents and patent applications owned by the Group on the effective date of that agreement, on a non-exclusive basis, to a licensee, for a period of 10 years (the "License Agreement"). Contemporaneously and under the terms of the License Agreement, the Group issued to the licensee an option to extend the technology patent license for remaining life of the licensed patents. The Group received all cash consideration due for the sale of the 10-year license and option upon closing of the License Agreement. Management has determined that, upon transition to IFRS 15, the License Agreement is a completed contract. As such, in accordance with the transition requirements of the standard, the Group continues to apply its prior revenue accounting policies, based on IAS 18, Revenue, and related interpretations, to the License Agreement. Under those policies, the Group is recognizing revenue over the term of the License Agreement.

As of 31 December 2017, the balance of deferred revenue related to the License Agreement of EUR 980 million, recognized in advance payments and deferred revenue in the consolidated statement of financial position, is expected to be recognized as revenue through 2024.

Opening balance sheet adjustment

Adoption of the standard will result in a net decrease of retained earnings of approximately EUR 25 million in the opening balance sheet of 2018.

Disclosure

The new standard introduces expanded disclosure requirements which will impact the presentation of the statement of financial position by providing information on customer-related contract assets and liabilities. The standard requires presentation of the net position of the Group's contract-related balances, excluding invoiced receivables, as of the reporting date, on a contract-by-contract basis.

IFRS 16 Leases

IFRS 16, Leases, ("IFRS 16") issued in January 2016, sets out the requirements for the recognition, measurement, presentation and disclosure of leases. IFRS 16 provides a single lessee accounting model, requiring lessees to recognize right-of-use assets and lease liabilities for substantially all leases in the consolidated statement of financial position. The Group will adopt IFRS 16 on the effective date of January 1, 2019 using the cumulative catch-up transition method, whereby the cumulative effect of initially applying IFRS 16 will be recognized as an adjustment to the opening balance of retained earnings on January 1, 2019 and comparative information will not be restated. The Group is currently assessing the full impact of IFRS 16 but the initial expectation is that the main impact from adoption relates to the recognition and disclosure of the Group's real estate-related operating leases. In the consolidated financial statements for the year ended December 31, 2017 the Group disclosed non-cancellable operating lease commitments of EUR 961 million. Refer to Note 30, Commitments and contingencies.

3. Use of estimates and critical accounting judgments

The preparation of consolidated financial statements requires use of management judgment in electing and applying accounting policies as well as in making estimates that involve assumptions about the future. These judgments, estimates and assumptions may have a significant effect on the consolidated financial statements.

The estimates used in determining the carrying amounts of assets and liabilities subject to estimation uncertainty are based on historical experience, expected outcomes and various other assumptions that were available when these consolidated financial statements were prepared, and they are believed to be reasonable under the circumstances. The estimates are revised if changes in circumstances occur, or as a result of new information or more experience. As estimates inherently contain a varying degree of uncertainty, actual outcomes may differ, resulting in additional charges or credits to the consolidated income statement.

Management considers that the estimates, assumptions and judgments about the following accounting policies represent the most significant areas of estimation uncertainty and critical judgment that may have an impact on the consolidated financial statements.

Business combinations

The Group applies the acquisition method to account for acquisitions of separate entities or businesses. The determination of the fair value and allocation thereof to each separately identifiable asset acquired and liability assumed as well as the determination of the acquisition date, when the valuation and allocation is to be conducted require estimation and judgment.

Estimation and judgment are required in determining the fair value of the acquisition, including the discount rate, the terminal growth rate, the number of years on which to base the cash flow projections, and the assumptions and estimates used to determine the cash inflows and outflows. The discount rate reflects current assessments of the time value of money, relevant market risk premiums, and industry comparisons. Risk premiums reflect risks and uncertainties for which the future cash flow estimates have not been adjusted. Terminal values are based on the expected life of products and forecasted life cycle, and forecasted cash flows over that period. The assumptions are based on information available at the date of acquisition; actual results may differ materially from the forecast as more information becomes available. Refer to Note 5, Acquisitions.

Revenue recognition

The Group enters into transactions involving multiple components consisting of any combination of hardware, services, software and intellectual property rights where the Group identifies the separate components and estimates their relative fair values, considering the economic substance of the entire arrangement. The fair value of each component is determined by taking into consideration factors such as the price of the component when sold separately and the component cost plus a reasonable margin when price references are not available. The determination of the fair value and allocation thereof to each separately identifiable component requires the use of estimates and judgment which may have a significant impact on the timing and amount of revenue recognized. In some multiple element licensing transactions, the Group applies the residual method in the absence of reference information.

Net sales includes revenue from all licensing negotiations, litigations and arbitrations to the extent that the criteria for revenue recognition have been met. The final outcome may differ from the current estimate. Refer to Note 7, Revenue recognition.

Pension and other post-employment benefit obligations and expenses

The determination of pension and other post-employment benefit obligations and expenses for defined benefit plans is dependent on a number of estimates and assumptions, including the discount rate, future mortality rate, annual rate of increase in future compensation levels, and healthcare costs trend rates and usage of services in the United States where the majority of our post-employment healthcare plans are maintained. A portion of plan assets is invested in debt and equity securities, which are subject to market volatility. Changes in assumptions and actuarial estimates may materially affect the benefit obligation, future expense and future cash flow. Based on these estimates and assumptions, defined benefit obligations amount to EUR 25 497 million (EUR 28 663 million in 2016) and the fair value of plan assets amounts to EUR 25 535 million (EUR 27 770 million in 2016). Refer to Note 27, Pensions and other post-employment benefits.

Income taxes

The Group is subject to income taxes in the jurisdictions in which it operates. Judgment is required in determining current tax expense, uncertain tax positions, deferred tax assets and deferred tax liabilities; and the extent to which deferred tax assets can be recognized.

Estimates related to the recoverability of deferred tax assets are based on forecasted future taxable income and tax planning strategies. Based on these estimates and assumptions, the Group has EUR 20 365 million (EUR 20 952 million in 2016) of temporary differences, tax losses carry forward and tax credits for which no deferred tax assets are recognized due to uncertainty of utilization. The majority of the unrecognized deferred tax assets relate to France. Refer to Note 12, Income taxes.

Notes to consolidated financial statements continued

The utilization of deferred tax assets is dependent on future taxable profit in excess of the profit arising from the reversal of existing taxable temporary differences. The recognition of deferred tax assets is based on the assessment of whether it is more likely than not that sufficient taxable profit will be available in the future to utilize the reversal of deductible temporary differences, unused tax losses and unused tax credits before the unused tax losses and unused tax credits expire. Recognition of deferred tax assets involves judgment regarding the future financial performance of the particular legal entity or tax group that has recognized the deferred tax asset.

Liabilities for uncertain tax positions are recorded based on estimates and assumptions of the amount and likelihood of outflow of economic resources when it is more likely than not that certain positions may not be fully sustained upon review by local tax authorities. Currently, the Group has ongoing tax investigations in multiple jurisdictions, including India and Canada. Due to the inherently uncertain nature of tax investigations, the ultimate outcome or actual cost of settlement may vary materially from estimates. Refer to Note 12, Income taxes.

Goodwill recoverability

The recoverable amounts of the groups of CGUs and the CGU were based on fair value less costs of disposal that was determined using market participant assumptions based on a discounted cash flow calculation. The cash flow projections used in calculating the recoverable amounts were based on financial plans approved by management covering an explicit forecast period of three years. Seven additional years of cash flow projections subsequent to the explicit forecast period reflect a gradual progression towards the steady state cash flow projections modeled in the terminal year. Estimation and judgment are required in determining the components of the recoverable amount calculation, including the discount rate, the terminal growth rate, estimated revenue growth rates, gross margin and operating margin. The discount rates reflect current assessments of the time value of money and relevant market risk premiums reflecting risks and uncertainties for which the future cash flow estimates have not been adjusted. The terminal growth rate assumptions reflect long-term average growth rates for the industry and economies in which the groups of CGUs and the CGU operate.

The results of the impairment testing indicate adequate headroom for each group of CGUs. Total goodwill amounts to EUR 5 248 million as of December 31, 2017 (EUR 5 724 million in 2016). Refer to Note 14, Intangible assets and Note 16, Impairment.

Allowances for doubtful accounts

Allowances for doubtful accounts are recognized for estimated losses resulting from customers' inability to meet payment obligations. Estimation and judgment are required in determining the value of allowances for doubtful accounts at each reporting date. Management specifically analyzes accounts receivable and historical bad debt; customer concentrations; customer creditworthiness; past due balances; current economic trends; and changes in customer payment terms when determining allowances for doubtful accounts. Additional allowances may be required in future periods if financial positions of customers deteriorate, reducing their ability to meet payment obligations. Based on these estimates and assumptions, allowances for doubtful accounts are EUR 192 million (EUR 168 million in 2016), representing 3% of accounts receivable (2% in 2016). Refer to Note 18, Allowances for doubtful accounts.

Allowances for excess and obsolete inventory

Allowances for excess and obsolete inventory are recognized for excess amounts, obsolescence and declines in net realizable value below cost. Estimation and judgment are required in determining the value of the allowance for excess and obsolete inventory at each reporting date. Management specifically analyzes estimates of future demand for products when determining allowances for excess and obsolete inventory. Changes in these estimates could result in revisions to the valuation of inventory in future periods. Based on these estimates and assumptions, allowances for excess and obsolete inventory are EUR 432 million (EUR 456 million in 2016), representing 14% of inventory (15% in 2016). Refer to Note 17, Inventories.

Fair value of derivatives and other financial instruments

The fair value of derivatives and other financial instruments that are not traded in an active market such as unlisted equities is determined using valuation techniques. Estimation and judgment are required in selecting an appropriate valuation technique and in determining the underlying assumptions. Where quoted market prices are not available for unlisted shares, the fair value is based on a number of factors including, but not limited to, the current market value of similar instruments; prices established from recent arm's-length transactions; and/or analysis of market prospects and operating performance of target companies with reference to public market comparable companies in similar industry sectors. Changes in these estimates could result in impairments or losses in future periods. Based on these estimates and assumptions, the fair value of derivatives and other financial assets that are not traded in an active market, using non-observable data (level 3 of the fair value hierarchy), is EUR 552 million (EUR 660 million in 2016), representing 29% of total financial assets measured at fair value on a recurring basis (24% of total net financial assets in 2016). Level 3 financial liabilities include conditional obligation to China Huaxin as part of the Nokia Shanghai Bell definitive agreements where China Huaxin obtained the right to fully transfer its ownership interest in Nokia Shanghai Bell to the Group in exchange for a future cash settlement. The calculated net present value of the expected future cash settlement is EUR 672 million, representing 71% of total financial liabilities measured at fair value on recurring basis. Refer to Note 24, Fair value of financial instruments.

Provisions

Provisions are recognized when the Group has a present legal or constructive obligation as a result of past events, it is probable that an outflow of resources will be required to settle the obligation, and a reliable estimate of the amount can be made. At times, judgment is required in determining whether the Group has a present obligation; estimation is required in determining the value of the obligation. Whilst provisions are based on the best estimate of unavoidable costs, management may be required to make a number of assumptions surrounding the amount and likelihood of outflow of economic resources, and the timing of payment. Changes in estimates of timing or amounts of costs to be incurred may become necessary as time passes and/or more accurate information becomes available. Based on these estimates and assumptions, provisions amount to EUR 1 888 million (EUR 2 078 million in 2016). Refer to Note 29, Provisions.

Legal contingencies

Legal proceedings covering a wide range of matters are pending or threatened in various jurisdictions. Provisions are recognized for pending litigation when it is apparent that an unfavorable outcome is probable and a best estimate of unavoidable costs can be reasonably estimated. Due to the inherently uncertain nature of litigation, the ultimate outcome or actual cost of settlement may vary materially from estimates. Refer to Note 29, Provisions.

4. Segment information

The Group has two businesses: Nokia's Networks business and Nokia Technologies, and four reportable segments for financial reporting purposes: (1) Ultra Broadband Networks, (2) Global Services and (3) IP Networks and Applications within Nokia's Networks business; and (4) Nokia Technologies. Segment-level information for Group Common and Other is also presented.

The Group has aggregated Mobile Networks and Fixed Networks operating segments to one reportable segment, Ultra Broadband Networks; and IP/Optical Networks and Nokia Software⁽¹⁾ operating segments to one reportable segment, IP Networks and Applications. The aggregated operating segments have similar economic characteristics, such as long-term margins; have similar products, production processes, distribution methods and customers; and operate in a similar regulatory environment.

The Group adopted its current operational and reporting structure on April 1, 2017. Previously the Group had three reportable segments for financial reporting purposes: Ultra Broadband Networks and IP/Networks and Applications within Nokia's Networks business, and Nokia Technologies. Ultra Broadband Networks was comprised of two aggregated operating segments: Mobile Networks and Fixed Networks, and IP Networks and Applications was comprised of two aggregated operating segments: IP/Optical Networks and Nokia Software. On March 17, 2017, the Group announced changes in its organizational structure which included the separation of the Group's former Mobile Networks operating segment into two distinct operating segments: one focused on products and solutions, called Mobile Networks, and the other on services, called Global Services. The Global Services operating segment is comprised of the services that resided within the previous Mobile Networks operating segment, including company-wide managed services. Global Services does not include the services of Fixed Networks, IP/Optical Networks and Nokia Software, which continue to reside within the respective operating segments.

The President and CEO is the chief operating decision maker and monitors the operating results of operating and reportable segments for the purpose of making decisions about resource allocation and performance assessment. Key financial performance measures of the segments include primarily net sales and operating profit. The evaluation of segment performance and allocation of resources is based on segment operating profit⁽²⁾.

Accounting policies of the segments are the same as those described in Note 2, Significant accounting policies. Inter-segment revenues and transfers are accounted for as if the revenues were to third parties, that is, at current market prices. Certain costs and revenue adjustments are not allocated to the segments⁽²⁾.

No single customer represents 10% or more of revenues.

Segment descriptions

Ultra Broadband Networks

Ultra Broadband Networks comprises Mobile Networks and Fixed Networks operating segments.

The Mobile Networks operating segment offers an industry-leading portfolio of end-to-end mobile networking solutions comprising hardware and software for communications service providers, enterprises and related markets/verticals, such as public safety and Internet of Things ("IoT").

The Fixed Networks operating segment provides copper and fiber access products, solutions and services. The portfolio allows for a customized combination of technologies that brings fiber to the most economical point for the customer.

Global Services

Global Services operating segment provides a wide range of professional services with multi-vendor capabilities, covering network planning and optimization, systems integration as well as company-wide managed services. It also provides network implementation and care services for mobile networks, using the strength of its global service delivery for quality, speed and efficiency.

IP Networks and Applications

IP Networks and Applications comprises IP/Optical Networks and Nokia Software operating segments.

The IP/Optical Networks operating segment provides the key IP routing and optical transport systems, software and services to build high capacity network infrastructure for the internet and global connectivity.

The Nokia Software operating segment offers software solutions spanning customer experience management, network operations and management, communications and collaboration, policy and charging, as well as Cloud, IoT, security, and analytics platforms that enable digital services providers and enterprises to accelerate innovation, monetize services, and optimize their customer experience.

Nokia Technologies

The Nokia Technologies operating segment has two main objectives: to drive growth and renewal in its existing patent licensing business; and to build new businesses based on breakthrough innovation in key technologies and products, in the areas of Digital Media and Digital Health. The majority of net sales and related costs and expenses attributable to licensing and patenting the separate patent portfolios of Nokia Technologies, Nokia's Networks business, and Nokia Bell Labs are recorded in Nokia Technologies. Each reportable segment continues to separately record its own research and development expenses.

Group Common and Other

Group Common and Other includes Alcatel-Lucent Submarine Networks and Radio Frequency Systems, both of which are being managed as separate entities. In addition, Group Common and Other includes Nokia Bell Labs' operating expenses, as well as certain corporate-level and centrally managed operating expenses.

(1) Applications & Analytics operating segment was renamed as Nokia Software on February 1, 2018.

(2) Segment results exclude costs related to the acquisition of Alcatel Lucent and related integration, goodwill impairment charges, intangible asset amortization and other purchase price fair value adjustments, restructuring and associated charges and certain other items.

Notes to consolidated financial statements continued

Segment information

EURm	Ultra Broadband Networks ⁽¹⁾	Global Services	IP Networks and Applications ⁽²⁾	Nokia's Networks Business Total ⁽³⁾	Nokia Technologies	Group Common and Other	Eliminations	Segment total	Unallocated items ⁽⁴⁾	Total
Continuing operations										
2017										
Net sales to external customers	8 970	5 810	5 743	20 523	1 639	1 060	–	23 222	(75)	23 147
Net sales to other segments	–	–	–	–	15	54	(69)	–	–	–
Depreciation and amortization	(258)	(80)	(160)	(498)	(12)	(48)	–	(558)	(1 033)	(1 591)
Impairment charges	–	–	–	–	–	(11)	–	(11)	(199)	(210)
Operating profit/(loss)	781	411	519	1 711	1 124	(248)	–	2 587	(2 571)	16
Share of results of associated companies and joint ventures	21	–	–	21	(10)	–	–	11	–	11
2016										
Net sales to external customers	9 757	6 036	6 036	21 829	1 038	1 105	–	23 972	(331)	23 641
Net sales to other segments	1	–	–	1	15	37	(53)	–	–	–
Depreciation and amortization	(270)	(70)	(160)	(500)	(9)	(43)	–	(552)	(1 042)	(1 594)
Impairment charges	(9)	–	–	(9)	–	(8)	–	(17)	–	(17)
Operating profit/(loss)	922	406	615	1 943	579	(350)	–	2 172	(3 272)	(1 100)
Share of results of associated companies and joint ventures	18	–	–	18	–	–	–	18	–	18
2015										
Net sales to external customers	5 333	4 887	1 328	11 548	1 012	–	–	12 560	–	12 560
Net sales to other segments	–	–	–	–	15	–	(15)	–	–	–
Depreciation and amortization	(112)	(46)	(35)	(193)	(6)	(8)	–	(207)	(79)	(286)
Impairment charges	–	–	–	–	–	(11)	–	(11)	–	(11)
Operating profit/(loss)	492	719	138	1 349	698	(89)	–	1 958	(261)	1 697
Share of results of associated companies and joint ventures	29	–	–	29	–	–	–	29	–	29

(1) Includes Mobile Networks net sales of EUR 6 895 million (EUR 7 357 million in 2016 and EUR 5 197 million in 2015) and Fixed Networks net sales of EUR 2 075 million (EUR 2 401 million in 2016 and EUR 136 million in 2015).

(2) Includes IP Routing net sales of EUR 2 694 million (EUR 2 941 million in 2016 and EUR 515 million in 2015), Optical Networks net sales of EUR 1 499 million (EUR 1 564 million in 2016) and Nokia Software net sales of EUR 1 550 million (EUR 1 531 million in 2016 and EUR 813 million in 2015).

(3) Includes total services net sales of EUR 8 221 million (EUR 8 531 million in 2016 and EUR 5 424 million in 2015) which consists of all the services sales of Nokia's Networks business, including Global Services of EUR 5 810 million (EUR 6 036 million in 2016 and EUR 4 887 million in 2015) and the services of Fixed Networks, IP/Optical Networks and Nokia Software.

(4) Excludes costs related to the acquisition of Alcatel Lucent and related integration, goodwill impairment charges, intangible asset amortization and other purchase price fair value adjustments, restructuring and associated charges and certain other items.

Reconciliation of total segment operating profit to total operating profit/(loss)

EURm	2017	2016	2015
Total segment operating profit	2 587	2 172	1 958
Amortization and depreciation of acquired intangible assets and property, plant and equipment	(1 033)	(1 026)	(79)
Restructuring and associated charges	(579)	(774)	(123)
Product portfolio strategy costs	(536)	(348)	–
Transaction and related costs, including integration costs relating to the acquisition of Alcatel Lucent	(206)	(295)	(99)
Impairment of intangible assets	(173)	–	–
Release of acquisition-related fair value adjustments to deferred revenue and inventory	(55)	(840)	–
Other	11	11	40
Total operating profit/(loss)	16	(1 100)	1 697

Net sales to external customers by geographic location of customer

EURm	2017	2016	2015
Finland ⁽¹⁾	1 698	1 138	1 100
United States	5 991	6 639	1 498
China	2 082	2 248	1 329
India	1 455	1 288	1 098
France	1 295	1 055	207
Japan	759	631	892
Great Britain	637	718	394
Germany	523	568	312
Italy	514	519	355
Saudi Arabia	499	566	380
Other	7 694	8 271	4 995
Total	23 147	23 641	12 560

(1) All Nokia Technologies IPR and licensing net sales are allocated to Finland.

Non-current assets by geographic location⁽¹⁾

EURm	2017	2016
Finland	1 437	726
United States	6 132	7 946
France	1 949	2 369
China	377	458
India	125	130
Other	1 052	1 312
Total	11 072	12 941

(1) Consists of goodwill and other intangible assets and property, plant and equipment.

5. Acquisitions

The Group completed the acquisitions of two businesses in 2017 and five businesses in 2016:

Company/business	Description
2017	
Deepfield Networks Inc.	Deepfield Networks Inc. is a United States-based leader in real-time analytics for Internet Protocol (“IP”) network performance management and security. The Group acquired 100% ownership interest on January 31, 2017. Goodwill was allocated to IP/Optical Networks operating segment.
Comptel Corporation	Comptel Corporation is a Finland-based telecommunications software company. The Group acquired 88.4% of the share capital and voting rights as part of the tender offer on March 29, 2017. The Group acquired 100% ownership interest on June 29, 2017. Goodwill was allocated to Nokia Software operating segment.
2016	
Alcatel Lucent SA	Alcatel Lucent is a global leader in Internet Protocol (“IP”) networking, ultra-broadband access and Cloud applications. The Group obtained control on January 4, 2016 and completed the acquisition of 100% of the share capital and voting rights on November 2, 2016.
Nakina Systems Inc.	Nakina Systems Inc. is a Canadian security and operational systems software company. The Group acquired the business through an asset transaction on March 31, 2016. Goodwill was allocated to Nokia Software operating segment.
Withings S.A.	Withings S.A. is a provider of digital health products and services. The Group acquired 100% ownership interest on May 31, 2016. Goodwill was allocated to Nokia Technologies operating segment.
Gainspeed, Inc.	Gainspeed is a United States-based start-up specializing in Distributed Access Architecture (“DDA”) solutions for the cable industry through its Virtual Converged Cable Access Platform (“CCAP”) product line. The Group acquired 100% ownership interest on July 29, 2016. Goodwill was allocated to Fixed Networks operating segment.
ETA Devices, Inc.	ETA Devices is a United States-based start-up specializing in power amplifier efficiency solutions for base stations, access points and devices. The Group acquired 100% ownership interest on October 4, 2016. Goodwill was allocated to Mobile Networks operating segment.

Notes to consolidated financial statements continued

Information on the Alcatel Lucent acquisition is presented below. All other acquisitions completed by the Group in 2017 and 2016 are individually immaterial to the consolidated financial statements. Goodwill arising from these acquisitions is attributable to future derivations of the acquired technology, future customers, synergies and assembled workforce, and was allocated to cash-generating units or groups of cash-generating units expected to benefit from the synergies of the combination. Refer to Note 16, Impairment. The majority of the goodwill acquired from these acquisitions is not expected to be deductible for tax purposes. The Group also recognised intangible assets from these acquisitions related to acquired customer relationships and technology assets. As of each respective acquisition date, the total consideration paid, aggregate fair values of intangible assets, other net assets acquired and resulting goodwill for the individually immaterial acquisitions are as follows:

EURm	2017	2016
Other intangible assets	169	70
Other net assets	67	16
Total identifiable net assets	236	86
Goodwill	162	274
Total purchase consideration	398	360

Alcatel Lucent business combination

Acquisition of Alcatel Lucent Securities

On April 15, 2015, the Group and Alcatel Lucent announced their intention to combine through a public exchange offer ("exchange offer") in France and the United States. The Group obtained control of Alcatel Lucent on January 4, 2016 when the interim results of the successful initial exchange offer were announced by the French stock market authority, Autorité des Marchés Financiers ("AMF"). On January 14, 2016, as required by the AMF General Regulation, the Group reopened its exchange offer in France and the United States for the outstanding Alcatel Lucent ordinary shares, Alcatel Lucent American Depository Shares ("ALU ADS") and OCEANE convertible bonds (the "OCEANEs", collectively "Alcatel Lucent Securities") not tendered during the initial exchange offer period. The reopened exchange offer closed on February 3, 2016. The Group has determined that the initial and the reopened exchange offers are linked transactions that are considered together as a single arrangement, given that the reopened exchange offer is required by the AMF General Regulation and is based on the same terms and conditions as the initial exchange offer. Following the initial and reopened exchange offers, the Group held 90.34% of the share capital, and at least 90.25% of the voting rights of Alcatel Lucent.

Subsequent to the exchange offers, a series of transactions were carried out to acquire the remaining outstanding equity interests in Alcatel Lucent. As a result, the Group held 95.32% of the share capital and 95.25% of the voting rights in Alcatel Lucent, corresponding to 95.15% of the Alcatel Lucent shares on a fully diluted basis.

On September 6, 2016, the Group and Alcatel Lucent filed a joint offer document with the AMF relating to the proposed Public Buy-Out Offer, in cash, for the remaining Alcatel Lucent shares and OCEANEs (the "Public Buy-Out Offer"). The Public Buy-Out Offer was followed by a Squeeze-Out in accordance with the AMF General Regulation, in cash, for the Shares and OCEANEs not tendered into the Public Buy-Out Offer (the "Squeeze-Out", and together with the Public Buy-Out Offer, the "Offer"). In the Squeeze-Out, the Alcatel Lucent shares and OCEANEs not tendered into the Public Buy-Out Offer were transferred to the Group for the same consideration provided in the Public Buy-Out Offer, net of all costs. The remaining outstanding Alcatel Lucent stock options and performance shares were modified to settle in cash or Nokia shares.

The Public Buy-Out Offer period ended on October 31, 2016, and the Squeeze-Out was implemented on November 2, 2016, in accordance with the AMF General Regulation. On November 2, 2016, the Group held 100% of the share capital and voting rights of Alcatel Lucent.

Alcatel Lucent ordinary shares and ALU ADSs acquired subsequent to the exchange offer, including through the Public Buy-Out Offer and the Squeeze-Out, were accounted for as equity transactions with the remaining non-controlling interests in Alcatel Lucent. As such, any new Nokia shares or cash consideration paid for these instruments were recorded directly in equity against the carrying amount of non-controlling interests. The acquisition of OCEANEs subsequent to the transactions linked to the exchange offer was treated both as extinguishment of debt and equity transaction with remaining non-controlling interests in Alcatel Lucent, with the redemption consideration allocated to the liability and equity components.

Purchase consideration

The purchase consideration comprises the fair value of the consideration paid for the Alcatel Lucent Securities obtained through the exchange offer, and the fair value of the portion of Alcatel Lucent stock options and performance shares attributable to pre-combination services that were settled with Nokia shares. The fair value of the purchase consideration is based on the closing price of Nokia share of EUR 6.58 on Nasdaq Helsinki on January 4, 2016, and the exchange offer ratio of 0.55 Nokia share for every Alcatel Lucent share.

Fair value of the purchase consideration:

	EURm
Alcatel Lucent shares or ADSs	10 046
OCEANE convertible bonds	1 570
Consideration attributable to the vested portion of replacement share-based payment awards	6
Total	11 622

Purchase accounting

The fair values of the acquired identifiable assets and liabilities of Alcatel Lucent, as of the date of acquisition:

	EURm
Non-current assets	
Intangible assets	5 711
Property, plant and equipment	1 412
Deferred tax assets	2 328
Defined benefit pension assets	3 201
Other non-current assets	687
Total non-current assets	13 339
Current assets	
Inventories	1 992
Accounts receivable	2 813
Other current assets	1 360
Cash and cash equivalents	6 198
Total current assets	12 363
Total assets acquired	25 702
Non-current liabilities	
Long-term interest-bearing liabilities	4 037
Deferred tax liabilities	425
Defined benefit pension and post-retirement liabilities	4 464
Other non-current liabilities	601
Total non-current liabilities	9 527
Current liabilities	
Current borrowings and other financial liabilities	671
Other current liabilities	7 252
Total current liabilities	7 923
Total liabilities assumed	17 450
Net identifiable assets acquired	8 252
Attributable to:	
Equity holders of the parent	6 538
Non-controlling interests	1 714
Goodwill	5 084
Purchase consideration	11 622

Goodwill arising from the acquisition of Alcatel Lucent amounted to EUR 5 084 million and was primarily attributable to synergies arising from the significant economies of scale and scope that the Group is expecting to benefit from as part of the new combined entity. Refer to Note 16, Impairment for allocation of goodwill.

The components of non-controlling interests in Alcatel Lucent that are present ownership interests and entitle their holders to a proportionate share of the entity's net assets in the event of liquidation, were measured based on the non-controlling interests' proportionate share of the fair value of the acquired identifiable net assets. As such, goodwill excludes the goodwill related to the non-controlling interests. The equity component of the remaining outstanding OCEANEs, as well as the outstanding stock options and performance shares that were to be settled in Alcatel Lucent ordinary shares were measured at fair value within non-controlling interests.

Notes to consolidated financial statements continued

Fair values of identifiable intangible assets acquired:

	Fair value EURm	Amortization period years
Customer relationships	2 902	10
Technologies	2 170	4
Other	639	8
Total	5 711	

Acquisition-related costs not directly attributable to the issue of shares, recorded in selling, general and administrative expenses and other expenses in the consolidated income statement, and in operating cash flows in the consolidated statement of cash flows, amounted to EUR 125 million, of which EUR 93 million was recognized in 2016.

From January 4 to December 31, 2016 the acquired business contributed revenues of EUR 12 151 million and a net loss of EUR 508 million to the consolidated income statement. These amounts were calculated using the subsidiary's results, adjusting them for accounting policy alignments.

6. Disposals treated as Discontinued operations

Results of Discontinued operations⁽¹⁾

EURm	2017	2016	2015
Net sales	–	–	1 075
Cost of sales	–	–	(244)
Gross profit	–	–	831
Research and development expenses	–	–	(498)
Selling, general and administrative expenses	(7)	(11)	(213)
Other income and expenses	(15)	(4)	(23)
Operating (loss)/profit	(22)	(15)	97
Financial income and expenses	6	14	(9)
(Loss)/profit before tax	(16)	(1)	88
Income tax (expense)/benefit	(10)	(28)	8
(Loss)/profit for the year, ordinary activities	(26)	(29)	96
Gain on the sale, net of tax ⁽²⁾	5	14	1 178
(Loss)/profit for the year	(21)	(15)	1 274

(1) Results of Discontinued operations include the results of the HERE business and the D&S business, the disposals of which were completed on December 4, 2015 and April 25, 2014, respectively.

In 2013, the tax authorities in India commenced an investigation into withholding tax in respect of payments by Nokia India Private Limited to Nokia Corporation for the supply of operating software.

(2) In 2017, an additional gain on the sale of EUR 5 million was recognized related to the HERE business due to a tax indemnification. In 2016, an additional gain on the sale of EUR 7 million was recognized related to the HERE business as a result of the final settlement of the purchase price, and EUR 7 million related to the D&S business due to a tax indemnification.

Cash flows from Discontinued operations⁽¹⁾

EURm	2017	2016	2015
Net cash (used in)/from operating activities	(14)	(10)	6
Net cash (used in)/from investing activities	(16)	3	2 553
Net cash flow for the period	(30)	(7)	2 559

(1) Cash flows from Discontinued operations include the cash flows from the HERE business and the D&S business, the disposals of which were completed on December 4, 2015 and April 25, 2014, respectively.

Sale of the HERE Business

On August 3, 2015 the Group announced the Sale of the HERE Business to a consortium of leading automotive companies, comprising AUDI AG, BMW Group and Daimler AG. Subsequent to the announcement, the Group has presented the HERE business as Discontinued operations. The HERE business was previously an operating and reportable segment and its business focused on the development of location intelligence, location-based services and local commerce. The Sale of the HERE Business was completed on December 4, 2015.

Gain on the Sale of the HERE Business

	EURm
Fair value of sales proceeds less costs to sell ⁽¹⁾	2 551
Net assets disposed of	(2 667)
Total	(116)
Foreign exchange differences reclassified from other comprehensive income ⁽²⁾	1 174
Gain before tax	1 058
Income tax benefit ⁽³⁾	120
Total gain	1 178

(1) Comprises purchase price of EUR 2 800 million, offset by adjustments for certain defined liabilities of EUR 249 million.

(2) Includes cumulative translation differences for the duration of ownership from translation of mainly U.S. dollar denominated balances into euro.

(3) The disposal was largely tax exempt, the tax benefit is due to hedging-related tax deductible losses.

Assets and liabilities, HERE business

Assets and liabilities disposed of as of December 4, 2015:

	December 4, 2015
Goodwill and other intangible assets	2 722
Property, plant and equipment	115
Deferred tax assets and non-current assets	151
Inventories	14
Trade and other receivables	174
Prepaid expenses and other current assets	87
Cash and cash equivalents and current available-for-sale investments, liquid assets	56
Total assets	3 319
Deferred tax liabilities and other liabilities	286
Trade and other payables	55
Deferred income and accrued expenses	306
Provisions	5
Total liabilities	652
Net assets disposed of	2 667

7. Revenue recognition

EURm	2017	2016	2015
Continuing operations			
Revenue from sale of products and licensing	14 216	14 543	7 080
Revenue from services ⁽¹⁾	8 150	8 166	5 421
Contract revenue recognized under percentage of completion accounting ⁽²⁾	781	932	59
Total	23 147	23 641	12 560

(1) Excludes services performed as part of contracts under percentage of completion accounting.

(2) In 2017 and 2016, contract revenue includes submarine projects, which account for the majority of the revenue.

Revenue recognition-related positions for construction contracts in progress as of December 31:

EURm	2017		2016	
	Assets	Liabilities	Assets	Liabilities
Contract revenues recorded prior to billings ⁽¹⁾	132		129	
Billings in excess of costs incurred		151		164
Work in progress on construction contracts	28		57	
Advances received		45		113
Retentions	—		1	

(1) Contract revenues recorded prior to billings in 2016 have been revised to include non-invoiced receivables from submarine projects.

Work in progress is included in inventories, other assets are included in accounts receivable, and liabilities are included in accrued expenses in the consolidated statement of financial position.

The aggregate amount of costs incurred and profits recognized, net of recognized losses, for construction contracts in progress since inception are EUR 1 179 million as of December 31, 2017 (EUR 970 million in 2016).

Notes to consolidated financial statements continued

8. Expenses by nature

EURm	2017	2016	2015
Continuing operations			
Personnel expenses (Note 9)	7 845	7 814	3 738
Cost of material	7 776	7 260	2 907
Depreciation and amortization (Notes 14, 15)	1 591	1 594	286
Rental expenses	339	344	164
Impairment charges	210	17	11
Other	5 733	7 829	3 993
Total operating expenses	23 494	24 858	11 099

Operating expenses include government grant income and R&D tax credits of EUR 140 million (EUR 126 million in 2016 and EUR 20 million in 2015) that have been recognized in the consolidated income statement as a deduction against research and development expenses.

9. Personnel expenses

EURm	2017	2016	2015
Continuing operations			
Salaries and wages	6 456	6 275	3 075
Share-based payment expense ⁽¹⁾	99	130	67
Pension and other post-employment benefit expense, net ⁽²⁾	445	458	223
Other social expenses	845	951	373
Total	7 845	7 814	3 738

(1) Includes EUR 97 million for equity-settled awards (EUR 119 million in 2016 and EUR 43 million in 2015).

(2) Includes costs related to defined contribution plans of EUR 231 million (EUR 236 million in 2016 and EUR 172 million in 2015) and costs related to defined benefit plans of EUR 214 million (EUR 222 million in 2016 and EUR 51 million in 2015). Refer to Note 27, Pensions and other post-employment benefits.

The average number of employees is 101 731 (102 687 in 2016 and 56 690 in 2015).

10. Other income and expenses

EURm	2017	2016	2015
Continuing operations			
Other income			
Foreign exchange gain on hedging forecasted sales and purchases, net	93	–	–
Pension curtailment income and amendment income	38	5	–
Realized gains from unlisted venture funds	51	13	144
Interest income from customer receivables and overdue payments	25	29	6
Profit on sale of property, plant and equipment	19	–	8
Expiration of stock option liability	18	–	–
VAT and other indirect tax refunds and social security credits	–	19	17
Subsidies and government grants	2	11	4
Other	117	40	57
Total	363	117	236
Other expenses			
Restructuring, cost reduction and associated charges	(568)	(759)	(120)
Impairment charges	(210)	(17)	(11)
Pension curtailment expenses	(41)	(7)	–
Expenses related to sale of receivables transactions	(37)	(42)	(21)
Valuation allowances for doubtful accounts and accounts receivable write-offs	(24)	(116)	24
Loss on sale of property, plant and equipment	(23)	(3)	(5)
Losses and expenses related to unlisted venture funds	(6)	(4)	(47)
Foreign exchange loss on hedging forecasted sales and purchases, net	–	(54)	(83)
Other	(46)	25	(21)
Total	(955)	(977)	(284)

11. Financial income and expenses

EURm	2017	2016	2015
Continuing operations			
Interest income on investments and loans receivable	35	84	31
Net interest expense on derivatives not under hedge accounting	–	(18)	(4)
Interest expense on financial liabilities carried at amortized cost ⁽¹⁾	(472)	(234)	(135)
Net interest expense on defined benefit pensions (Note 27)	(37)	(65)	(9)
Net realized (losses)/gains on disposal of fixed income available-for-sale financial investments ⁽²⁾	(33)	15	2
Net fair value (losses)/gains on investments at fair value through profit and loss	–	(18)	(2)
Net gains/(losses) on other derivatives designated at fair value through profit and loss	–	21	(5)
Net fair value gains on hedged items under fair value hedge accounting	42	11	7
Net fair value losses on hedging instruments under fair value hedge accounting	(23)	(15)	(12)
Net foreign exchange losses	(157)	(9)	(76)
Other financial income ⁽³⁾	172	85	31
Other financial expenses ⁽⁴⁾	(64)	(144)	(14)
Total	(537)	(287)	(186)

(1) In 2017, interest expense includes one-time charges of EUR 220 million related to the Group's tender offer to purchase USD 300 million 6.50% notes due January 15, 2028, USD 1 360 million 6.45% notes due March 15, 2029, EUR 500 million 6.75% notes due February 4, 2019 and USD 1 000 million 5.375% notes due May 15, 2019 as well as an interest expense of EUR 69 million related to a change in uncertain tax positions. In 2016, interest expense included one-time charges of EUR 41 million, primarily related to the redemption of Nokia of America Corporation. USD 650 million 4.625% notes due July 2017, USD 500 million 8.875% notes due January 2020 and USD 700 million 6.750% notes due November 2020.

(2) In 2017, includes a one-time charge of EUR 32 million related to the sale of certain financial assets.

(3) In 2017, includes distributions of EUR 80 million (EUR 66 million in 2016 and EUR 25 million in 2015) from private venture funds held as non-current available-for-sale investments as well as income of EUR 64 million due to a change in the fair value of the financial liability related to Nokia Shanghai Bell. Refer to Note 33, Significant partly-owned subsidiaries.

(4) In 2017, includes impairments of EUR 34 million (EUR 108 million in 2016) related to private venture funds held as non-current available-for-sale investments. Refer to Note 16, Impairment.

12. Income taxes

Components of the income tax (expense)/benefit

EURm	2017	2016	2015
Continuing operations			
Current tax	(261)	(534)	(258)
Deferred tax	(666)	991	(88)
Total	(927)	457	(346)

Income tax reconciliation

Reconciliation of the difference between income tax computed at the statutory rate in Finland of 20% and income tax recognized in the consolidated income statement:

EURm	2017	2016	2015
Income tax benefit/(expense) at statutory rate	102	274	(308)
Permanent differences	85	31	16
Tax impact on operating model changes ⁽¹⁾	(245)	439	–
Non-creditable withholding taxes	(29)	(42)	(17)
Income taxes for prior years ⁽²⁾	(132)	3	6
Effect of different tax rates of subsidiaries operating in other jurisdictions	178	88	(50)
Effect of deferred tax assets not recognized ⁽³⁾	(164)	(318)	(35)
Benefit arising from previously unrecognized deferred tax assets	56	19	38
Net (increase)/decrease in uncertain tax positions	–	(20)	4
Change in income tax rates ⁽⁴⁾	(738)	3	–
Income taxes on undistributed earnings	(42)	(23)	(7)
Other	2	3	7
Total	(927)	457	(346)

(1) In 2017, the Group continued to integrate former Nokia and Alcatel Lucent operating models, the Group transferred certain intellectual property between its operations in Finland and in the United States, recording a tax expense of EUR 245 million. These transactions reduced the deferred tax assets in the United States and increased the deferred tax assets in Finland. In 2016, following the completion of the Squeeze-Out of the remaining Alcatel Lucent Securities, the Group launched actions to integrate the former Alcatel Lucent and Nokia operating models. In connection with these integration activities, the Group transferred certain intellectual property to its operations in the United States, recording a tax benefit and additional deferred tax assets of EUR 348 million. In addition, the Group elected to treat the acquisition of Alcatel Lucent's operations in the United States as an asset purchase for United States tax purposes. The impact of this election was to utilize or forfeit existing deferred tax assets and record new deferred tax assets with a longer amortization period than the life of those forfeited assets. As a result of this, EUR 91 million additional deferred tax assets were recorded in 2016.

(2) In 2017, the Group recorded a EUR 139 million tax expense related to an uncertain tax position in Germany. The matter relates to the disposal of the former Alcatel Lucent railway signaling business in 2006 to Thalès.

(3) In 2016, relates primarily to tax losses and temporary differences in France.

(4) In 2017, primarily resulting from the tax rate change in the United States. The United States federal income tax rate reduction caused a revaluation of the United States deferred tax assets and liabilities, resulting in the recognition of an additional tax provision of EUR 777 million.

Notes to consolidated financial statements continued

Income tax liabilities and assets include a net EUR 344 million liability (EUR 397 million in 2016) relating to uncertain tax positions with inherently uncertain timing of cash outflows.

Prior period income tax returns for certain Group companies are under examination by local tax authorities. The Group has on-going tax audits in various jurisdictions, including India, Finland and Canada. The Group's business and investments, especially in emerging market countries, may be subject to uncertainties, including unfavorable or unpredictable tax treatment. Management judgment and a degree of estimation are required in determining the tax expense or benefit. Even though management does not expect that any significant additional taxes in excess of those already provided for will arise as a result of these examinations, the outcome or actual cost of settlement may vary materially from estimates.

Deferred tax assets and liabilities

EURm	2017			2016		
	Deferred tax assets	Deferred tax liabilities	Net balance	Deferred tax assets	Deferred tax liabilities	Net balance
Tax losses carried forward and unused tax credits	1 019	–	1 019	1 428	–	1 428
Undistributed earnings	–	(106)	(106)	–	(67)	(67)
Intangible assets and property, plant and equipment	2 851	(353)	2 498	3 713	(501)	3 212
Defined benefit pension assets	13	(940)	(927)	3	(1 334)	(1 331)
Other non-current assets	85	(6)	79	19	(52)	(33)
Inventories	157	(1)	156	154	(3)	151
Other current assets	241	(7)	234	81	(66)	15
Defined benefit pension and other post-retirement liabilities	933	(60)	873	1 478	(29)	1 449
Other non-current liabilities	34	–	34	12	(2)	10
Provisions	240	(55)	185	249	(6)	243
Other current liabilities	223	(78)	145	307	(56)	251
Other temporary differences	12	(33)	(21)	16	(46)	(30)
Total before netting	5 808	(1 639)	4 169	7 460	(2 162)	5 298
Netting of deferred tax assets and liabilities	(1 226)	1 226	–	(1 759)	1 759	–
Total after netting	4 582	(413)	4 169	5 701	(403)	5 298

Movements in the net deferred tax balance during the year:

EURm	2017		2016	
	As of January 1	Change	As of January 1	Change
As of January 1			5 298	2 573
Recognized in income statement, Continuing Operations		(666)	991	991
Recognized in income statement, Discontinued Operations		2	(2)	(2)
Recognized in other comprehensive income		(150)	(255)	(255)
Recognized in equity		(7)	(5)	(5)
Acquisitions through business combinations and disposals		(29)	1 914	1 914
Translation differences		(279)	82	82
As of December 31			4 169	5 298

Amount of temporary differences, tax losses carried forward and tax credits for which no deferred tax asset was recognized due to uncertainty of utilization:

EURm	2017	2016
Temporary differences	1 879	2 214
Tax losses carried forward	18 449	18 706
Tax credits	37	32
Total	20 365	20 952

The majority of the unrecognized temporary differences and tax losses relate to France. Based on the pattern of losses in the past years and in the absence of convincing other evidence of sufficient taxable profit in the future years, it is uncertain whether these deferred tax assets can be utilized in the foreseeable future. A significant portion of the French unrecognized deferred tax assets are indefinite in nature and available against future French tax liabilities, subject to a limitation of 50% of annual taxable profits.

The deferred tax assets are recognized to the extent it is probable that taxable profit will be available against which the tax losses, tax credits and deductible temporary difference can be utilized in the relevant jurisdictions. The majority of the Group's recognized deferred tax assets relate to unused tax losses, tax credits and deductible temporary differences in Finland of EUR 2.5 billion (EUR 2.2 billion in 2016) and the United States of EUR 1.0 billion (EUR 2.5 billion in 2016). Based on the recent years' profitability in Finland and the United States, as well as the latest forecasts of future financial performance, the Group has been able to establish a pattern of sufficient tax profitability in Finland and the United States to conclude that it is probable that it will be able to utilize the tax losses, tax credits and deductible temporary differences in the foreseeable future.

Expiry of tax losses carried forward and unused tax credits:

EURm	2017			2016		
	Recognized	Unrecognized	Total	Recognized	Unrecognized	Total
Tax losses carried forward						
Within 10 years	1 338	1 491	2 828	1 853	1 681	3 534
Thereafter	135	25	160	79	17	96
No expiry	1 674	16 933	18 608	1 878	17 008	18 886
Total	3 147	18 449	21 596	3 810	18 706	22 516
Tax credits						
Within 10 years	367	21	388	395	23	418
Thereafter	111	5	116	94	–	94
No expiry	35	11	46	66	9	75
Total	513	37	550	555	32	587

The Group has undistributed earnings of EUR 1 578 million (EUR 1 074 million in 2016) for which a deferred tax liability has not been recognized as these earnings will not be distributed in the foreseeable future.

Notes to consolidated financial statements continued

13. Earnings per share

	2017 EURm	2016 EURm	2015 EURm
Basic			
(Loss)/profit for the year attributable to equity holders of the parent			
Continuing operations	(1 473)	(751)	1 192
Discontinued operations	(21)	(15)	1 274
Total	(1 494)	(766)	2 466
Diluted			
Effect of profit adjustments			
Profit adjustment relating to Alcatel Lucent American Depository Shares	–	(8)	–
Elimination of interest expense, net of tax, on convertible bonds, where dilutive	–	–	36
Total effect of profit adjustments	–	(8)	36
(Loss)/profit attributable to equity holders of the parent adjusted for the effect of dilution			
Continuing operations	(1 473)	(759)	1 228
Discontinued operations	(21)	(15)	1 274
Total	(1 494)	(774)	2 502
	000s shares	000s shares	000s shares
Basic			
Weighted average number of shares in issue	5 651 814	5 732 371	3 670 934
Diluted			
Effect of dilutive shares			
Effect of dilutive equity-based share incentive programs			
Restricted shares and other	–	–	4 253
Performance shares	–	–	3 179
Stock options	–	–	1 971
Total effect of dilutive equity-based share incentive programs	–	–	9 403
Effect of other dilutive shares			
Alcatel Lucent American Depository Shares	–	8 746	–
Assumed conversion of convertible bonds	–	–	268 975
Total effect of other dilutive shares	–	8 746	268 975
Total effect of dilutive shares	–	8 746	278 378
Adjusted weighted average number of shares	5 651 814	5 741 117	3 949 312
Earnings per share attributable to equity holders of the parent	EUR	EUR	EUR
Basic earnings per share			
Continuing operations	(0.26)	(0.13)	0.32
Discontinued operations	0.00	0.00	0.35
(Loss)/profit for the year	(0.26)	(0.13)	0.67
Diluted earnings per share			
Continuing operations	(0.26)	(0.13)	0.31
Discontinued operations	0.00	0.00	0.32
(Loss)/profit for the year	(0.26)	(0.13)	0.63

Basic earnings per share is calculated by dividing the profit/loss attributable to equity holders of the parent by the weighted average number of shares outstanding during the year, excluding treasury shares. Diluted earnings per share is calculated by adjusting the profit/loss attributable to equity holders of the parent to eliminate the interest expense of dilutive convertible bonds and other equity instruments; and by adjusting the weighted average number of shares outstanding with the dilutive effect of stock options, restricted shares and performance shares outstanding during the period as well as the assumed conversion of convertible bonds and other equity instruments.

5 million restricted shares are outstanding (5 million in 2016 and none in 2015) that could potentially have a dilutive impact in the future but are excluded from the calculation as they are determined to be anti-dilutive.

14 million performance shares are outstanding (10 million in 2016 and none in 2015) that could potentially have a dilutive impact in the future but are excluded from the calculation as they are determined to be anti-dilutive. In addition, 3 million performance shares (4 million in 2016 and 2015) have been excluded from the calculation of diluted shares as contingency conditions have not been met.

Stock options equivalent to fewer than 1 million shares (fewer than 1 million shares in 2016 and 2015) have been excluded from the calculation of diluted shares as they are determined to be anti-dilutive.

In 2015, the Group exercised its option to redeem the EUR 750 million convertible bonds at their original amount plus accrued interest. Virtually all bondholders elected to convert their convertible bonds into Nokia shares before redemption. 269 million potential shares have been included in the calculation of diluted shares to reflect the part-year effect of these convertible bonds.

In 2016, the Group acquired 107 775 949 Alcatel Lucent shares from JPMorgan Chase Bank N.A., as depositary, pursuant to the share purchase agreement announced on March 17, 2016. These shares represent Alcatel Lucent shares that remained in the Alcatel Lucent American Depository Receipts program after the cancellation period and following the program's termination on April 25, 2016. On May 10, 2016 the Group registered with the Finnish Trade Register 59 276 772 new Nokia shares issued to the Alcatel depositary in settlement of the transaction. 9 million potential shares have been included in the calculation of diluted shares from March 16, 2016 to reflect the part-year effect of these shares, and were included in the calculation as dilutive shares until the registration date.

14. Intangible assets

EURm	Goodwill	Other	Total
Acquisition cost as of January 1, 2016	1 145	3 137	4 282
Translation differences	129	424	553
Additions	–	62	62
Acquisitions through business combinations	5 358	5 781	11 139
Disposals and retirements ⁽¹⁾	–	(22)	(22)
Acquisition cost as of December 31, 2016	6 632	9 382	16 014
Accumulated amortization and impairment charges as of January 1, 2016	(908)	(2 814)	(3 722)
Translation differences	–	(325)	(325)
Disposals and retirements ⁽¹⁾	–	9	9
Amortization	–	(1 016)	(1 016)
Accumulated amortization and impairment charges as of December 31, 2016	(908)	(4 146)	(5 054)
Net book value as of January 1, 2016	237	323	560
Net book value as of December 31, 2016	5 724	5 236	10 960
Acquisition cost as of January 1, 2017	6 632	9 382	16 014
Translation differences	(497)	(521)	(1 018)
Additions	–	40	40
Acquisitions through business combinations	162	169	331
Disposals and retirements	–	(73)	(73)
Acquisition cost as of December 31, 2017	6 297	8 997	15 294
Accumulated amortization and impairment charges as of January 1, 2017	(908)	(4 146)	(5 054)
Translation differences	–	131	131
Impairment charges	(141)	(33)	(174)
Disposals and retirements	–	72	72
Amortization	–	(1 050)	(1 050)
Accumulated amortization and impairment charges as of December 31, 2017	(1 049)	(5 026)	(6 075)
Net book value as of January 1, 2017	5 724	5 236	10 960
Net book value as of December 31, 2017	5 248	3 971	9 219

(1) Includes impairment charges of EUR 9 million in 2016. Refer to Note 16, Impairment.

Net book value of other intangible assets by type of asset:

EURm	2017	2016
Customer relationships	2 306	2 765
Technologies	1 107	1 786
Tradenames and trademarks	233	308
Other	325	377
Total	3 971	5 236

The remaining amortization periods are approximately one to nine years for customer relationships, one to five years for developed technology, two to six years for tradenames and trademarks and one to six years for other.

Notes to consolidated financial statements continued

15. Property, plant and equipment

EURm	Buildings and constructions	Machinery and equipment	Other	Assets under construction	Total
Acquisition cost as of January 1, 2016	427	1 746	41	15	2 229
Transfers to assets held for sale	(47)	–	–	–	(47)
Translation differences	1	(15)	2	–	(12)
Additions	65	361	3	87	516
Acquisitions through business combinations	587	674	68	84	1 413
Reclassifications	20	75	2	(97)	–
Disposals and retirements	(54)	(148)	(2)	–	(204)
Acquisition cost as of December 31, 2016	999	2 693	114	89	3 895
Accumulated depreciation as of January 1, 2016	(174)	(1 351)	(9)	–	(1 534)
Transfers to assets held for sale	5	–	–	–	5
Translation differences	1	13	–	–	14
Disposals and retirements	46	133	–	–	179
Depreciation	(94)	(480)	(4)	–	(578)
Accumulated depreciation as of December 31, 2016	(216)	(1 685)	(13)	–	(1 914)
Net book value as of January 1, 2016	253	395	32	15	695
Net book value at December 31, 2016	783	1 008	101	89	1 981
Acquisition cost as of January 1, 2017	999	2 693	114	89	3 895
Translation differences	(52)	(105)	(9)	(5)	(171)
Additions	115	370	3	89	577
Acquisitions through business combinations	1	1	–	–	2
Reclassifications	42	43	–	(85)	–
Disposals and retirements	(40)	(353)	(2)	(2)	(397)
Acquisition cost as of December 31, 2017	1 065	2 649	106	86	3 906
Accumulated depreciation as of January 1, 2017	(216)	(1 685)	(13)	–	(1 914)
Translation differences	20	67	1	–	88
Impairment charges	–	(25)	–	–	(25)
Disposals and retirements	22	315	2	–	339
Depreciation	(97)	(440)	(4)	–	(541)
Accumulated depreciation as of December 31, 2017	(271)	(1 768)	(14)	–	(2 053)
Net book value as of January 1, 2017	783	1 008	101	89	1 981
Net book value as of December 31, 2017	794	881	92	86	1 853

In 2014, the tax authorities in India placed a lien which prohibited the Group from transferring the mobile devices-related facility in Chennai to Microsoft as part of the Sale of the D&S Business.

16. Impairment

Goodwill

Based on the current operational and reporting structure (refer to Note 4, Segment information), the Group allocated goodwill to the operating segments within Nokia's Networks business and to the Digital Health cash generating unit within Nokia Technologies corresponding to groups of cash generating units and cash generating unit ("CGU"), respectively.

Allocation of goodwill

The following table presents the allocation of goodwill to groups of CGUs and the CGU as of the annual impairment testing date October 1:

EURm	2017	2016
Mobile Networks ⁽¹⁾	950	2 298
Fixed Networks	812	896
Global Services ⁽¹⁾	1 288	–
IP/Optical Networks	1 847	1 970
Nokia Software	405	240
Digital Health (Nokia Technologies)	–	141

(1) In 2017, the Group's former Mobile Networks operating segment was separated into two distinct operating segments: Mobile Networks and Global Services (refer to Note 4., Segment Information). The affected goodwill was allocated based on the relative fair value of the Group's Mobile Networks and Global Services operating segments.

Recoverable amounts

The recoverable amounts of the groups of CGUs and the CGU were based on fair value less costs of disposal that was determined using a level 3 fair value measurement based on a discounted cash flow calculation. The cash flow projections used in calculating the recoverable amounts were based on financial plans approved by management covering an explicit forecast period of three years.

Seven additional years of cash flow projections subsequent to the explicit forecast period reflect a gradual progression towards the steady state cash flow projections modeled in the terminal year. The terminal growth rate assumptions reflect long-term average growth rates for the industries and economies in which the groups of CGUs and the CGU operate. The discount rates reflect current assessments of the time value of money and relevant market risk premiums reflecting risks and uncertainties for which the future cash flow estimates have not been adjusted. Other key variables in future cash flow projections include assumptions on estimated sales growth, gross margin and operating margin. All cash flow projections are consistent with market participant assumptions.

The results of the impairment testing indicate adequate headroom for each group of CGUs. The key assumptions applied in the impairment testing analysis for the groups of CGUs and the CGU as of the annual impairment testing date October 1:

Key assumption %	2017	2016	2017	2016
	Terminal growth rate	Post-tax discount rate	Terminal growth rate	Post-tax discount rate
Mobile Networks	1.1	0.9	8.9	9.2
Fixed Networks	1.1	0.9	8.6	8.6
Global Services	1.0	–	8.9	–
IP/Optical Networks	1.3	1.4	9.3	8.9
Nokia Software	1.7	1.8	8.2	9.0
Digital Health (Nokia Technologies)	–	2.1	–	12.7

Impairment charges by asset category

EURm	2017	2016	2015
Goodwill	141	–	–
Other intangible assets	33	9	–
Property, plant and equipment	25	–	–
Available-for-sale investments	45	116	11
Total	244	125	11

Notes to consolidated financial statements continued

Goodwill

In 2017, as a result of challenging business conditions, the Group recorded an impairment charge of EUR 141 million on its Digital Health CGU. The impairment charge was allocated in its entirety to reduce the goodwill carrying amount of the Digital Health CGU to zero.

Other intangible assets

In 2017, the Group recognized an impairment charge within other operating expenses of EUR 33 million, mainly related to certain technology-based assets acquired with Eden Rock LLC. The results of Eden Rock LLC. are reported within the IP Networks and Applications reportable segment.

In 2016, the Group recognized an impairment charge within other operating expenses of EUR 9 million following the discontinuation of certain technology-related assets acquired with Mesaplexx Pty Ltd. The results of Mesaplexx Pty Ltd. are reported within the Ultra Broadband Networks reportable segment.

Property, plant and equipment

In relation to its product portfolio strategy, the Group recognized an impairment charge within other operating expenses of EUR 25 million for excess machinery and equipment.

Available-for-sale investments

The Group recognized an impairment charge of EUR 45 million (EUR 116 million in 2016 and EUR 11 million in 2015) primarily related to the performance of certain private funds investing in IPR that are included in non-current available-for-sale equity investments at cost less impairment. These charges are recorded in other expenses and financial income and expenses.

17. Inventories

EURm	2017	2016
Raw materials, supplies and other	271	268
Work in progress	1 166	1 159
Finished goods	1 209	1 079
Total	2 646	2 506

The cost of inventories recognized as an expense during the year and included in the cost of sales is EUR 7 803 million (EUR 7 636 million in 2016 and EUR 3 132 million in 2015).

Movements in allowances for excess and obsolete inventory for the years ended December 31:

EURm	2017	2016	2015
As of January 1	456	195	204
Charged to income statement	100	354	71
Deductions ⁽¹⁾	(124)	(93)	(80)
As of December 31	432	456	195

(1) Deductions include utilization and releases of allowances.

18. Allowances for doubtful accounts

Movements in allowances for doubtful accounts for the years ended December 31:

EURm	2017	2016	2015
As of January 1	168	62	103
Transfer to Discontinued operations	–	–	(7)
Charged to income statement	61	126	13
Deductions ⁽¹⁾	(37)	(20)	(47)
As of December 31	192	168	62

(1) Deductions include utilization and releases of allowances.

19. Prepaid expenses and accrued income

Non-current assets

EURm	2017	2016
R&D tax credits and other indirect tax receivables	174	254
Deposits	77	-
Other	117	74
Total	368	328

Current assets

EURm	2017	2016
Social security, R&D tax credits, VAT and other indirect taxes	552	560
Deposits	28	118
Accrued revenue	232	101
Divestment-related receivables	79	90
Other	368	427
Total	1 259	1 296

20. Shares of the Parent Company

Shares and share capital

Nokia Corporation ("Parent Company") has one class of shares. Each share entitles the holder to one vote at General Meetings. As of December 31, 2017, the share capital of Nokia Corporation is EUR 245 896 461.96 and the total number of shares issued is 5 839 404 303. As of December 31, 2017, the total number of shares includes 259 887 597 shares owned by Group companies representing 4.5% of share capital and total voting rights. Under the Nokia Articles of Association, Nokia Corporation does not have minimum or maximum share capital or share par value.

Authorizations

Authorization to issue shares and special rights entitling to shares

At the Extraordinary General Meeting held on December 2, 2015, the shareholders authorized the Board of Directors to issue, in deviation from the shareholders' pre-emptive right, a maximum of 2 100 million shares through one or more share issues. The authorization includes the right for the Board of Directors to resolve on all the terms and conditions of such share issuances. The authorization may be used to issue Parent Company shares to the holders of Alcatel Lucent shares, American Depository Shares and convertible bonds as well as to beneficiaries of Alcatel Lucent employee equity compensation arrangements for the purpose of implementing the transaction with Alcatel Lucent, including the consummation of the public exchange offers made to Alcatel Lucent shareholders as well as other transactions contemplated by the memorandum of understanding between the Group and Alcatel Lucent, and/or otherwise to effect the combination. The authorization is effective until December 2, 2020.

At the Annual General Meeting held on June 16, 2016, the shareholders authorized the Board of Directors to issue a maximum of 1 150 million shares through one or more issues of shares or special rights entitling to shares. The Board of Directors was authorized to issue either new shares or shares held by the Parent Company. The authorization included the right for the Board of Directors to resolve on all the terms and conditions of such share and special rights issuances, including issuance in deviation from the shareholders' pre-emptive rights. The authorization may be used to develop the Parent Company's capital structure, diversify the shareholder base, finance or carry out acquisitions or other arrangements, settle the Parent Company's equity-based incentive plans, or for other purposes resolved by the Board of Directors. The authorization that would have been effective until December 16, 2017 was terminated by a resolution of Annual General Meeting on May 23, 2017.

At the Annual General Meeting held on May 23, 2017, the shareholders authorized the Board of Directors to issue a maximum of 560 million shares through one or more issues of shares or special rights entitling to shares. The Board of Directors is authorized to issue either new shares or shares held by the Parent Company. The authorization included the right for the Board of Directors to resolve on all the terms and conditions of such share and special rights issuances, including issuance in deviation from the shareholders' pre-emptive rights. The authorization may be used to develop the Parent Company's capital structure, diversify the shareholder base, finance or carry out acquisitions or other arrangements, settle the Parent Company's equity-based incentive plans, or for other purposes resolved by the Board of Directors. The authorization is effective until November 23, 2018.

In 2017, under the authorization held by the Board of Directors, the Parent Company issued 415 750 new shares following the holders of stock options issued in 2011, 2012 and 2013 exercising their option rights.

In 2017, the Parent Company issued 2 933 541 new shares without consideration to the Parent Company to fulfil the company's obligation under the Nokia Equity Programs.

Notes to consolidated financial statements continued

In 2017, under the authorization held by the Board of Directors, the Parent Company issued 12 199 284 treasury shares to employees, including certain members of the Group Leadership Team, as settlement under equity-based incentive plans and the employee share purchase plan. The shares were issued without consideration and in accordance with the plan rules.

As of December 31, 2017, the Board of Directors had no other authorizations to issue shares, convertible bonds, warrants or stock options.

Other authorizations

At the Annual General Meeting held on June 16, 2016, the shareholders authorized the Board of Directors to repurchase a maximum of 575 million shares. The amount corresponds to less than 10% of the total number of Parent Company's shares. The shares may be repurchased in order to optimize the capital structure of the Parent Company. In addition, the shares may be repurchased in order to finance or carry out acquisitions or other arrangements, to settle the Parent Company's equity-based incentive plans or to be transferred for other purposes. The authorization that would have been effective until December 16, 2017 was terminated by a resolution of the Annual General Meeting on May 23, 2017.

At the Annual General Meeting held on May 23, 2017, the shareholders authorized the Board of Directors to repurchase a maximum of 560 million shares. The amount corresponds to less than 10% of the total number of Parent Company's shares. The shares may be repurchased in order to optimize the capital structure of the Company. In addition, shares may be repurchased in order to meet obligations arising from debt financial instruments that are exchangeable into equity instruments, to settle equity-based incentive plans for employees of the Group or of its associated companies, or to be transferred for other purposes such as financing or carrying out acquisitions. The authorization is effective until November 23, 2018.

Under the authorization held by the Board of Directors and in line with the capital structure optimization program, the Parent Company repurchased 153 601 462 shares in 2017 representing approximately 2.6% of share capital and total voting rights as of December 31, 2017. In 2016, the Parent Company had repurchased 54 296 182 shares. The price paid for the shares was based on the current market price of the Nokia share on the securities market at the time of the repurchase. On February 1, 2018 the Parent Company announced that the Board of Directors had decided to cancel 207 897 644 treasury shares repurchased under the capital structure optimization program. The cancellation of the shares does not have an impact on the Parent Company's share capital.

21. Fair value and other reserves

EURm	Translation differences	Pension remeasurements	Hedging reserve	Available-for-sale investments
As of January 1, 2015	1 099	(264)	2	284
Foreign exchange translation differences	672	–	–	–
Net investment hedging losses	(207)	–	–	–
Remeasurements of defined benefit plans	–	84	–	–
Net fair value (losses)/gains	–	–	(53)	225
Transfer to income statement	(1 268)	–	49	(131)
Disposal of businesses	–	8	–	–
Movement attributable to non-controlling interests	(4)	–	–	–
As of December 31, 2015	292	(172)	(2)	378
Foreign exchange translation differences	265	–	–	–
Net investment hedging losses	(83)	–	–	–
Remeasurements of defined benefit plans	–	343	–	–
Net fair value losses	–	–	(13)	(10)
Transfer to income statement	(14)	–	25	(63)
Acquisition on non-controlling interest	(15)	(2)	–	–
Movement attributable to non-controlling interests	38	4	–	–
As of December 31, 2016	483	173	10	305
Foreign exchange translation differences	(1 830)	–	–	–
Net investment hedging gains	352	–	–	–
Remeasurements of defined benefit plans	–	662	–	–
Net fair value gains	–	–	103	18
Transfer to income statement	12	–	(75)	(104)
Other increase/(decrease)	1	3	(1)	–
Movement attributable to non-controlling interests	50	–	–	–
As of December 31, 2017	(932)	838	37	219

Translation differences consist of translation differences arising from translation of foreign Group companies' assets and liabilities into euro, the presentation currency of the consolidated financial statements, as well as gains and losses related to hedging of net investments in foreign operations. On disposal of all or a part of a foreign Group company, the cumulative amount of translation differences and related accumulated changes in fair value of qualifying net investment hedges are recognized as income or expense on the consolidated income statement when the gain or loss on disposal is recognized. Refer to Note 2, Significant accounting policies.

The Group has defined benefit plans. Actuarial gains and losses arising from experience adjustments and changes in actuarial assumptions for these defined benefit plans are charged or credited to the pension remeasurements reserve. Refer to Note 2, Significant accounting policies and Note 27, Pensions and other post-employment benefits.

The Group applies hedge accounting on certain forward foreign exchange contracts that are designated as cash flow hedges. The change in fair value that reflects the change in spot exchange rates is deferred to the hedging reserve to the extent that the hedge is effective. Refer to Note 2, Significant accounting policies.

The Group invests a portion of cash needed to cover the projected cash needs of its ongoing business operations in highly liquid, interest-bearing investments and certain equity instruments. Changes in the fair value of these available-for-sale investments are recognized in the fair value and other reserves as part of other comprehensive income, with the exception of interest calculated using the effective interest method and foreign exchange gains and losses on current available-for-sale investments recognized directly in the consolidated income statement. Refer to Note 2, Significant accounting policies.

22. Other comprehensive income

EURm	2017			2016			2015		
	Gross	Tax	Net	Gross	Tax	Net	Gross	Tax	Net
Pension remeasurements									
Remeasurements of defined benefit plans	723	(58)	665	613	(269)	344	112	(28)	84
Net change during the year	723	(58)	665	613	(269)	344	112	(28)	84
Translation differences									
Exchange differences on translating foreign operations	(1 831)	1	(1 830)	265	–	265	673	–	673
Transfer to income statement	12	–	12	(14)	–	(14)	(1 727)	–	(1 727)
Net change during the year	(1 819)	1	(1 818)	251	–	251	(1 054)	–	(1 054)
Net investment hedging									
Net investment hedging gains/(losses)	440	(88)	352	(103)	20	(83)	(260)	53	(207)
Transfer to income statement	–	–	–	–	–	–	582	(123)	459
Net change during the year	440	(88)	352	(103)	20	(83)	322	(70)	252
Cash flow hedges									
Net fair value gains/(losses)	129	(26)	103	(16)	3	(13)	(66)	13	(53)
Transfer to income statement	(94)	19	(75)	30	(5)	25	61	(12)	49
Net change during the year	35	(7)	28	14	(2)	12	(5)	1	(4)
Available-for-sale investments									
Net fair value gains/(losses)	19	(1)	18	(9)	(1)	(10)	246	(21)	225
Transfer to income statement on impairment	14	(1)	13	25	(4)	21	11	–	11
Transfer to income statement on disposal	(121)	4	(117)	(91)	7	(84)	(144)	2	(142)
Net change during the year	(88)	2	(86)	(75)	2	(73)	113	(19)	94
Other (decrease)/ increase, net	(1)	–	(1)	(6)	–	(6)	2	–	2
Total	(710)	(150)	(860)	694	(249)	445	(510)	(116)	(626)

Notes to consolidated financial statements continued

23. Interest-bearing liabilities

Issuer/borrower	Instrument	Currency	Nominal (million)	Final maturity	Carrying amount EURm	
					2017	2016
Nokia Corporation	6.75% Senior Notes ⁽¹⁾	EUR	231	February 2019	241	527
Nokia Corporation	5.375% Senior Notes ⁽²⁾	USD	581	May 2019	487	961
Nokia Corporation	1.00% Senior Notes ⁽¹⁾	EUR	500	March 2021	498	–
Nokia Corporation	3.375% Senior Notes ⁽²⁾	USD	500	June 2022	406	–
Nokia Corporation	2.00% Senior Notes ⁽¹⁾	EUR	750	March 2024	744	–
Nokia Corporation	4.375% Senior Notes ⁽²⁾	USD	500	June 2027	404	–
Nokia of America Corporation	6.5% Senior Notes ⁽¹⁾⁽²⁾	USD	74	January 2028	62	287
Nokia of America Corporation	6.45% Senior Notes ⁽¹⁾⁽²⁾	USD	206	March 2029	174	1 306
Nokia Corporation	6.625% Senior Notes	USD	500	May 2039	424	482
Nokia Corporation	Revolving Credit Facility	EUR	1 579	June 2020	–	–
Nokia Corporation and various subsidiaries	Other liabilities ⁽³⁾				326	464
Total					3 766	4 027

(1) In March 2017, the Group issued EUR 500 million 1.00% Senior Notes due 2021 and EUR 750 million 2.00% Senior Notes due 2024 under the 5 billion Euro Medium-Term Note Programme. The proceeds of the new notes were used to redeem (nominal amounts) EUR 269 million of the 2019 Euro Notes, USD 86 million of the 2028 USD Notes and USD 401 million of the 2029 USD Notes and for general corporate purposes.

(2) In June 2017, the Group issued USD 500 million 3.375% Senior Notes due 2022 and USD 500 million 4.375% Senior Notes due 2027 under U.S. Securities Act of 1933, as amended. The proceeds of the new notes were used to redeem (nominal amounts) USD 419 million of the 2019 USD Notes, USD 140 million of the 2028 USD Notes and USD 753 million of the 2029 USD Notes and for general corporate purposes.

(3) Includes liabilities related to the French research and development tax credits (Crédits d'Impôt Recherche) of EUR 62 million (EUR 132 million in 2016) that have been sold to banks on a recourse basis and hence remain on the consolidated statement of financial position.

All borrowings presented above are senior unsecured and have no financial covenants.

Changes in interest-bearing liabilities arising from financing activities:

	Long-term interest-bearing liabilities	Short-term interest-bearing liabilities	Derivatives held to hedge long-term borrowings	Total
As of January 1, 2017	3 657	370	(30)	3 997
Cash flows	132	(40)	(49)	43
Non-cash changes:				
Acquisitions	–	4	–	4
Translation differences	(291)	(12)	199	(104)
Changes in fair value	(46)	–	15	(31)
Other	5	(13)	–	(8)
As of December 31, 2017	3 457	309	135	3 901

24. Fair value of financial instruments

Financial assets and liabilities recorded at fair value are categorized based on the amount of unobservable inputs used to measure their fair value. Three hierarchical levels are based on an increasing amount of judgment associated with the inputs used to derive fair valuation for these assets and liabilities, level 1 being market values for exchange traded products, level 2 being primarily based on quotes from third-party pricing services, and level 3 requiring most management judgment. At the end of each reporting period, the Group categorizes its financial assets and liabilities to appropriate level of fair value hierarchy. Items carried at fair value in the following table are measured at fair value on a recurring basis.

EUR million	Amortized cost	Carrying amounts			Fair value ⁽¹⁾	
		Fair value			Total	Total
		Level 1	Level 2	Level 3		
2017						
Non-current available-for-sale investments	119	16	137	544	816	816
Other non-current financial assets	108	–	99	8	215	195
Other current financial assets including derivatives	106	–	196	–	302	302
Accounts receivable	6 880	–	–	–	6 880	6 880
Available-for-sale investments, liquid assets	–	–	911	–	911	911
Cash and cash equivalents	7 369	–	–	–	7 369	7 369
Total financial assets	14 582	16	1 343	552	16 493	16 473
Long-term interest-bearing liabilities	3 457	–	–	–	3 457	3 574
Short-term interest bearing liabilities	309	–	–	–	309	309
Other financial liabilities including derivatives	44	–	268	672	984	984
Accounts payable	3 996	–	–	–	3 996	3 996
Total financial liabilities	7 806	–	268	672	8 746	8 863

EUR million	Amortized cost	Carrying amounts			Fair value ⁽¹⁾	
		Fair value			Total	Total
		Level 1	Level 2	Level 3		
2016						
Non-current available-for-sale investments	202	–	164	674	1 040	1 040
Other non-current financial assets	143	–	111	–	254	228
Other current financial assets including derivatives	60	–	236	–	296	296
Accounts receivable	6 972	–	–	–	6 972	6 972
Investments at fair value through profit and loss, liquid assets	–	–	327	–	327	327
Available-for-sale investments, liquid assets	–	–	1 502	–	1 502	1 502
Cash and cash equivalents	7 497	–	–	–	7 497	7 497
Total financial assets	14 874	–	2 340	674	17 888	17 862
Long-term interest-bearing liabilities	3 657	–	–	–	3 657	3 821
Short-term interest bearing liabilities	370	–	–	–	370	370
Other financial liabilities including derivatives	34	–	236	14	284	284
Accounts payable	3 781	–	–	–	3 781	3 781
Total financial liabilities	7 842	–	236	14	8 092	8 256

(1) The following fair value measurement methods are used for items not carried at fair value: the fair value is estimated to equal the carrying amount for available-for-sale investments carried at cost less impairment for which it is not possible to estimate fair value reliably. These assets are tested for impairment using a discounted cash flow analysis if events or changes in circumstances indicate that the carrying amounts may not be recoverable. The fair values of long-term interest bearing liabilities are primarily based on quotes from third-party pricing services (level 2). The fair values of other assets and liabilities, including loans receivable and loans payable are primarily based on discounted cash flow analysis (level 2). The fair value is estimated to equal the carrying amount for short-term financial assets and financial liabilities due to limited credit risk and short time to maturity. Refer to Note 2, Significant accounting policies.

The level 1 category includes financial assets and liabilities that are measured in whole by reference to published quotes in an active market. A financial instrument is regarded as quoted in an active market if quoted prices are readily and regularly available from an exchange, and those prices represent actual and regularly occurring market transactions on an arm's-length basis. This category includes only exchange traded products.

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The level 2 category includes financial assets and liabilities measured using a valuation technique based on assumptions that are supported by prices from observable current market transactions. These include assets and liabilities with fair values based on quotes from third-party pricing services, financial assets with fair values based on broker quotes and assets that are valued using the Group's own valuation models whereby the material assumptions are market observable. The majority of the Group's listed bonds and other securities, over-the-counter derivatives and certain other products are included within this category.

The level 3 financial assets category includes a large number of investments in unlisted equities and unlisted venture funds, including investments managed by Nokia Growth Partners specializing in growth-stage investing and by BlueRun Ventures focusing on early stage opportunities. The fair value of level 3 investments is determined using one or more valuation techniques where the use of the market approach generally consists of using comparable market transactions, while the use of the income approach generally consists of calculating the net present value of expected future cash flows. For unlisted funds, the selection of appropriate valuation techniques by the fund managing partner may be affected by the availability and reliability of relevant inputs. In some cases, one valuation technique may provide the best indication of fair value while in other circumstances multiple valuation techniques may be appropriate.

The inputs generally considered in determining the fair value of level 3 investments include the original transaction price, recent transactions in the same or similar instruments, completed or pending third-party transactions in the underlying investment or comparable issuers, subsequent rounds of financing, recapitalizations or other transactions undertaken by the issuer, offerings in the equity or debt capital markets, and changes in financial ratios or cash flows, adjusted as appropriate for liquidity, credit, market and/or other risk factors. The level 3 investments are valued on a quarterly basis taking into consideration any changes, projections and assumptions, as well as any changes in economic and other relevant conditions. The fair value may be adjusted to reflect illiquidity and/or non-transferability, with the amount of such discount estimated by the managing partner in the absence of market information. Assumptions used by the managing partner due to the lack of observable inputs may impact the resulting fair value of individual investments, but no individual input has a significant impact on the total fair value of the level 3 investments.

Level 3 Financial liabilities include conditional obligation to China Huaxin as part of the Nokia Shanghai Bell definitive agreements where China Huaxin obtained the right to fully transfer its ownership interest in Nokia Shanghai Bell to the Group in exchange for a future cash settlement. The fair value of the liability is calculated using the net present value of the expected future cash settlement. Most significant unobservable valuation inputs include certain financial performance metrics of Nokia Shanghai Bell. No individual input has a significant impact on the total fair value of the level 3 financial liability. Refer to Note 33, Significant partly-owned subsidiaries.

Reconciliation of the opening and closing balances on level 3 financial assets and liabilities:

EURm	Level 3 Financial Assets	Level 3 Financial Liabilities
As of January 1, 2016	688	–
Net gains in income statement	52	–
Net loss recorded in other comprehensive income	(48)	–
Acquisitions through business combination	–	(14)
Purchases	72	–
Sales	(101)	–
Other movements	11	–
As of December 31, 2016	674	(14)
Net gains in income statement	89	79
Net loss recorded in other comprehensive income	(89)	–
Acquisitions of non-controlling interest	–	(737)
Purchases	89	–
Sales	(182)	–
Other movements	(29)	–
As of December 31, 2017	552	(672)

The gains and losses from venture fund and similar investments categorized in level 3 are included in other operating income and expenses in cases where the investment and disposal objectives for these investments are business driven. In other cases the gains and losses from level 3 financial assets and liabilities are included in financial income and expenses. A net gain of EUR 63 million (net gain of EUR 6 million in 2016) related to level 3 financial instruments held as of December 31, 2017 is recognized in the consolidated income statement.

25. Derivative financial instruments

EURm	Assets		Liabilities	
	Fair value ⁽¹⁾	Notional ⁽²⁾	Fair value ⁽¹⁾	Notional ⁽²⁾
2017				
Hedges on net investment in foreign subsidiaries				
Forward foreign exchange contracts	38	3 491	(2)	773
Cash flow hedges				
Forward foreign exchange contracts	56	1 305	(6)	465
Fair value hedges				
Forward foreign exchange contracts	1	165	(1)	79
Firm commitments	17	133	(24)	229
Cash flow and fair value hedges⁽³⁾				
Cross-currency interest rate swaps	–	–	(141)	1 512
Derivatives not designated in hedge accounting relationships carried at fair value through profit and loss				
Forward foreign exchange contracts	73	5 858	(88)	7 002
Currency options bought	12	664	–	–
Currency options sold	–	–	(4)	163
Interest rate swaps	–	–	–	–
Other derivatives	–	–	(2)	100
Total	197	11 616	(268)	10 323
2016				
Hedges on net investment in foreign subsidiaries				
Forward foreign exchange contracts	20	1 829	(1)	255
Cash flow hedges				
Forward foreign exchange contracts	12	382	(9)	185
Fair value hedges				
Interest rate swaps	42	300	–	–
Forward foreign exchange contracts	21	350	(51)	689
Firm commitments	34	633	(6)	311
Cash flow and fair value hedges⁽³⁾				
Cross-currency interest rate swaps	42	1 002	–	–
Derivatives not designated in hedge accounting relationships carried at fair value through profit and loss				
Forward foreign exchange contracts	61	3 777	(135)	7 526
Currency options bought	3	569	–	–
Interest rate swaps	–	–	(29)	329
Other derivatives	–	–	(5)	157
Total	235	8 842	(236)	9 452

(1) Included in other financial assets and other financial liabilities in the consolidated statement of financial position.

(2) Includes the gross amount of all notional values for contracts that have not yet been settled or cancelled. The amount of notional value outstanding is not necessarily a measure or indication of market risk as the exposure of certain contracts may be offset by that of other contracts.

(3) Cross-currency interest rate swaps have been designated partly as fair value hedges and partly as cash flow hedges.

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26. Share-based payment

The Group has several equity-based incentive programs for executives and other eligible employees. The programs consist of performance share plans, restricted share plans and employee share purchase plans. The equity-based incentive grants are generally conditional on continued employment as well as the fulfillment of the performance, service and other conditions determined in the relevant plan rules. The share-based payment expense for all equity-based incentive grants included in Continuing operations in the consolidated income statement amounts to EUR 99 million (EUR 130 million in 2016 and EUR 67 million in 2015).

Active share-based payment plans by instrument

	Performance shares outstanding at target		Restricted shares outstanding	
	Number of performance shares at target	Weighted average grant date fair value EUR ⁽¹⁾	Number of restricted shares outstanding	Weighted average grant date fair value EUR ⁽¹⁾
As of January 1, 2015	17 234 066		7 595 405	
Granted	13 553 992	5.78	342 200	6.22
Forfeited	(7 859 208)		(3 880 221)	
Vested	–		(1 952 910)	
As of December 31, 2015	22 928 850		2 104 474	
Granted	23 110 479	4.70	5 406 682	4.73
Forfeited	(1 489 070)		(255 023)	
Vested	(1 132 709)		(1 286 596)	
As of December 31, 2016	43 417 550		5 969 537	
Granted	29 983 190	5.08	2 366 008	4.90
Forfeited	(2 589 904)		(807 556)	
Vested ⁽²⁾	(10 294 593)		(1 959 287)	
As of December 31, 2017⁽³⁾	60 516 243		5 568 702	

(1) The fair values of performance and restricted shares are estimated based on the grant date market price of the Nokia share less the present value of dividends expected to be paid during the vesting period.

(2) Vested performance shares at target are multiplied by the confirmed payout (% of target) to calculate the total number of Nokia shares settlement.

(3) Includes 10 167 021 performance shares for the Performance Share Plan 2015 and 204 419 Restricted Shares that vested on January 1, 2018.

Performance shares

In 2017, the Group administered four global performance share plans, the Performance Share Plans of 2014, 2015, 2016 and 2017. The performance shares represent a commitment by the Group to deliver Nokia shares to eligible participants at a future point in time, subject to the fulfillment of predetermined performance criteria. The number of performance shares at target is the amount of performance shares granted to an individual that will be settled if the target performance, with respect to the performance criteria, is achieved. Any additional payout beyond the minimum amount will be determined based on the financial performance against the established performance criteria during the two-year performance period. At maximum performance, the settlement amounts to two times the amount at target. Until the Nokia shares are delivered, the participants do not have any shareholder rights, such as voting or dividend rights, associated with the performance shares. The performance share grants are generally forfeited if the employment relationship with the Group terminates prior to vesting.

The Performance Share Plan 2017 includes a minimum payout guarantee for performance shares granted to non-executive participants, such that 25% of the performance shares granted will settle after the restriction period, regardless of the satisfaction of the applicable performance criteria. Performance shares granted to executive participants under the Performance Share Plan 2017 do not include a minimum payout guarantee.

Global performance share plans as of December 31, 2017:

Plan	Performance shares outstanding at target	Confirmed payout (% of target)	Performance period	Restriction period ⁽¹⁾	Settlement year
2014	–	126	2014–2015	2016	2017
2015	10 167 021	124	2015–2016	2017	2018
2016	20 717 300	46	2016–2017	2018	2019
2017	29 631 922		2017–2018	2019	2020

(1) The restriction period will be no less than one year from the end of the performance period.

Performance criteria for the 2017 Plan for the year ended December 31:

Performance criteria ⁽¹⁾	Threshold performance EUR	Maximum performance EUR	Weight %
Average annual net sales 2017–2018	22 842 million	26 280 million	50
Average annual diluted EPS 2017–2018	0.26	0.38	50

(1) Excludes costs related to the acquisition of Alcatel Lucent and related integration, goodwill impairment charges, intangible asset amortization and other purchase price fair value adjustments, restructuring and associated charges and certain other items.

Restricted shares

In 2017, the Group administered four global restricted share plans: the Restricted Share Plans 2014, 2015, 2016 and 2017. Restricted shares are granted on a limited basis for purposes related to retention and recruitment of individuals deemed critical to the Group's future success. The vesting schedule for the 2014 Plans was 36 months following the grant quarter. All other plans follow a tranche vesting schedule whereby each plan vests in three equal tranches on the first, second and the third anniversary of the award subject to continued employment with the Group. Restricted Share Plan participants do not have any shareholder rights, such as voting or dividend rights, until the Nokia shares are delivered. The restricted share grants are generally forfeited if the employment relationship with the Group terminates prior to vesting of the applicable tranche or tranches.

Employee share purchase plan

The Group offers a voluntary Employee Share Purchase Plan to its employees. Participating employees make contributions from their net salary to purchase Nokia shares on a monthly basis during a 12-month savings period. The Group intends to deliver one matching share for every two purchased shares the employee holds as of the end of the Plan cycle. In 2017, 2 920 204 matching shares were issued as a settlement to the participants of the Employee Share Purchase Plan 2016 (1 661 951 matching shares issued under the 2015 Plan and 601 408 free shares issued under the 2016 plan in 2016, 140 436 matching shares issued in 2015 under the 2014 Plan).

Legacy equity compensation programs

Stock options

In 2017, the Group administered one global stock option plan, the Stock Option Plan 2011. The last stock options under this Plan were granted in 2013. Each stock option entitles the holder to subscribe for one new Nokia share. The stock options are non-transferable and may be exercised for shares only. Shares will be eligible for dividends for the financial year in which the share subscription takes place. Other shareholder rights will commence on the date on which the subscribed shares are entered in the Trade Register. The stock option grants are generally forfeited if the employment relationship with the Group is terminated.

Reconciliation of stock options outstanding and exercisable:

Shares under option	Number of shares	Weighted average exercise price EUR	Weighted average share price EUR	Number of options exercisable	Weighted average exercise price EUR
As of January 1, 2015	7 344 023	4.81		1 913 537	10.43
Exercised	(1 242 381)	3.79	6.44		
Forfeited	(2 215 216)	2.48			
Expired	(246 140)	8.07			
As of December 31, 2015	3 640 286	4.67		2 318 911	5.97
Exercised	(832 900)	2.52	4.87		
Forfeited	(17 875)	2.57			
Expired	(1 188 490)	7.81			
As of December 31, 2016	1 601 021	3.34		1 197 771	3.56
Exercised	(415 750)	2.13	4.93		
Forfeited	(215 000)	2.71			
Expired	(522 771)	5.65			
As of December 31, 2017	447 500	2.07		447 500	2.07

Notes to consolidated financial statements continued

27. Pensions and other post-employment benefits

The Group maintains a number of post-employment plans in various countries including both defined contribution and defined benefit plans. The Group's defined benefit plans comprise significant pension schemes, as well as material other post employment benefit ("Opeb") plans providing post-retirement healthcare and life insurance coverage to certain employee groups. Defined benefit plans expose the Group to actuarial risks such as investment risk, interest rate risk, and life expectancy risk. The characteristics and associated risks of the defined benefit plans vary depending on the legal, fiscal, and economic requirements in each country. These characteristics and risks are further described below and relate to the plans included as part of the Group's Continuing operations.

The total net defined benefit liability is EUR 461 million (EUR 1 198 million in 2016) consisting of net pension and other post-employment benefit liabilities of EUR 4 440 million (EUR 5 000 million in 2016) and net pension and other post-employment benefit assets of EUR 3 979 million (EUR 3 802 million in 2016).

Defined benefit plans

The Group's most significant defined benefit pension plans are in the United States, Germany, and the United Kingdom. Together they account for 93% (93% in 2016) of the Group's total defined benefit obligation and 91% (92% in 2016) of the Group's total plan assets.

The defined benefit obligations, the fair value of plan assets, the effects of the asset ceiling and the net defined benefit balance as of December 31:

EURm	2017				2016			
	Defined benefit obligation	Fair value of plan assets	Effects of asset ceiling	Net defined benefit balance	Defined benefit obligation	Fair value of plan assets	Effects of asset ceiling	Net defined benefit balance
United States	(19 614)	20 499	(453)	432	(22 845)	22 880	(265)	(230)
Germany	(2 773)	1 203	–	(1 570)	(2 680)	1 160	–	(1 520)
United Kingdom	(1 276)	1 552	–	276	(1 265)	1 485	–	220
Other	(1 834)	2 281	(46)	401	(1 873)	2 245	(40)	332
Total	(25 497)	25 535	(499)	(461)	(28 663)	27 770	(305)	(1 198)

United States

The Group has significant defined benefit pension plans and a significant post-retirement welfare benefit plan, providing post-retirement healthcare benefits and life insurance coverage, in the United States. The pension plans include both traditional service-based programs as well as cash-balance plans. The principal non-represented plan for salaried, non-union member employees was closed to new entrants after December 31, 2007 and fully frozen on December 31, 2009. The Group, then Alcatel Lucent, adopted a new cash-balance program, a cash balance plan, for salaried, non-union member employees effective January 1, 2015. The new program was extended to all United States-based salaried employees, except the employees of Nokia Technologies, effective January 1, 2017. For active union-represented employees and for former employees who, when active, were represented by a union, the Group maintains two represented defined benefit plans, both of which are traditional service-based pension programs. The larger of the two, which represents 95% of the obligation, is a closed plan. Post-retirement welfare benefits are maintained for certain retired former employees. An agreement was made with the Communications Workers of America ("CWA") and the International Brotherhood of Electrical Workers ("IBEW") unions to continue to provide post-retirement healthcare benefits and life-insurance coverage for employees formerly represented by these two unions. The current union agreement expires on December 31, 2019.

The defined benefit obligations, the fair value of plan assets, the effects of the asset ceiling and the net defined benefit balance for United States defined benefit plans as of December 31:

EURm	2017				2016			
	Defined benefit obligation	Fair value of plan assets	Effects of asset ceiling	Net defined benefit balance	Defined benefit obligation	Fair value of plan assets	Effects of asset ceiling	Net defined benefit balance
Pension benefits								
Management	(13 750)	15 263	(2)	1 511	(15 855)	16 861	(2)	1 004
Occupational	(2 995)	4 704	(451)	1 258	(3 528)	5 440	(263)	1 649
Supplemental	(351)	–	–	(351)	(401)	–	–	(401)
Total	(17 096)	19 967	(453)	2 418	(19 784)	22 301	(265)	2 252
Post-retirement benefits								
Health (non-union represented)	(76)	–	–	(76)	(126)	–	–	(126)
Health (formerly union represented)	(1 026)	264	–	(762)	(1 343)	270	–	(1 073)
Group life (non-union represented)	(929)	186	–	(743)	(1 040)	220	–	(820)
Group life (formerly union represented)	(486)	82	–	(404)	(551)	89	–	(462)
Other	(1)	–	–	(1)	(1)	–	–	(1)
Total	(2 518)	532	–	(1 986)	(3 061)	579	–	(2 482)

Germany

The Group maintains two primary plans in Germany which cover the majority of active employees: the cash balance plan Beitragsorientierter Altersversorgungs Plan ("BAP") and a similar cash balance program for the Group's former Alcatel Lucent employees. Individual benefits are generally dependent on eligible compensation levels, ranking within the Group and years of service. These plans are partially funded defined benefit pension plans, the benefits being subject to a minimum return guaranteed by the Group. The funding vehicle for the BAP plan is the NSN Pension Trust e.V. The funding vehicle for the former Alcatel Lucent cash balance plan is the Alcatel SEL Unterstützungs-GmbH. The trusts are legally separate from the Group and manage the plan assets in accordance with the respective trust agreements.

All other plans have been previously frozen and replaced by the cash balance plans. Benefits are paid in annual installments, as monthly retirement pension, or as a lump sum on retirement in an amount equal to accrued pensions and guaranteed interest. The risks specific to the German defined benefit plans are related to changes in mortality of covered members, return on investment on plan assets, and volatility in interest rates.

United Kingdom

The Group has two pension Trusts in the United Kingdom. The Nokia Trust has a money purchase section with Guaranteed Minimum Pension ("GMP") underpin and final salary sections, all closed to future benefit accrual on April 30, 2012. The legacy Alcatel-Lucent Trust has a money purchase section with GMP underpin, this section is closed to future benefit accrual; it also has final salary sections, the final salary sections are closed to new joiners but currently open to future benefit accrual. Both Trusts manage all investments for their respective pension plans. Individual benefits for final salary sections are dependent on eligible compensation levels and years of service. For the money purchase sections with GMP underpin, individual benefits are dependent on the greater of the value of GMP at retirement date or the pension value resulting from the individual's invested funds.

Impact on the consolidated financial statements**Movements in the defined benefit obligation, fair value of plan assets and the impact of the asset ceiling**

The movements in the present value of the defined benefit obligation for the years ended December 31:

EURm	2017				2016			
	United States pension	United States Opeb	Other pension	Total	United States pension	United States Opeb	Other pension	Total
As of January 1	(19 784)	(3 061)	(5 818)	(28 663)	(58)	–	(1 782)	(1 840)
Current service cost	(75)	–	(105)	(180)	(63)	–	(92)	(155)
Interest expense	(652)	(98)	(112)	(862)	(711)	(111)	(150)	(972)
Past service cost and gains on curtailments	(39)	(1)	43	3	(13)	–	11	(2)
Settlements	13	–	10	23	5	–	6	11
Total	(753)	(99)	(164)	(1 016)	(782)	(111)	(225)	(1 118)
Remeasurements:								
Gain/(loss) from change in demographic assumptions	141	33	(38)	136	79	15	(13)	81
Loss from change in financial assumptions	(747)	(141)	(148)	(1 036)	(301)	(60)	(593)	(954)
Experience gain/(loss)	60	204	3	267	227	205	(74)	358
Total⁽¹⁾	(546)	96	(183)	(633)	5	160	(680)	(515)
Translation differences ⁽¹⁾	2 422	370	123	2 915	(615)	(91)	166	(540)
Contributions from plan participants	–	(111)	(24)	(135)	–	(124)	(20)	(144)
Benefit payments from plans	1 555	303	246	2 104	1 595	366	243	2 204
Acquisitions through business combinations	–	–	–	–	(19 919)	(3 243)	(3 431)	(26 593)
Other	10	(16)	(63)	(69)	(10)	(18)	(89)	(117)
Total	3 987	546	282	4 815	(18 949)	(3 110)	(3 131)	(25 190)
As of December 31	(17 096)	(2 518)	(5 883)	(25 497)	(19 784)	(3 061)	(5 818)	(28 663)

(1) Includes CTA due to translation differences.

Notes to consolidated financial statements continued

The movements in the fair value of plan assets for the years ended December 31:

EURm	2017				2016			
	United States pension	United States Opeb	Other pension	Total	United States pension	United States Opeb	Other pension	Total
As of January 1	22 301	579	4 890	27 770	57	–	1 394	1 451
Interest income	738	16	101	855	774	18	135	927
Administrative expenses and interest on asset ceiling	(17)	–	(1)	(18)	(19)	–	(1)	(20)
Settlements	(12)	–	(11)	(23)	(5)	–	(6)	(11)
Total	709	16	89	814	750	18	128	896
Remeasurements:								
Return on plan assets, excluding amounts included in interest income	1 369	37	183	1 589	947	6	387	1 340
Total	1 369	37	183	1 589	947	6	387	1 340
Translation differences	(2 725)	(71)	(111)	(2 907)	709	16	(207)	518
Contributions:								
Employers	28	3	129	160	32	10	74	116
Plan participants	–	111	24	135	–	124	20	144
Benefit payments from plans	(1 555)	(303)	(158)	(2 016)	(1 595)	(366)	(164)	(2 125)
Acquisitions through business combinations	–	–	–	–	21 571	599	3 182	25 352
Section 420 Transfer ⁽¹⁾	(160)	160	–	–	(172)	172	–	–
Other	–	–	(10)	(10)	2	–	76	78
Total	(4 412)	(100)	(126)	(4 638)	20 547	555	2 981	24 083
As of December 31	19 967	532	5 036	25 535	22 301	579	4 890	27 770

(1) Section 420 Transfer. Refer to 'Future Cash Flow' section below.

The movements in the funded status for the years ended December 31:

EURm	2017				2016			
	United States pension	United States Opeb	Other pension	Total	United States pension	United States Opeb	Other pension	Total
As of January 1	2 517	(2 482)	(928)	(893)	(1)	–	(388)	(389)
Current service cost	(75)	–	(105)	(180)	(63)	–	(92)	(155)
Interest income/(expense)	69	(82)	(12)	(25)	44	(93)	(16)	(65)
Past service cost and gains on curtailments	(39)	(1)	43	3	(13)	–	11	(2)
Settlements	1	–	(1)	–	–	–	–	–
Total	(44)	(83)	(75)	(202)	(32)	(93)	(97)	(222)
Remeasurements:								
Return on plan assets, excluding amounts included in interest income	1 369	37	183	1 589	947	6	387	1 340
Gain/(loss) from change in demographic assumptions	141	33	(38)	136	79	15	(13)	81
Loss from change in financial assumptions	(747)	(141)	(148)	(1 036)	(301)	(60)	(593)	(954)
Experience gain/(loss)	60	204	3	267	227	205	(74)	358
Total⁽¹⁾	823	133	–	956	952	166	(293)	825
Translation differences ⁽¹⁾	(303)	299	12	8	94	(75)	(41)	(22)
Employer contributions	28	3	129	160	32	10	74	116
Benefit payments from plans	–	–	88	88	–	–	79	79
Acquisitions through business combinations	–	–	–	–	1 652	(2 644)	(249)	(1 241)
Section 420 Transfer ⁽²⁾	(160)	160	–	–	(172)	172	–	–
Other	10	(16)	(73)	(79)	(8)	(18)	(13)	(39)
Total	(425)	446	156	177	1 598	(2 555)	(150)	(1 107)
As of December 31	2 871	(1 986)	(847)	38	2 517	(2 482)	(928)	(893)

(1) Includes CTA due to translation differences.

(2) Section 420 Transfer. Refer to 'Future Cash Flow' section below.

The movements in the impact of the asset ceiling limitation for the years ended December 31:

EURm	2017				2016			
	United States pension	United States Opeb	Other pension	Total	United States pension	United States Opeb	Other pension	Total
As of January 1	(265)	–	(40)	(305)	–	–	(9)	(9)
Interest expense	(11)	–	(1)	(12)	(1)	–	(1)	(2)
Remeasurements:								
Change in asset ceiling, excluding amounts included in interest expense	(224)	–	(9)	(233)	(251)	–	(7)	(258)
Acquisitions through business combinations	–	–	–	–	–	–	(22)	(22)
Translation differences	47	–	4	51	(13)	–	(1)	(14)
As of December 31	(453)	–	(46)	(499)	(265)	–	(40)	(305)

Net balances as of December 31:

EURm	2017				2016			
	United States pension	United States Opeb	Other pension	Total	United States pension	United States Opeb	Other pension	Total
As of December 31	2 418	(1 986)	(893)	(461)	2 252	(2 482)	(968)	(1 198)

Present value of obligations includes EUR 18 940 million (EUR 21 271 million in 2016) of wholly funded obligations, EUR 5 248 million (EUR 6 122 million in 2016) of partly funded obligations and EUR 1 310 million (EUR 1 270 million in 2016) of unfunded obligations.

Recognized in the income statement

Recognized in personnel expenses in the consolidated income statement for the years ended December 31:

EURm	2017			2016			2015		
	United States pension	United States Opeb	Other pension	Total	United States pension	United States Opeb	Other pension	Total	
Current service cost				180			155		46
Past service cost and gains on curtailments				(3)			2		(5)
Interest expense				37			65		9
Other				–			–		1
Total	214			222			51		
Of which relates to:									
United States pensions				55			32		1
United States Opeb				83			92		–
Other pensions				76			98		50

Recognized in comprehensive income

Recognized in other comprehensive income for the years ended December 31:

EURm	2017			2016			2015					
	Return on plan assets, excluding amounts included in interest income	Gain from change in demographic assumptions	(Loss)/gain from change in financial assumptions	Experience gain	Change in asset ceiling, excluding amounts included in interest expense	Total	Return on plan assets, excluding amounts included in interest income	Gain from change in demographic assumptions	(Loss)/gain from change in financial assumptions	Experience gain	Change in asset ceiling, excluding amounts included in interest expense	Total
Return on plan assets, excluding amounts included in interest income				1 589			1 340			2		
Gain from change in demographic assumptions				136			81			–		
(Loss)/gain from change in financial assumptions				(1 036)			(954)			114		
Experience gain				267			358			–		
Change in asset ceiling, excluding amounts included in interest expense				(233)			(259)			(6)		
Total	723			566			110					
Of which relates to:												
United States pensions				599			701			–		
United States Opeb				133			166			–		
Other pensions				(9)			(301)			110		

Notes to consolidated financial statements continued

Actuarial assumptions and sensitivity analysis

Actuarial assumptions

Assumptions regarding future mortality are set based on actuarial advice in accordance with published statistics and experience in each country.

The discount rates and mortality tables used for the significant plans:

	2017	2016	2017
	Discount rate %		Mortality table
United States	3.3	3.7	RP-2014 w/MP-2017 mortality projection scale
Germany	1.3	1.6	Heubeck 2005G
United Kingdom ⁽¹⁾	2.5	2.7	S2PA Light
Total weighted average for all countries	2.9	3.3	

(1) Tables are adjusted with 1.5% long-term rate of improvement.

The principal actuarial weighted average assumptions used for determining the defined benefit obligation:

%	2017	2016
Discount rate for determining present values	2.9	3.3
Annual rate of increase in future compensation levels	1.9	1.9
Pension growth rate	0.4	0.3
Inflation rate	2.1	2.0
Weighted average duration of defined benefit obligations	11 yrs	11 yrs

United States defined benefit plans

Actuarial assumptions used for determining the defined benefit obligation:

%	2017	2016
Benefit obligation, discount rate		
Pension	3.3	3.7
Post-retirement healthcare and other	3.1	3.4
Post-retirement group life	3.4	3.8
Annual rate of increase in future compensation levels	2.06	2.08
Assumed healthcare cost trend rates		
Healthcare costs trend rate assumed for next year	11.5	7.5
Healthcare cost trend rate assumed for next year (excluding post-retirement dental benefits)	11.8	7.7
Terminal growth rate	4.9	4.9
Year that the rate reaches the terminal growth value	2028	2028

Sensitivity analysis

The sensitivity of the defined benefit obligation to changes in the principal assumptions:

	Change in assumption	Increase in assumption ⁽¹⁾ EURm	Decrease in assumption ⁽¹⁾ EURm
Discount rate for determining present values	1.0 %	2 441	(2 961)
Annual rate of increase in future compensation levels	1.0 %	(117)	103
Pension growth rate	1.0 %	(557)	468
Inflation rate	1.0 %	(533)	437
Healthcare cost trend rate	1.0 %	(47)	43
Life expectancy	1 year	(899)	846

(1) Positive movement indicates a reduction in the defined benefit obligation; a negative movement indicates an increase in the defined benefit obligation.

The above sensitivity analyses are based on a change in an assumption while holding all other assumptions constant and may not be representative of the actual impact of changes. If more than one assumption is changed simultaneously, the combined impact of changes would not necessarily be the same as the sum of the individual changes. If the assumptions change to a different level compared with that presented above, the effect on the defined benefit obligation may not be linear. The methods and types of assumptions used in preparing the sensitivity analyses are the same as in the previous period.

When calculating the sensitivity of the defined benefit obligation to significant actuarial assumptions, the present value of the defined benefit obligation is calculated with the projected unit credit method. Increases and decreases in the discount rate, rate of increase in future compensation levels, pension growth rate and inflation, which are used in determining the defined benefit obligation, do not have a symmetrical effect on the defined benefit obligation primarily due to the compound interest effect created when determining the net present value of the future benefit.

Investment strategies

The overall investment objective of the Group is to preserve or enhance the pension plans' funded status through the implementation of an investment strategy that maximizes return within the context of minimizing surplus risk. In formulating the asset allocation for the Plans, multiple factors are considered, including, but not limited to the long-term risk and return expectations for a variety of asset classes as well as current and multi-year projections of the pension plans' demographics, benefit payments, contributions and funded status. Local trustee boards are responsible for conducting asset liability studies, when appropriate; overseeing the investment of plan assets; and monitoring and managing associated risks under company oversight and in accordance with local law. The results of the Asset-Liability framework are implemented on a plan level.

The Group's investment managers may use derivative financial instruments including futures contracts, forward contracts, options and interest rate swaps to manage market risk. The performance and risk profile of investments is regularly monitored on a stand-alone basis as well as in the broader portfolio context. One risk is a decline in the plan's funded status as a result of the adverse performance of plan assets and/or defined benefit obligations. The application of the Asset-Liability Model study focuses on minimizing such risks.

Disaggregation of plan assets

EURm	2017				2016			
	Quoted	Unquoted	Total	%	Quoted	Unquoted	Total	%
Equity securities	1 857	1	1 858	7	2 777	–	2 777	10
Debt securities	17 810	44	17 854	70	18 329	–	18 329	66
Insurance contracts	–	1 013	1 013	4	–	833	833	3
Real estate	–	1 350	1 350	5	–	1 389	1 389	5
Short-term investments	709	14	723	3	1 110	–	1 110	4
Other	–	2 737	2 737	11	–	3 332	3 332	12
Total	20 376	5 159	25 535	100	22 216	5 554	27 770	100

Most short-term investments including cash, equities and fixed-income securities have quoted market prices in active markets. Equity securities represent investments in equity funds and direct investments, which have quoted market prices in an active market. Debt securities represent investments in government and corporate bonds, as well as investments in bond funds, which have quoted market prices in an active market. Debt securities may also comprise investments in funds and direct investments. Insurance contracts are customary pension insurance contracts structured under domestic law in the respective countries. Real estate investments are investments in commercial properties or real estate funds which invest in a diverse range of real estate properties. Short-term investments are liquid assets or cash which are being held for a short period of time, with the primary purpose of controlling the tactical asset allocation. Other includes commodities as well as alternative investments, including derivative financial instruments.

Notes to consolidated financial statements continued

United States plan

United States plan asset target and actual allocation range of the pension and post-retirement trust by asset category as of December 31, 2017:

%	Pension target allocation range	Percentage of plan assets	Post-retirement target allocation	Percentage of post-employment plan assets
Equity securities	5-9	6	44	44
Fixed income securities	68-88	78	15	15
Real estate	4-8	6	—	—
Private equity and other	6-13	10	—	—
Cash	—	—	41	41
Total		100	100	100

The majority of the Group's United States pension plan assets are held in a master pension trust. The post-retirement plan assets are held in two separate trusts in addition to the amount set aside in the master pension trust for retiree healthcare. The Pension & Benefits Investment Committee formally approves the target allocation ranges every few years on the completion of the Asset-Liability Model study by external advisors and internal investment management. The overall United States pension plan asset portfolio reflects a balance of investments split of approximately 22/78 between equity, including alternative investments for this purpose, and fixed income securities.

United States pension plan assets included EUR 0.15 million of Nokia ordinary shares and EUR 0.5 million of Nokia bonds as of December 31, 2017 (EUR 15 million of Nokia bonds in 2016).

Asset ceiling limitation

IAS19, Employee benefits, limits the amount of pension fund surplus that an entity may recognize to the amount of economic benefit that the entity can realize, either through refunds, or as reductions in future contributions. The Group recognized an asset ceiling limitation in 2017 in the amount of EUR 499 million, reducing the total gross asset value from EUR 25 535 million to the recognized value of EUR 25 036 million.

The most significant limitation of asset recognition for the Group is from the United States formerly represented pension plan. For the plans in the United States, the surplus is owned by the plan and therefore cannot be recognized by the Group as a recoverable pension asset. However, Section 420 of the Internal Revenue code ("Section 420") allows for the transfer of pension assets in excess of specified thresholds ("excess pension assets") over the plan's funding obligation to be used to fund healthcare benefits and life insurance coverage (Opeb) of retired employees entitled to pension benefits under the plan. Section 420 requires employers making such transfers to continue to provide healthcare benefits or life insurance coverage to those retirees for a certain period of time ("cost maintenance period"), at levels prescribed by regulations.

For retirees who were represented by the CWA and IBEW, the Group expects to fund the current retiree healthcare and group life insurance obligations with Section 420 transfers from the United States formerly represented pension plan's pension surplus. This is considered as a refund from the pension plan when setting the asset ceiling.

Annual valuation of funded status of the pension plans in the United States has established that the ability to utilize the Section 420 transfer of excess assets is limited to the United States formerly represented pension plan. Based on a calculated valuation of related Opeb liabilities to which the asset transfer is applicable, EUR 1 265 million asset may be recognized. This results in an asset ceiling limitation reducing the total funding surplus of this plan by EUR 451 million from a funded status of EUR 1 716 million to EUR 1 265 million as of December 31, 2017.

Significant events in 2017

Plan amendments

United States Special Voluntary Termination Program ("SVTP") benefits offered to certain eligible participants

Effective January 1, 2017, the Group amended the represented pension plan to reflect additional offers under the SVTP to provide for enhanced benefits to certain eligible employees. The SVTP benefits resulted in an expense of EUR 14 million, recognized as past service costs in the consolidated income statement.

French AUXAD pension plan amendment

AUXAD is a French supplemental pension plan for the portion of income that exceeds eight times the annual French social security pension limit, beyond which there is no legal or contractual pension scheme. In 2017, the Group amended this plan to close the plan to future accruals from January 1, 2018. This change resulted in a gain of EUR 12 million, recognized as income related to past service in the consolidated income statement.

Curtailments

In 2017, the Group recognized curtailments in a number of countries following continued integration efforts to achieve cost savings. In France, restructuring activities resulted in a gain on curtailment of EUR 23 million following the release of liabilities. In the United States, restructuring activities resulted in a loss on curtailment of EUR 24 million driven by severance-related pension benefit enhancement.

Future cash flows

Contributions

Group contributions to the pension and other post-retirement benefit plans are made to facilitate future benefit payments to plan participants. The funding policy is to meet minimum funding requirements as set forth in the employee benefit and tax laws, as well as any such additional amounts as the Group may determine appropriate. Contributions are made to benefit plans for the sole benefit of plan participants. Employer contributions expected to be made in 2018 are EUR 103 million.

United States pension plans

Funding methods

Funding requirements for the three major United States qualified pension plans are determined by the applicable statutes, namely the Employee Retirement Income Security Act of 1974 ("ERISA"), the Internal Revenue Code of 1986, and regulations issued by the Internal Revenue Service ("IRS").

In determining funding requirements, ERISA allows assets to be either market value or an average value over a period of time; and liabilities to be based on spot interest rates or average interest rates over a period of time. A preliminary assessment indicates that no funding is required for the non-represented and represented pension plans until, at least 2018. For the formerly represented pension plan, the Group does not foresee any future funding requirement for regulatory funding purposes, given the plan's asset allocation and the level of assets compared to liabilities.

Section 420 transfer

As described in the 'Asset Ceiling' section, Section 420 allows for the funding of certain Opeb liabilities by utilizing certain excess pension assets. Section 420 is currently set to expire on December 31, 2025. On December 4, 2017, the Group made EUR 160 million Section 420 transfer of excess pension assets from the formerly represented pension plan to fund healthcare benefits and life insurance coverage for retirees who, when actively employed, were represented by CWA and IBEW. The Group expects to make a further Section 420 transfer during 2018 from the formerly represented pension plan to fund healthcare benefits and group life insurance coverage.

Contributions

The following table summarizes expected contributions to the pension and post-retirement plans until 2027. These figures include the reimbursements the Group will receive from the coverage provided to plan participants eligible for the Medicare Prescription drug benefit. The Group did not make contributions to its qualified pension plans in 2017, nor does it expect to make any contributions in 2018. Actual contributions may differ from expected contributions due to various factors, including performance of plan assets, interest rates and legislative changes.

EURm	Pension		Post-retirement		Medicare subsidy for formerly union represented ⁽¹⁾
	Non-qualified plans	Non-represented	Other benefit plans		
2018	25	9	3		(16)
2019	25	9	3		(15)
2020	24	9	3		(14)
2021	24	9	3		(14)
2022	23	8	3		(13)
2023-2027	110	35	233		(57)

(1) Medicare Subsidy is recorded within other movements in the reconciliation of the present value of the defined benefit obligation.

Certain actuarial assumptions used to determine whether pension plan funding is required differ from those used for accounting purposes, which may cause significant differences in volatile markets. While the basis for developing discount rates in both cases is by corporate bond yields, for accounting purposes, a yield curve developed by CitiGroup is used as of the close of the last business day of the financial year; whereas the ERISA funding rules allow the use of either a daily average yield curve for the last month of the financial year, or a two-year average yield curve. When measuring assets, fair values of plan assets as of the last business day of the financial year are used for accounting purposes; whereas ERISA funding rules allow for "asset smoothing" that averages fair values over periods as long as two years with limited expected returns included in the averaging. The approach applied by ERISA for the regulatory funding valuation minimizes the impact of sharp changes in asset values and corporate bond yields in volatile markets.

Healthcare benefits for both management and formerly union represented retirees' benefits are capped for those who retired after February 28, 1990. The benefit obligation associated with this group of retirees is approximately 53% of the total United States retiree healthcare obligation as of December 31, 2017. Medicare is the primary payer for those aged 65 and older, comprising almost all of uncapped retirees.

Notes to consolidated financial statements continued

Benefit payments

The following table summarizes expected benefit payments from the pension and post-retirement plans and other post-employment benefit plans until 2027. Actual benefit payments may differ from expected benefit payments. The amounts for the United States plans are net of expected plan participant contributions, as well as the annual Medicare Part D subsidy of approximately EUR 16 million.

EURm	United States direct benefit payments					Other countries	Total		
	Pension			Post-retirement					
	Qualified management	Qualified occupational	Non-qualified plans	Formerly union represented	Non-union represented				
2018	1 237	286	25	125	51	273	1 997		
2019	1 073	265	25	118	52	261	1 794		
2020	1 041	253	24	147	53	267	1 785		
2021	1 006	242	24	141	54	280	1 747		
2022	971	230	23	133	55	279	1 691		
2023-2027	4 294	980	110	539	281	1 515	7 719		

Benefit payments are paid from plan assets where plans are fully funded. Funding mechanisms, such as the Section 420 transfer, are further utilized to minimize direct benefit payments for underfunded United States Opeb liabilities. Direct benefit payments expected to be paid in 2018 total EUR 117 million.

28. Accrued expenses, deferred revenue and other liabilities

Non-current liabilities

EURm	2017	2016
Advance payments and deferred revenue ⁽¹⁾	2 204	1 171
Discounted non-interest-bearing liabilities ⁽²⁾	690	23
Salaries, wages and social charges	59	138
Other	33	121
Total	2 986	1 453

Current liabilities

EURm	2017	2016
Advance payments and deferred revenue ⁽¹⁾	3 513	3 178
Salaries, wages and social charges	1 551	1 576
VAT and other indirect taxes	453	362
Other	1 149	1 296
Total	6 666	6 412

(1) Non-current deferred revenue includes EUR 924 million (EUR 1 080 million in 2016) and current deferred revenue includes EUR 155 million (EUR 155 million in 2016) prepayment relating to a ten-year mutual patent license agreement with Microsoft.

(2) Includes EUR 672 million financial liability related to the conditional obligation to China Huaxin as part of the Nokia Shanghai Bell definitive agreements where China Huaxin obtained the right to fully transfer its ownership interest in Nokia Shanghai Bell to the Group in exchange for a future cash settlement. Refer to Note 33, Significant partly-owned subsidiaries.

Other accruals include accrued royalties, research and development expenses, marketing expenses and interest expenses, as well as various amounts which are individually insignificant.

29. Provisions

EURm	Restructuring	Warranty	Litigation	Environmental	Project losses	Divestment-related	Material liability	Other	Total
As of January 1, 2016⁽¹⁾	194	94	69	16	62	129	29	225	818
Acquisitions through business combinations	291	135	100	114	180	26	31	366	1 243
Translation differences	2	1	22	4	–	9	2	1	41
Reclassification	–	–	8	–	–	(2)	1	(7)	–
Charged to income statement:									
Additional provisions	874	121	75	28	44	16	57	330	1 545
Changes in estimates	(123)	(38)	(31)	(2)	(31)	(24)	(21)	(104)	(374)
Total charged to income statement	751	83	44	26	13	(8)	36	226	1 171
Utilized during year ⁽²⁾	(525)	(106)	(60)	(26)	(124)	(44)	(22)	(288)	(1 195)
As of December 31, 2016⁽¹⁾	713	207	183	134	131	110	77	523	2 078
Acquisitions through business combinations	–	–	–	–	–	–	–	6	6
Translation differences	(13)	(10)	(9)	(11)	(6)	(8)	(4)	(23)	(84)
Reclassification	–	–	7	(12)	–	(4)	15	(2)	4
Charged to income statement:									
Additional provisions	577	146	56	14	8	15	56	261	1 133
Changes in estimates	(55)	(56)	(30)	(1)	(1)	(7)	(38)	(52)	(240)
Total charged to income statement	522	90	26	13	7	8	18	209	893
Utilized during year ⁽³⁾	(500)	(77)	(77)	(17)	(56)	(30)	(40)	(212)	(1 009)
As of December 31, 2017	722	210	130	107	76	76	66	501	1 888

(1) Following the IFRS Interpretations Committee agenda decision in September 2017 on interest and penalties related to income taxes, the Group no longer accounts for these items as income taxes. Accordingly, the Group has retrospectively revised the presentation of interest and penalties related to income taxes from current income tax liabilities to provisions in the consolidated statement of financial position. The impact of the revision was EUR 98 million as of December 31, 2016 and EUR 93 million as of December 31, 2015.

(2) The utilization of restructuring provision includes items transferred to accrued expenses, of which EUR 62 million remained in accrued expenses as of December 31, 2016. The utilization of project losses includes EUR 7 million transferred to inventory write-downs. The utilization of other provisions includes items transferred to accrued expenses, of which EUR 7 million remained in accrued expenses as of December 31, 2016.

(3) The utilization of restructuring provision includes items transferred to accrued expenses, of which EUR 56 million remained in accrued expenses as of December 31, 2017.

As of December 31, 2017, the restructuring provision amounted to EUR 722 million including personnel and other restructuring related costs, such as real estate exit costs. The provision consists of EUR 596 million global provision related to the announcement on April 6, 2016 and EUR 126 million relating to the restructuring provisions recognized due to previously announced restructuring programs. The majority of the restructuring-related cash outflows is expected to occur over the next two years.

The warranty provision relates to sold products. Cash outflows related to the warranty provision are generally expected to occur within the next 18 months.

The litigation provision includes estimated potential future settlements for litigation. Cash outflows related to the litigation provision are inherently uncertain and generally occur over several periods.

The environmental provision includes estimated costs to sufficiently clean and refurbish contaminated sites, to the extent necessary, and where necessary, continuing surveillance at sites where the environmental remediation exposure is less significant. Cash outflows related to the environmental liability are inherently uncertain and generally occur over several periods.

The project loss provision relates to onerous customer contracts. Cash outflows related to the project loss provision are generally expected to occur over the next 12 months.

The divestment-related provision relates to the sale of businesses, and includes certain liabilities where the Group is required to indemnify the buyer. Cash outflows related to the divestment-related provision are inherently uncertain.

The material liability provision relates to non-cancellable purchase commitments with suppliers, in excess of forecasted requirements as of each reporting date. Cash outflows related to the material liability provision are expected to occur over the next 12 months.

Other provisions include provisions for various contractual obligations and other obligations. Cash outflows related to other provisions are generally expected to occur over the next two years.

Notes to consolidated financial statements continued

Legal matters

A number of Group companies are and will likely continue to be subject to various legal proceedings and investigations that arise from time to time, including proceedings regarding intellectual property, product liability, sales and marketing practices, commercial disputes, employment, and wrongful discharge, antitrust, securities, health and safety, environmental, tax, international trade, and privacy matters. As a result, the Group may incur substantial costs that may not be covered by insurance and could affect business and reputation. While management does not expect any of these legal proceedings to have a material adverse effect on the Group's financial position, litigation is inherently unpredictable and the Group may in the future incur judgments or enter into settlements that could have a material adverse effect on the results of operations and cash flows.

Litigation and proceedings

Vertu

The Group divested the United Kingdom-based luxury handset business, Vertu, to Crown Bidco Ltd in 2013. In 2014, Crown Bidco Ltd served a claim in the Commercial Court in London alleging breach of contract in relation to the transfer of IT assets and breach of warranties under the sale agreement. In July 2017, Crown Bidco and the Group resolved the dispute on terms confidential to the parties and without any admission of liability on the part of any entity.

Mass labor litigation Brazil

The Group is defending against a substantial number of labor claims in various Brazilian labor courts. Plaintiffs are former employees whose contracts were terminated after the Group exited from certain managed services contracts. The claims mainly relate to payments made under, or in connection with, the terminated labor contracts. The Group has closed the majority of the court cases through settlement or judgement. Closure of most of the remaining open cases is expected to occur within the next couple of years.

Asbestos litigation in the United States

The Group is defending approximately 350 asbestos-related matters, at various stages of litigation. The claims are based on premises liability, products liability, and contractor liability. The claims also involve plaintiffs allegedly diagnosed with various diseases, including but not limited to asbestos, lung cancer, and mesothelioma.

Intellectual property rights litigation

Apple

On December 21, 2016, the Group commenced patent infringement proceedings against Apple in Asia, Europe and the United States. On May 23, 2017, the parties settled all pending patent litigation between them, and entered into a patent license and business collaboration agreement. The Group received an up-front cash payment from Apple, with additional revenues during the term of the agreement.

LG Electronics

In 2015, LG Electronics agreed to take a royalty-bearing smartphone patent license from Nokia Technologies with the royalty payment obligations subject to commercial arbitration. In September 2017, the International Court of Arbitration of the International Chamber of Commerce issued its award for that arbitration between the Group and LG Electronics. The parties have since reached an agreement on a license for a longer term than was set out in the arbitration.

30. Commitments and contingencies

Contractual obligations

Payments due for contractual obligations as of December 31, 2017 by due date:

EURm	Within 1 year	1 to 3 years	4 to 5 years	More than 5 years	Total
Purchase obligations ⁽¹⁾	1 983	471	67	5	2 526
Operating leases ⁽²⁾	255	335	185	186	961
Total	2 238	806	252	191	3 487

(1) Includes inventory purchase obligations, service agreements and outsourcing arrangements.

(2) Includes leasing costs for office, manufacturing and warehouse space under various non-cancellable operating leases. Certain contracts contain renewal options for various periods of time.

Guarantees and other contingent commitments

EURm	2017	2016
Collateral for own commitments		
Assets pledged	5	5
Contingent liabilities on behalf of Group companies⁽¹⁾		
Guarantees issued by financial institutions	1 678	1 805
Other guarantees	487	794
Contingent liabilities on behalf of associated companies and joint ventures		
Financial guarantees	–	11
Contingent liabilities on behalf of other companies		
Other guarantees	27	135
Financing commitments		
Customer finance commitments ⁽²⁾	495	223
Financing commitments to associated companies	20	–
Venture fund commitments ⁽³⁾	396	525

- (1) In contingent liabilities on behalf of Group companies, the Group reports guarantees that have been given to third parties in the normal course of business. These are mainly guarantees given by financial institutions to the Group's customers for the performance of the Group's obligations under supply agreements, including tender bonds, performance bonds, and warranty bonds issued by financial institutions on behalf of the Group. Additionally, the Group has issued corporate guarantees with primary obligation given directly to customers with these guarantees amounting to EUR 1 114 million (EUR 1 608 million in 2016). In Other guarantees, the Group reports guarantees related to non-commercial contracts that support business activities. As a result of internal policies and active management of outstanding guarantee exposure, the Group has not been subject to any material guarantee claims during recent years.
- (2) Customer finance commitments are available under loan facilities negotiated with customers. Availability of the facility is dependent upon the borrower's continuing compliance with the agreed financial and operational covenants, and compliance with other administrative terms of the facility. The loan facilities are primarily available to fund capital expenditure relating to purchases of network infrastructure equipment and services. Refer to Note 36, Risk management.
- (3) In 2016, Nokia Growth Partners announced the closing of a new USD 350 million fund for investments in Internet of Things companies. The fund is sponsored by the Group and will serve to identify new opportunities to grow the ecosystem in these solutions. As a limited partner in Nokia Growth Partners and certain other funds making technology-related investments, The Group is committed to capital contributions and entitled to cash distributions according to the respective partnership agreements and underlying fund activities.

The amounts represent the maximum principal amount for commitments and contingencies.

Notes to consolidated financial statements continued

31. Notes to the consolidated statement of cash flows

EURm	2017	2016	2015
Adjustments for⁽¹⁾			
Depreciation and amortization	1 591	1 594	320
Share-based payment	92	113	49
Impairment charges	244	125	11
Restructuring charges ⁽²⁾	522	751	48
Profit on sale of property, plant and equipment and available-for-sale investments	(121)	(82)	(132)
Transfer from hedging reserve to sales and cost of sales	–	27	61
Share of results of associated companies and joint ventures (Note 34)	(11)	(18)	(29)
Financial income and expenses	402	308	211
Income tax expense/(benefit)	937	(429)	338
Gain on the sale of businesses	(5)	(14)	(1 178)
Other income and expenses	(68)	32	40
Total	3 583	2 407	(261)
Change in net working capital			
(Increase)/decrease in receivables	(421)	18	(728)
(Increase)/decrease in inventories	(296)	533	341
Increase/(decrease) in interest-free liabilities	1 314	(2 758)	(990)
Total	597	(2 207)	(1 377)

(1) Includes Continuing and Discontinued operations. Refer to Note 6, Disposals treated as Discontinued operations.

(2) Adjustments represent the non-cash portion of the restructuring charges recognized in the consolidated income statement.

The Group did not engage in any material non-cash investing or financing activities in 2017. In 2016, the purchase consideration in relation to the acquisition of Alcatel Lucent comprised the issuance of new Nokia shares in addition to cash payments. Refer to Note 5, Acquisitions. In 2015, the Group exercised its option to redeem EUR 750 million convertible bonds at their principal amount outstanding plus accrued interest. Virtually all bondholders elected to convert their convertible bonds into Nokia shares before redemption. The conversion did not have a cash impact.

32. Principal Group companies

The Group's significant subsidiaries as of December 31, 2017:

Company name	Country of incorporation and place of business	Primary nature of business	Parent holding %	Group ownership interest %
Nokia Solutions and Networks B.V.	The Hague, Netherlands	Holding company	–	100.0
Nokia Solutions and Networks Oy	Helsinki, Finland	Sales and manufacturing company	–	100.0
Nokia of America Corporation ⁽¹⁾	Delaware, USA	Sales company	–	100.0
Nokia Solutions and Networks India Private Limited	New Delhi, India	Sales and manufacturing company	–	100.0
Nokia Solutions and Networks System Technology (Beijing) Co., Ltd.	Beijing, China	Sales company	–	100.0
Nokia Technologies Oy	Helsinki, Finland	Sales and development company	100.0	100.0
Nokia Bell NV	Antwerp, Belgium	Sales company	–	100.0
Alcatel-Lucent Participations SA	Nozay, France	Holding company	–	100.0
Alcatel-Lucent Canada Inc.	Ottawa, Canada	Sales company	–	100.0
Nokia Shanghai Bell Co., Ltd ⁽²⁾⁽⁴⁾	Shanghai, China	Sales and manufacturing company	–	50.0
Nokia Solutions and Networks Branch Operations Oy	Helsinki, Finland	Sales company	–	100.0
Nokia Solutions and Networks Japan Corporation	Tokyo, Japan	Sales company	–	100.0
Alcatel Submarine Networks SAS	Nozay, France	Sales and manufacturing company	–	100.0
Nokia Spain, S.A.	Madrid, Spain	Sales company	–	100.0
Alcatel-Lucent Italia S.p.A.	Milan, Italy	Sales company	–	100.0
Alcatel Lucent SAS ⁽³⁾	Nozay, France	Holding company	–	100.0
Nokia UK Limited	Bristol, UK	Sales company	–	100.0
Nokia Solutions and Networks Taiwan Co., Ltd.	Taipei, Taiwan	Sales company	–	100.0
Nokia Solutions and Networks GmbH & Co. KG	Munich, Germany	Sales company	–	100.0
Alcatel-Lucent International SAS	Nozay, France	Sales company	–	100.0
Nokia Services Limited	New South Wales, Australia	Sales company	–	100.0
Nokia Finance International B.V.	Haarlem, Netherlands	Holding company	100.0	100.0

(1) Alcatel-Lucent USA Inc. was renamed as Nokia of America Corporation, effective January 1, 2018.

(2) Alcatel-Lucent Shanghai Bell Co., Ltd. was renamed as Nokia Shanghai Bell Co., Ltd., effective June 1, 2017.

(3) Company form of Alcatel Lucent SA was changed to Alcatel Lucent SAS, effective February 28, 2017.

(4) The Group owns 50% plus one share in Nokia Shanghai Bell Co., Ltd, the other shareholder being China Huaxin, an entity controlled by the Chinese government. Refer to Note 33, Significant partly-owned subsidiaries.

Notes to consolidated financial statements continued

33. Significant partly-owned subsidiaries

As part of the acquisition of Alcatel Lucent on January 4, 2016, the Group acquired a partly-owned consolidated subsidiary, Alcatel-Lucent Shanghai Bell Co., Ltd. On May 18, 2017, the Group announced the signing of definitive agreements with the China Huaxin Post & Telecommunication Economy Development Center ("China Huaxin") related to the integration of Alcatel-Lucent Shanghai Bell Co., Ltd. and the Group's China business into a new joint venture branded as Nokia Shanghai Bell.

As part of the definitive agreements, the Group transferred its China business and subsidiaries to Nokia Shanghai Bell in exchange for a cash payment. As the transfer of the Group's China business consisted of a transaction between two Group subsidiaries, all gains or losses that arose from the transaction were fully eliminated within the Group's consolidated financial statements. Further, the transfer of cash from Nokia Shanghai Bell to the wholly-owned parent entity of the Group's China business did not impact the cash nor net cash balances in the Group's consolidated financial statements.

On July 3, 2017, the Group and China Huaxin commenced operations of the new Nokia Shanghai Bell joint venture. The Group holds an ownership interest of 50% plus one share in the Nokia Shanghai Bell's parent company, Nokia Shanghai Bell Co., Ltd., with China Huaxin holding the remaining ownership interests. The definitive agreements provide China Huaxin with the right to fully transfer its ownership interest in Nokia Shanghai Bell to the Group and the Group with the right to purchase China Huaxin's ownership interest in Nokia Shanghai Bell in exchange for a future cash settlement. As a result, the Group derecognised the non-controlling interest balance related to Nokia Shanghai Bell of EUR 772 million partly offset by the recognition of a related financial liability of EUR 737 million with the difference of EUR 35 million recorded as a gain within retained earnings as a transaction with the non-controlling interest.

The financial liability is measured based on the present value of the expected future cash settlement to acquire the non-controlling interest in Nokia Shanghai Bell. In 2017, an interest expense of EUR 18 million was recorded to reflect the recognition of the present value discount on the financial liability. The Group decreased the value of the financial liability in 2017 to reflect a change in estimate of the future cash settlement resulting in the recognition of a EUR 64 million gain in financial income and expenses in the consolidated income statement.

Financial information for the Nokia Shanghai Bell Group⁽¹⁾:

EURm	2017	2016
Summarized income statement		
Net sales ⁽²⁾	2 276	1 806
Operating profit/(loss)	83	(136)
Profit/(loss) for the year	52	(89)
Profit/(loss) for the year attributable to:		
Equity holders of the parent	15	(45)
Non-controlling interests ⁽³⁾	37	(45)
Summarized statement of financial position		
Non-current assets	589	424
Non-current liabilities	(130)	(128)
Non-current net assets	459	296
Current assets ⁽⁴⁾	3 888	2 841
Current liabilities	(2 765)	(1 657)
Current net assets	1 123	1 184
Net assets⁽⁵⁾	1 582	1 480
Non-controlling interests ⁽⁶⁾	–	775
Summarized statement of cash flows		
Net cash from/(used in) operating activities	438	(182)
Net cash (used in)/from investing activities	(184)	89
Net cash used in financing activities	(442)	(24)
Net decrease in cash and cash equivalents	(188)	(117)

(1) Financial information in 2017 is not fully comparable to financial information in 2016: the new Nokia Shanghai Bell joint venture commenced operations on July 3, 2017 and includes, in addition to the Alcatel Lucent Shanghai Bell Group entities previously reported as material partly-owned subsidiaries, the Group's China business, which were previously fully owned subsidiaries. Financial information for the Nokia Shanghai Bell Group is presented before eliminations of intercompany transactions with the rest of the Group but after eliminations of intercompany transactions between entities within the Nokia Shanghai Bell Group.

(2) Includes EUR 328 million (EUR 483 million in 2016) net sales to other Group entities.

(3) In 2017, profit for the year is attributed to non-controlling interests until July 3, 2017.

(4) Includes a total of EUR 1 001 million (EUR 1 284 million in 2016) of cash and cash equivalents and available-for-sale investments, liquid assets.

(5) The distribution of the profits of Nokia Shanghai Bell Co., Ltd requires the passing of a special resolution by more than two-thirds of its shareholders, subject to a requirement that at least 50% of the after-tax distributable profits are distributed as dividends each year.

(6) In 2017, the non-controlling interest balance was derecognized and partially offset by the recognition of the related financial liability of EUR 737 million.

34. Investments in associated companies and joint ventures

EURm	2017	2016
Net carrying amount as of January 1	116	84
Translation differences	(8)	(1)
Acquisitions through business combinations	1	20
Additions	9	–
Disposals	–	(4)
Share of results	11	18
Dividends	(1)	(1)
Net carrying amount as of December 31	128	116

Shareholdings in associated companies and joint ventures comprise investments in unlisted companies.

35. Related party transactions

The Group has related party transactions with a pension fund, associated companies, joint ventures and other entities where the Group has significant influence, as well as the management and the Board of Directors. Transactions and balances with companies over which the Group exercises control are eliminated on consolidation. Refer to Note 2, Significant accounting policies, and Note 32, Principal Group companies.

Transactions with pension fund

The Group has borrowings of EUR 69 million (EUR 69 million in 2016) from Nokia Unterstützungsgeellschaft mbH, the Group's German pension fund, a separate legal entity. The loan bears interest at the rate of 6% per annum and its duration is pending until further notice by the loan counterparties even though they have the right to terminate the loan with a 90-day notice. The loan is included in short-term interest-bearing liabilities in the consolidated statement of financial position.

Transactions with associated companies, joint ventures and other entities where the Group has significant influence

EURm	2017	2016	2015
Share of results	11	18	29
Dividend income	1	1	2
Share of shareholders' equity	128	116	84
Sales	117	62	(1)
Purchases	(252)	(322)	(233)
Receivables	41	13	–
Payables	(19)	(38)	(37)

The Group has financial commitments of EUR 20 million (guaranteed a loan of EUR 11 million in 2016) for an associated company.

Management compensation

Compensation information for the President and CEO:

EUR	2017	2016	2015
Base salary/fee	1 050 000	1 049 044	1 000 000
Cash incentive payments	997 369	780 357	1 922 195
Share-based payment expenses ⁽¹⁾	2 606 613	5 296 960	4 604 622
Pension expenses	338 787	469 737	491 641
Total	4 992 769	7 596 098	8 018 458

(1) Represents the expense for all outstanding equity grants recorded during the year.

Total remuneration awarded to the Group Leadership Team for their time as members of the Group Leadership Team:

EURm	2017	2016	2015
Short-term benefits	22	26	9
Post-employment benefits ⁽¹⁾	1	1	1
Share-based payment	7	15	9
Termination benefits ⁽²⁾	4	1	3
Total	34	43	22

(1) The members of the Group Leadership Team participate in the local retirement programs applicable to employees in the country where they reside.

(2) Includes both termination payments and payments made under exceptional contractual arrangements for lapsed equity awards.

Notes to consolidated financial statements continued

Board of Directors' compensation

The annual remuneration paid to the members of the Board of Directors, as decided by the Annual General Meetings in the respective years:

	2017	2016	2015			
	Gross annual fee ⁽¹⁾ EUR	Shares received ⁽²⁾ number	Gross annual fee ⁽¹⁾ EUR	Shares received ⁽²⁾ number	Gross annual fee ⁽¹⁾ EUR	Shares received ⁽²⁾ number
Risto Siilasmaa, Chair	440 000	30 497	440 000	35 001	440 000	29 339
Olivier Piou, Vice Chair ⁽³⁾	199 000	12 823	255 082	19 892	–	–
Vivek Badrinath	–	–	175 000	13 921	140 000	9 333
Bruce Brown ⁽⁴⁾	209 000	13 169	190 000	15 114	155 000	10 333
Jeanette Horan ⁽⁵⁾	175 000	12 129	–	–	–	–
Elisabeth Doherty	–	–	–	–	140 000	9 333
Louis R. Hughes ⁽⁶⁾	194 000	12 129	240 410	18 752	–	–
Simon Jiang	–	–	–	–	130 000	8 666
Jouko Karvinen	–	–	–	–	175 000	11 667
Edward Kozel ⁽⁷⁾	175 000	12 129	–	–	–	–
Jean C. Monty ⁽⁸⁾	174 000	11 090	225 410	17 558	–	–
Elizabeth Nelson ⁽⁹⁾	207 000	13 169	190 000	15 114	140 000	9 333
Carla Smits-Nusteling ⁽¹⁰⁾	195 000	12 129	175 000	13 921	–	–
Kari Stadigh ⁽¹¹⁾	170 000	11 090	160 000	12 727	130 000	8 666
Total	2 138 000		2 050 902		1 450 000	

(1) The meeting fees for the term that ended at the close of the Annual General meeting in 2017 were paid in cash in 2017 and are included in the table. The meeting fees for the current term as resolved by the Annual General Meeting in 2017 will be paid in cash in 2018 and are not included in the table.

(2) Approximately 40% of each Board member's annual compensation is paid in Nokia shares purchased from the market, and the remaining approximately 60% is paid in cash.

(3) Consists of EUR 185 000 for services as the Vice Chair of the Board and meeting fees of EUR 14 000.

(4) Consists of EUR 160 000 for services as a member of the Board and EUR 30 000 for services as a Chair of the Personnel Committee and meeting fees of EUR 19 000.

(5) Consists of EUR 160 000 for services as a member of the Board and EUR 15 000 for services as member of the Audit Committee.

(6) Consists of EUR 160 000 for services as a member of the Board and EUR 15 000 for services as member of the Audit Committee and meeting fees of EUR 19 000.

(7) Consists of EUR 160 000 for services as a member of the Board and EUR 15 000 for services as a member of the Audit Committee.

(8) Consists of EUR 160 000 for services as a member of the Board and meeting fees of EUR 14 000.

(9) Consists of EUR 160 000 for services as a member of the Board and EUR 30 000 for services as a Chair of the Audit Committee and meeting fees of EUR 17 000.

(10) Consists of EUR 160 000 for services as a member of the Board and EUR 15 000 for services as a member of the Audit Committee and meeting fees of EUR 20 000.

(11) Consists of EUR 160 000 for services as a member of the Board and meeting fees of EUR 10 000.

Transactions with the Group Leadership Team and the Board of Directors

No loans were granted to the members of the Group Leadership Team and the Board of Directors in 2017, 2016 or 2015.

Terms of termination of employment of the President and CEO

The President and CEO, Rajeev Suri, may terminate his service contract at any time with six months' prior notice. The Group may terminate his service contract for reasons other than cause at any time with an 18 months' notice period. If there is a change of control event as defined in Mr. Suri's service contract and the service contract is terminated either by the Group or its successor without cause, or by him for "good reason", he would be entitled to a severance payment equaling up to 18 months of compensation and cash payment of the pro-rated value of his outstanding unvested equity awards, if he is dismissed within 18 months of the change in control event.

36. Risk management

General risk management principles

The Group has a systematic and structured approach to risk management across business operations and processes. Key risks and opportunities are identified primarily against business targets either in business operations or as an integral part of financial planning. Key risks and opportunities are analyzed, managed, monitored and identified as part of business performance management with the support of risk management personnel. The Group's overall risk management concept is based on managing the key risks that would prevent the Group from meeting its objectives, rather than solely focusing on eliminating risks. The principles documented in the Nokia Enterprise Risk Management Policy, 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 main 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 to their roles and duties. Risk management covers strategic, operational, financial and hazard 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 prioritization of risk management activities. In addition to the principles defined in the Nokia Enterprise Risk Management Policy, specific risk management implementation is reflected in other key policies.

Financial risks

The objective for treasury activities is to guarantee sufficient funding at all times and to identify, evaluate and manage financial risks. Treasury activities support this aim by mitigating the adverse effects on the profitability of the underlying business caused by fluctuations in the financial markets, and by managing the capital structure by balancing the levels of liquid assets and financial borrowings. Treasury activities are governed by the Nokia Treasury Policy approved by the Group President and CEO which provides principles for overall financial risk management and determines the allocation of responsibilities for financial risk management activities. Operating procedures approved by the Group CFO cover specific areas such as foreign exchange risk, interest rate risk, credit and liquidity risk as well as the use of derivative financial instruments in managing these risks. The Group is risk averse in its treasury activities.

Financial risks are divided into market risk covering foreign exchange risk, interest rate risk and equity price risk; credit risk covering business-related credit risk and financial credit risk; and liquidity risk.

Market risk

Foreign exchange risk

The Group operates globally and is exposed to transaction and translation foreign exchange risks. Transaction risk arises from foreign currency denominated assets and liabilities together with foreign currency denominated future cash flows. Transaction exposures are managed in the context of various functional currencies of Group companies. Material transactional foreign exchange exposures are hedged, unless hedging would be uneconomical due to market liquidity and/or hedging cost. Exposures are defined using transaction nominal values. Exposures are mainly hedged with derivative financial instruments, such as forward foreign exchange contracts and foreign exchange options. The majority of financial instruments hedging foreign exchange risk have a duration of less than a year. The Group does not hedge forecast foreign currency cash flows beyond two years.

As the Group has entities where the functional currency is other than the euro, the shareholders' equity is exposed to fluctuations in foreign exchange rates. Equity changes caused by movements in foreign exchange rates are shown as currency translation differences in the consolidated financial statements. The Group may use forward foreign exchange contracts, foreign exchange options and foreign currency denominated loans to hedge its foreign exchange exposure arising from foreign net investments.

Currencies that represent a significant portion of the currency mix in outstanding financial instruments as of December 31 are as follows:

EURm	USD	JPY	CNY	INR
2017				
Foreign exchange derivatives used as cash flow hedges, net ⁽¹⁾	(803)	(230)	–	–
Foreign exchange derivatives used as fair value hedges, net ⁽²⁾	(84)	–	–	–
Foreign exchange derivatives used as net investment hedges, net ⁽³⁾	(2 839)	–	(728)	(403)
Foreign exchange exposure from statement of financial position items, net	(3 365)	196	(765)	(352)
Foreign exchange derivatives not designated in a hedge relationship, carried at fair value through profit and loss, net ⁽⁴⁾	1 777	(411)	577	446
Cross-currency/interest rate hedges	1 377	–	–	–
2016				
Foreign exchange derivatives used as cash flow hedges, net ⁽¹⁾	–	(158)	–	–
Foreign exchange derivatives used as fair value hedges, net ⁽²⁾	(397)	–	–	–
Foreign exchange derivatives used as net investment hedges, net ⁽³⁾	(1 418)	–	–	(104)
Foreign exchange exposure from statement of financial position items, net	(2 172)	434	(227)	(236)
Foreign exchange derivatives not designated in a hedge relationship, carried at fair value through profit and loss, net ⁽⁴⁾	1 747	(174)	(587)	104
Cross-currency/interest rate hedges	1 051	(328)	–	–

(1) Used to hedge the foreign exchange risk from forecasted highly probable cash flows related to sales, purchases and business acquisition activities. In some currencies, especially the U.S. dollar, the Group has substantial foreign exchange risks in both estimated cash inflows and outflows. The underlying exposures for which these hedges are entered into are not presented in the table as they are not financial instruments.

(2) Used to hedge foreign exchange risk from contractual firm commitments. The underlying exposures for which these hedges are entered into are not presented in the table as they are not financial instruments.

(3) Used to hedge net investment exposure. The underlying exposures for which these hedges are entered into are not presented in the table as they are not financial instruments.

(4) Items on the statement of financial position and some probable forecasted cash flows denominated in foreign currencies are hedged by a portion of foreign exchange derivatives not designated in a hedge relationship and carried at fair value through profit and loss.

Notes to consolidated financial statements continued

The methodology for assessing market risk exposures: Value-at-risk

The Group uses the Value-at-Risk ("VaR") methodology to assess exposures to foreign exchange risks. The VaR-based methodology provides estimates of potential fair value losses in market risk-sensitive instruments as a result of adverse changes in specified market factors, at a specified confidence level over a defined holding period. The Group calculates the foreign exchange VaR using the Monte Carlo method which simulates random values for exchange rates in which the Group has exposures and takes the non-linear price function of certain derivative instruments into account. The VaR is determined using volatilities and correlations of rates and prices estimated from a sample of historical market data, at a 95% confidence level, using a one-month holding period. To put more weight on recent market conditions, an exponentially weighted moving average is performed on the data with an appropriate decay factor. This model implies that within a one-month period, the potential loss will not exceed the VaR estimate in 95% of possible outcomes. In the remaining 5% of possible outcomes the potential loss will be at minimum equal to the VaR figure and, on average, substantially higher. The VaR methodology relies on a number of assumptions which include the following: risks are measured under average market conditions, changes in market risk factors follow normal distributions, future movements in market risk factors are in line with estimated parameters and the assessed exposures do not change during the holding period. Thus, it is possible that, for any given month, the potential losses at a 95% confidence level are different and could be substantially higher than the estimated VaR.

The VaR figures for the Group's financial instruments which are sensitive to foreign exchange risks are presented in the table below. The VaR calculation includes foreign currency denominated monetary financial instruments, such as available-for-sale investments, loans and accounts receivable, investments at fair value through profit and loss, cash, loans and accounts payable; foreign exchange derivatives carried at fair value through profit and loss which are not in a hedge relationship and are mostly used to hedge the statement of financial position foreign exchange exposure; and foreign exchange derivatives designated as forecasted cash flow hedges and net investment hedges. Most of the VaR is caused by these derivatives as forecasted cash flow and net investment exposures are not financial instruments as defined in IFRS 7, Financial Instruments: Disclosures, and thus not included in the VaR calculation.

EURm	2017		2016	
	VaR from financial instruments			
As of December 31		144		83
Average for the year		205		111
Range for the year	144–267		73–149	

Interest rate risk

The Group is exposed to interest rate risk either through market value fluctuations of items on the consolidated statement of financial position ("price risk") or through changes in interest income or expenses ("refinancing" or "reinvestment risk"). Interest rate risk mainly arises through interest-bearing liabilities and assets. Estimated future changes in cash flows and the structure of the consolidated statement of financial position also expose the Group to interest rate risk. The objective of interest rate risk management is to mitigate adverse impacts arising from interest rate fluctuations on the consolidated income statement, cash flow, and financial assets and liabilities while taking into consideration the Group's target capital structure and the resulting net interest rate exposure.

Interest rate profile of interest-bearing assets and liabilities as of December 31:

EURm	2017		2016	
	Fixed rate	Floating rate ⁽¹⁾	Fixed rate	Floating rate ⁽¹⁾
Assets	889	7 581	2 107	7 410
Liabilities	(3 637)	(57)	(3 845)	(113)
Assets and liabilities before derivatives	(2 748)	7 524	(1 738)	7 297
Interest rate derivatives	1 371	(1 371)	1 358	(1 328)
Assets and liabilities after derivatives	(1 377)	6 153	(380)	5 969

(1) All investments and credit support-related liabilities with initial maturity of three months or less are considered floating rate for the purposes of interest rate risk management.

Interest rate exposure is monitored and managed centrally. The Group uses selective sensitivity analyses to assess and measure interest rate exposure arising from interest-bearing assets, interest-bearing liabilities and related derivatives. Sensitivity analysis determines an estimate of potential fair value changes in market risk-sensitive instruments by varying interest rates in currencies in which the Group has material amounts of financial assets and liabilities while keeping all other variables constant. The Group's sensitivity to interest rate exposure in the investment and debt portfolios is presented in the table below. Sensitivities to credit spreads are not reflected in the numbers.

EURm	2017			2016		
	Impact on fair value	Impact on profit	Impact on OCI	Impact on fair value	Impact on profit	Impact on OCI
Interest rates – increase by 100 basis points	126	2	(1)	181	(3)	(2)
Interest rates – decrease by 50 basis points	(67)	(1)	–	(99)	2	1

Equity price risk

In 2017 and 2016, the Group did not have exposure to equity price risk from publicly listed equity shares as it does not have significant investments. The private funds where the Group has investments are investing primarily in private equity and may, from time to time, have investments also in public equity. Such investments have not been included in this disclosure.

Other market risk

In certain emerging market countries there are local exchange control regulations that provide for restrictions on making cross-border transfers of funds as well as other regulations that impact the Group's ability to control its net assets in those countries.

Credit risk

Credit risk refers to the risk that a counterparty will default on its contractual obligations resulting in financial loss to the Group. Credit risk arises from credit exposures to customers, including outstanding receivables, financial guarantees and committed transactions, as well as financial institutions, including bank and cash, fixed income and money-market investments, and derivative financial instruments. Credit risk is managed separately for business-related and financial credit exposures.

The maximum exposure to credit risk for outstanding customer finance loans is limited to the book value of financial assets as included in the consolidated statement of financial position:

EURm	2017	2016
Loan commitments given but not used	495	223
Outstanding customer finance loans ⁽¹⁾	160	129
Total	655	352

(1) Includes acquired customer loans on a fair value basis. Excludes EUR 33 million (EUR 33 million in 2016) which are considered to be uncollectible and have been provisioned.

Business-related credit risk

The Group aims to ensure the highest possible quality in accounts receivable as well as customer- or third party loan receivables. The Credit Risk Management Standard Operating Procedure, approved by the Group CFO, lays out the framework for the management of the business-related credit risks. The Credit Risk Management Standard Operating Procedure sets out that credit decisions are based on credit evaluation in each business, including credit rating and limits for larger exposures, according to defined principles. Group level limit approvals are required for material credit exposures. Credit risks are monitored in each business and, where appropriate, mitigated on case by case basis with the use of letters of credit, collaterals, sponsor guarantees, credit insurance, and sale of selected receivables.

Credit exposure is measured as the total of accounts receivable and loans outstanding from customers and committed credits. Accounts receivable do not include any major concentrations of credit risk by customer. The top three customers account for approximately 4.3%, 3.8% and 2.6% (3.5%, 3.0% and 2.4% in 2016) of accounts receivable and loans due from customers and other third parties as of December 31, 2017. The top three credit exposures by country account for approximately 17.4%, 13.4% and 5.3% (19.1%, 8.6% and 7.4% in 2016) of the Group's accounts receivable and loans due from customers and other third parties as of December 31, 2017. The 17.4% credit exposure relates to accounts receivable in China (19.1% in 2016).

The Group has provided allowances for doubtful accounts on accounts receivable and loans due from customers and other third parties not past due based on an analysis of debtors' credit ratings and credit histories. The Group establishes allowances for doubtful accounts that represent an estimate of expected losses at the end of the reporting period. All receivables and loans due from customers are considered on an individual basis to determine the allowances for doubtful accounts. The total of accounts receivable and loans due from customers is EUR 7 232 million (EUR 7 101 million in 2016). The gross carrying amount of accounts receivable, related to customer balances for which valuation allowances have been recognized, is EUR 3 161 million (EUR 2 439 million in 2016). The allowances for doubtful accounts for these accounts receivable as well as amounts expected to be uncollectible for acquired receivables are EUR 259 million (EUR 301 million in 2016).

Aging of past due receivables not considered to be impaired as of December 31:

EURm	2017	2016
Past due 1–30 days	67	102
Past due 31–180 days	94	141
More than 180 days	117	223
Total	278	466

Notes to consolidated financial statements continued

Financial credit risk

Financial instruments contain an element of risk resulting from changes in the market price due to counterparties becoming less creditworthy or risk of loss due to counterparties being unable to meet their obligations. Financial credit risk is measured and monitored centrally by Treasury. Financial credit risk is managed actively by limiting counterparties to a sufficient number of major banks and financial institutions, and by monitoring the creditworthiness and the size of exposures continuously. Additionally, the Group enters into netting arrangements with all major counterparties, which give the right to offset in the event that the counterparty would not be able to fulfill its obligations. The Group enters into collateral agreements with certain counterparties, which require counterparties to post collateral against derivative receivables.

Investment decisions are based on strict creditworthiness and maturity criteria as defined in the Treasury-related policies and procedures. As a result of this investment policy approach and active management of outstanding investment exposures, the Group has not been subject to any material credit losses in its financial investments in the years presented.

Breakdown of outstanding fixed income and money-market investments by sector and credit rating grades ranked as per Moody's rating categories as of December 31:

EURm	Rating ⁽¹⁾	Due within 3 months	Due between 3 and 12 months	Due between 1 and 3 years	Due between 3 and 5 years	Due beyond 5 years	Total ⁽²⁾⁽³⁾⁽⁴⁾
2017							
Banks	Aaa	607	–	–	–	–	607
	Aa1-Aa3	398	74	69	–	–	541
	A1-A3	1 808	247	240	191	45	2 531
	Baa1-Baa3	455	232	125	–	–	812
	Ba1-B3	35	–	2	–	–	37
	Non-rated	38	–	–	–	–	38
Governments	A1-A3	1	2	–	–	–	3
Other	Aa1-Aa3	24	10	39	–	–	73
	A1-A3	10	53	78	–	–	141
Total		3 376	618	553	191	45	4 783
2016							
Banks	Aaa	1 054	–	–	–	–	1 054
	Aa1-Aa3	410	201	35	–	–	646
	A1-A3	1 405	211	387	116	–	2 119
	Baa1-Baa3	893	728	–	–	–	1 621
	Ba1-B3	15	–	–	–	–	15
	Non rated	42	–	–	–	–	42
Governments	A1-A3	–	–	274	53	–	327
Other	Aa1-Aa3	45	30	1	–	–	76
	A1-A3	52	61	13	–	–	126
	Baa1-Baa3	6	13	5	–	–	24
Total		3 922	1 244	715	169	–	6 050

(1) Bank Parent Company ratings are used here for bank groups. In some emerging markets countries, actual bank subsidiary ratings may differ from the Parent Company rating.

(2) Fixed income and money-market investments include term deposits, structured deposits, investments in liquidity funds and investments in fixed income instruments classified as available-for-sale investments and investments at fair value through profit and loss. Liquidity funds invested solely in government securities are included under Governments. Other liquidity funds are included under Banks.

(3) Instruments that include a call feature have been presented at their final maturities, if any. Instruments that are contractually due beyond 3 months include EUR 701 million (EUR 566 million in 2016) of instruments that have a call period of less than 3 months.

(4) Includes EUR 5 million of restricted investments (EUR 5 million in 2016) within fixed income and money-market investments. These are restricted financial assets under various contractual or legal obligations.

96% (97% in 2016) of the Group's cash at bank of EUR 3 497 million (EUR 3 276 million in 2016) is held with banks of investment grade credit rating.

Financial assets and liabilities subject to offsetting under enforceable master netting agreements and similar arrangements as of December 31:

EURm	Gross amounts of financial assets/(liabilities)	Gross amounts of financial liabilities/(assets) set off in the statement of financial position	Net amounts of financial assets/(liabilities) presented in the statement of financial position	Related amounts not set off in the statement of financial position		Net amount
				Financial instruments assets/(liabilities)	Cash collateral received/(pledged)	
2017						
Derivative assets	197	–	197	135	38	24
Derivative liabilities	(268)	–	(268)	(145)	(100)	(23)
Total	(71)	–	(71)	(10)	(62)	1
2016						
Derivative assets	235	–	235	153	73	9
Derivative liabilities	(236)	–	(236)	(128)	(96)	(12)
Total	(1)	–	(1)	25	(23)	(3)

The financial instruments subject to enforceable master netting agreements and similar arrangements are not offset in the consolidated statement of financial position where there is no intention to settle net or realize the asset and settle the liability simultaneously.

Liquidity risk

Liquidity risk is defined as financial distress or extraordinarily high financing costs arising from a shortage of liquid funds in a situation where outstanding debt needs to be refinanced or where business conditions unexpectedly deteriorate and require financing. Transactional liquidity risk is defined as the risk of executing a financial transaction below fair market value or not being able to execute the transaction at all within a specific period of time. The objective of liquidity risk management is to maintain sufficient liquidity, and to ensure that it is available fast enough without endangering its value in order to avoid uncertainty related to financial distress at all times.

The Group aims to secure sufficient liquidity at all times through efficient cash management and by investing in short-term liquid interest-bearing securities and money-market investments. Depending on its overall liquidity position, the Group may pre-finance or refinance upcoming debt maturities before contractual maturity dates. The transactional liquidity risk is minimized by entering into transactions where proper two-way quotes can be obtained from the market.

Due to the dynamic nature of the underlying business, the Group aims to maintain flexibility in funding by maintaining committed and uncommitted credit lines. As of December 31, 2017 committed revolving credit facilities totaled EUR 1 579 million (EUR 1 579 million in 2016).

Significant current long-term funding programs as of December 31, 2017:

Issuer:	Program:	Issued
Nokia Corporation	Euro Medium-Term Note Program, totaling EUR 5 000 million	1 250

Significant current short-term funding programs as of December 31, 2017:

Issuer:	Program:	Issued
Nokia Corporation	Local commercial paper program in Finland, totaling EUR 750 million	–

Notes to consolidated financial statements continued

The following table presents an undiscounted cash flow analysis for financial liabilities and financial assets that are presented on the consolidated statement of financial position, and “off-balance sheet” instruments such as loan commitments, according to their remaining contractual maturity. The line-by-line analysis does not directly reconcile with the consolidated statement of financial position.

EURm	Total	Due within 3 months	Due between 3 and 12 months	Due between 1 and 3 years	Due between 3 and 5 years	Due beyond 5 years
2017						
Non-current financial assets						
Long-term loans receivable	112	21	–	77	4	10
Current financial assets						
Short-term loans receivable	92	6	86	–	–	–
Available-for-sale investments, including cash equivalents ⁽¹⁾	4 797	3 381	621	558	192	45
Bank and cash	3 497	3 497	–	–	–	–
Cash flows related to derivative financial assets gross settled:						
Derivative contracts—receipts	11 484	10 249	1 235	–	–	–
Derivative contracts—payments	(11 330)	(10 108)	(1 222)	–	–	–
Accounts receivable ⁽²⁾	5 633	4 297	1 208	107	21	–
Non-current financial liabilities						
Long-term interest-bearing liabilities	(4 657)	(44)	(95)	(938)	(1 098)	(2 482)
Other long-term liabilities	(754)	–	–	(748)	–	(6)
Current financial liabilities						
Short-term borrowings	(313)	(215)	(98)	–	–	–
Cash flows related to derivative financial liabilities gross settled:						
Derivative contracts—receipts	10 278	8 265	280	573	486	674
Derivative contracts—payments	(10 245)	(8 366)	(243)	(568)	(467)	(601)
Accounts payable	(3 996)	(3 731)	(251)	(9)	(3)	(2)
Contingent financial assets and liabilities						
Loan commitments given undrawn ⁽³⁾	(495)	(71)	(172)	(174)	(78)	–
Loan commitments obtained undrawn ⁽⁴⁾	1 566	(1)	(3)	1 570	–	–

(1) Instruments that include a call feature have been presented at their final maturities, if any. Instruments that are contractually due beyond 3 months include EUR 701 million of instruments that have a call period of less than 3 months.

(2) Accounts receivable maturity analysis does not include accrued receivables of EUR 1 247 million.

(3) Loan commitments given undrawn have been included in the earliest period in which they could be drawn or called.

(4) Loan commitments obtained undrawn have been included based on the period in which they expire. These amounts include related commitment fees.

EURm	Total	Due within 3 months	Due between 3 and 12 months	Due between 1 and 3 years	Due between 3 and 5 years	Due beyond 5 years
2016						
Non-current financial assets						
Long-term loans receivable	150	–	2	86	32	30
Current financial assets						
Short-term loans receivable	62	32	28	2	–	–
Investments at fair value through profit and loss	326	–	1	272	53	–
Available-for-sale investments, including cash equivalents ⁽¹⁾	5 753	3 935	1 248	453	117	–
Bank and cash	3 276	3 276	–	–	–	–
Cash flows related to derivative financial assets net settled:						
Derivative contracts—receipts	42	18	(6)	30	–	–
Cash flows related to derivative financial assets gross settled:						
Derivative contracts—receipts	8 221	6 473	492	1 038	13	205
Derivative contracts—payments	(7 942)	(6 404)	(440)	(962)	(5)	(131)
Accounts receivable ⁽²⁾	5 895	4 430	1 354	106	5	–
Non-current financial liabilities						
Long-term interest-bearing liabilities	(5 807)	(85)	(140)	(1 955)	(269)	(3 358)
Current financial liabilities						
Short-term borrowings	(372)	(255)	(116)	(1)	–	–
Cash flows related to derivative financial liabilities gross settled:						
Derivative contracts—receipts	8 948	7 727	925	248	48	–
Derivative contracts—payments	(9 187)	(7 867)	(995)	(272)	(53)	–
Accounts payable	(3 781)	(3 600)	(152)	(29)	–	–
Contingent financial assets and liabilities						
Loan commitments given undrawn ⁽³⁾	(223)	(30)	(83)	(110)	–	–
Loan commitments obtained undrawn ⁽⁴⁾	1 564	(1)	(3)	1 568	–	–

(1) Instruments that include a call feature have been presented at their final maturities, if any. Instruments that are contractually due beyond 3 months included EUR 566 million of instruments that have a call period of less than 3 months in 2016.

(2) Accounts receivable maturity analysis did not include accrued receivables of EUR 1 077 million.

(3) Loan commitments given undrawn have been included in the earliest period in which they could be drawn or called.

(4) Loan commitments obtained undrawn have been included based on the period in which they expire. These amounts include related commitment fees.

Parent Company income statement

For the year ended December 31	Notes	2017 EURm	2016 EURm
Net sales⁽¹⁾		723	836
Cost of sales		(8)	(7)
Gross profit		715	829
Selling, general and administrative expenses		(85)	(128)
Other income	4	7	17
Other expenses	4	(33)	(23)
Operating profit		604	695
Financial income and expenses			
Income from long-term investments	5	–	3
Interest and other financial income	5	358	96
Foreign exchange gains/(losses), net		96	(148)
Impairment on investments in subsidiaries and other shares		(17)	(54)
Interest and other financial expenses	5	(427)	(125)
Gain from sale of shares and businesses		3	7
Total financial income and expenses		13	(221)
Profit before appropriations and tax		617	474
Appropriations			
Group contributions	6	(264)	(60)
Profit before tax		353	414
Income tax expense	7	(69)	(93)
Profit for the year		284	321

(1) Nokia Technologies segment net sales

The notes are an integral part of these financial statements.

Parent Company statement of financial position

As of December 31	Notes	2017 EURm	2016 EURm
ASSETS			
Non-current assets			
Intangible assets			
Intangible rights		2	3
Total intangible assets		2	3
Property, plant and equipment			
Land and water areas	8	8	8
Buildings	8	91	96
Machinery and equipment	8	3	3
Other tangible assets	8	13	14
Advance payments and assets under construction	8	1	1
Total property, plant and equipment		116	122
Investments			
Investments in subsidiaries	9	18 591	18 596
Investments in associated companies	9	1	1
Available-for-sale investments	9, 15	27	65
Total investments		18 619	18 662
Other non-current assets			
Other non-current receivables	10	626	77
Long-term loan receivables from Group companies	15	1 950	637
Long-term loan receivables from other companies	15	7	7
Deferred tax assets	7	126	139
Total other non-current assets		2 709	860
Total non-current assets		21 446	19 647
Current assets			
Accounts receivable from Group companies	15	353	552
Accounts receivable from other companies	15	97	154
Current loans receivable from Group companies	15	9 199	3 735
Other financial assets from Group companies	15	30	69
Other financial assets from other companies	15	179	155
Prepaid expenses and accrued income from Group companies	11	148	49
Prepaid expenses and accrued income from other companies	11	72	118
Other current receivables from Group companies	6, 15	436	640
Short-term investments	15	810	1 625
Cash and cash equivalents	15	3 644	2 132
Total current assets		14 968	9 229
Total assets		36 414	28 876

The notes are an integral part of these financial statements.

Parent Company statement of financial position continued

As of December 31	Notes	2017 EURm	2016 EURm
SHAREHOLDERS' EQUITY AND LIABILITIES			
Capital and reserves			
Share capital	12	246	246
Share issue premium	12	46	46
Treasury shares	12, 13	(1 473)	(874)
Fair value and other reserves	12, 13, 14	(7)	17
Reserve for invested non-restricted equity	12, 13	15 207	15 322
Retained earnings	12, 13	4 217	4 859
Profit for the year	12, 13	284	321
Total equity		18 520	19 937
Provisions	17	76	104
Non-current liabilities			
Long-term interest-bearing liabilities	15, 18	3 225	1 972
Other non-current financial liabilities	15	556	–
Advance payments from other companies		925	1 080
Total non-current liabilities		4 706	3 052
Current liabilities			
Current interest-bearing liabilities to Group companies	15	11 194	4 108
Current interest-bearing liabilities to other companies	15	50	62
Current liabilities to Group companies	15	700	700
Other financial liabilities to Group companies	15	151	19
Other financial liabilities to other companies	15	241	144
Advance payments from other companies		168	176
Accounts payable to Group companies	15	333	361
Accounts payable to other companies	15	43	46
Accrued expenses to Group companies	19	95	13
Accrued expenses and other liabilities to other companies	19	137	154
Total current liabilities		13 112	5 783
Total liabilities		17 894	8 939
Total shareholders' equity and liabilities		36 414	28 876

The notes are an integral part of these financial statements.

Parent Company statement of cash flows

For the year ended December 31	Notes	2017 EURm	2016 EURm
Cash flow from operating activities			
Profit for the year		284	321
Adjustments, total	22	388	410
Change in net working capital	22	(455)	(161)
Cash from operations		217	570
Interest received		107	70
Interest paid		(196)	(95)
Other financial income and expenses, net paid		(612)	(216)
Income taxes, net paid		(48)	(83)
Net cash (used in)/from operating activities		(532)	246
Cash flow from investing activities			
Purchases of shares in subsidiary companies and available-for-sale investments		(6)	(664)
Purchases of property, plant and equipment and intangible assets		(2)	(6)
Proceeds from/(payments of) disposal of shares and business		29	(2)
Proceeds from sale of property, plant and equipment and other intangible assets		–	1
Payments of other long-term receivables		(1 313)	(644)
(Payments of)/proceeds from short-term receivables		(4 904)	438
Dividends received and other proceeds from Group companies		–	3
Purchase of short-term investments, liquid assets		(2 628)	(3 493)
Proceeds from short-term investments, liquid assets		3 468	4 714
Net cash (used in)/from investing activities		(5 356)	347
Cash flow from financing activities			
Purchase of treasury shares		(785)	(216)
Stock option exercise		1	3
Proceeds from/(payments of) long-term borrowings		7 304	(19)
Proceeds from/(payments of) short-term borrowings		1 903	(2 841)
Dividends paid		(963)	(1 503)
Group contributions		(60)	82
Net cash from/(used in) financing activities		7 400	(4 494)
Net increase/(decrease) in cash and cash equivalents		1 512	(3 901)
Cash and cash equivalents as of January 1		2 132	6 033
Cash and cash equivalents as of December 31		3 644	2 132

The notes are an integral part of these financial statements.

Notes to Parent Company financial statements

1. Accounting principles

Basis of presentation

The Parent Company financial statements are prepared in accordance with the Finnish Accounting Standards ("FAS").

The Parent Company is responsible for arranging group internal financing. Changes in the internal and external financing needs arising from changes in operative and organizational models affect the Parent Company's financial position.

Revenue recognition

Revenue for the Parent Company arises from contracts to license intellectual property. Revenue on license fees is recognized in accordance with the substance of the relevant agreements. In the majority of cases, the Parent Company retains obligations related to the licensed assets after the initial licensing transaction, and as a result revenue is recognized over a period of time during which the Parent Company is expected to perform. Where the Parent Company has no remaining obligations to perform subsequent to the initial licensing transaction, and licensing fees are non-refundable, revenue is recognized after the customer has been provided access to the underlying assets. In some multiple element licensing transactions, the Parent Company applies the residual method in the absence of reference information.

Foreign currency translation

Receivables and payables denominated in foreign currencies are converted into euro using the exchange rate prevailing on the statement of financial position date.

Share-based payment

The Parent Company offers three types of equity-settled share-based compensation plans for employees: performance shares, restricted shares and the employee share purchase plan. Share-based compensation is recognized as an expense in the income statement of the parent entity when the shares are delivered. The settlement covers taxes and similar charges occurred.

Pensions

Contributions to pension plans are expensed in the income statement in the period to which the contributions relate.

Intangible assets and property, plant and equipment

Intangible assets and property, plant and equipment are stated at cost less accumulated depreciation according to plan. Depreciation and amortizations according to plan is recorded on a straight-line basis over the expected useful lives of the assets as follows:

Intangible assets	3–7 years
Buildings	20–33 years
Machinery and equipment	1–10 years

Land and water areas are not depreciated. The accumulated depreciation and amortization according to plan comply with the Finnish Business Tax Act.

Investments

Investments in subsidiaries are stated at cost less accumulated impairment. Majority of non-current available-for-sale investments are carried at cost less accumulated impairment. Available-for-sale investments are technology-related investments in private equity shares and unlisted funds for which fair value cannot be measured reliably due to non-existent public markets or reliable valuation methods.

Loans receivable

Loans receivable include loans to customers and suppliers and are measured initially at fair value and subsequently at amortized cost less impairment using the effective interest method. Loans are subject to regular review as to their collectability and available collateral. An allowance is made if a loan is deemed not to be fully recoverable. The related cost is recognized in other expenses or financial expenses, depending on the nature of the receivable to reflect the shortfall between the carrying amount and the present value of the expected future cash flows. Interest income on loans receivable is recognized in financial income and expenses by applying the effective interest rate.

Short-term investments

Short-term investments primarily consist of highly liquid, fixed-income and money-market investments that are readily convertible to known amounts of cash with maturities at acquisition of longer than three months.

Cash and cash equivalents

Cash and cash equivalents consist of cash at bank and in hand and available-for-sale investments, cash equivalents. Available-for-sale investments, cash equivalents consist of highly liquid, fixed-income and money-market investments that are readily convertible to known amounts of cash with maturities at acquisition of three months or less, as well as bank deposits with maturities or contractual call periods at acquisition of three months or less. Due to the high credit quality and short-term nature of these investments, there is an insignificant risk of change in value. Investments in money market funds that have a risk profile consistent with the aforementioned criteria are also classified as cash equivalents.

Accounts receivable

Accounts receivable include both amounts invoiced to customers and amounts revenue recognition criteria have been fulfilled but the customers have not yet been invoiced, and amounts where the contractual rights to the cash flows have been confirmed but the customers have not yet been invoiced. Billed accounts receivable are carried at the amount invoiced to customers less allowances for doubtful accounts. Allowances for doubtful accounts are based on a periodic review of all outstanding amounts, including an analysis of historical bad debt, customer concentrations, customer creditworthiness, past due amounts, current economic trends and changes in customer payment terms. Impairment charges on receivables identified as uncollectible are included in other operating expenses. The Parent Company derecognizes an accounts receivable balance only when the contractual rights to the cash flows from the asset expire or it transfers the financial asset and substantially all the risks and rewards of the asset to another entity.

Loans payable

Loans payable are recognized at nominal value. Transaction costs are initially recognized as accruals and amortized over the life of the instrument. Transaction cost and loan interest are recognized in the income statement as financial expenses over the life of the instrument.

Accounts payable

Accounts payable are carried at invoiced amount which is considered to be the fair value due to the short-term nature of the Parent Company's accounts payable.

Derivative financial instruments

Interest income or expense on interest rate derivatives is accrued in the income statement during the financial year. In the financial statements, outstanding interest rate forward contracts, interest rate future contracts, interest rate option contracts and interest rate swap contracts are stated at market values and included in the income statement.

Forward foreign exchange contracts are valued using the forward exchange rate of the statement of financial position date. The exchange differences arising from outstanding derivative contracts are reported in financial income and expenses. Foreign exchange option contracts are valued using an option valuation model on the statement of financial position date and reported in financial income and expense. For derivatives not designated under hedge accounting but hedging identifiable exposures such as anticipated foreign currency denominated sales and purchases, the gains and losses are recognized in other income or expenses.

Fair values of forward rate agreements, interest rate options, futures contracts and exchange traded options are calculated based on quoted market rates at each statement of financial position date. Discounted cash flow analyses are used to value interest rate and cross-currency interest rate swaps.

Hedge accounting

The Parent Company applies hedge accounting on certain forward foreign exchange contracts, certain options or option strategies, and certain interest rate derivatives. Qualifying options and option strategies have zero net premium or a net premium paid. For option structures, the critical terms of the bought and sold options are the same and the nominal amount of the sold option component is no greater than that of the bought option.

Fair value hedges

The Parent Company applies fair value hedge accounting to reduce exposure to fair value fluctuations of interest-bearing liabilities due to changes in interest rates and foreign exchange rates. Changes in the fair value of derivatives designated and qualifying as fair value hedges, together with any changes in the fair value of hedged liabilities attributable to the hedged risk, are recognized in financial income and expenses. If the hedged item no longer meets the criteria for hedge accounting, hedge accounting ceases and any fair value adjustments made to the carrying amount of the hedged item while the hedge was effective are recognized in financial income and expenses based on the effective interest method.

Deferred tax

Deferred tax liabilities and deferred tax assets are calculated for temporary differences between book values and tax bases using an enacted or substantively enacted tax rate at each statement of financial position date that are expected to apply in the period when the asset is realized or the liability is settled. Non-current and current deferred tax liabilities and deferred tax assets are presented separately on statement of financial position. Deferred tax assets are recognized at the probable amount estimated to be received. Deferred tax assets and deferred tax liabilities are offset for presentation purposes, because the Parent Company has a legally enforceable right to set off current tax assets against current tax liabilities.

Notes to Parent Company financial statements continued

2. Personnel expenses

EURm	2017	2016
Salaries and wages	31	47
Share-based payment expense	20	28
Pension expense	5	4
Other social expenses	1	2
Total	57	81

Average number of employees	2017	2016
Marketing	71	70
Administration	177	211
Total average	248	281
As of December 31	235	273

Management compensation

Refer to Note 35, Related party transactions in the consolidated financial statements.

3. Auditor's fees

EURm	2017	2016
Audit of financial statements	4	4
Total	4	4

In 2017, PricewaterhouseCoopers Oy provided non-audit services to Group entities in total for EUR 1 439 thousand. These services included auditors' statements of EUR 86 thousand and other services of EUR 1 353 thousand.

Total annual group fees paid to the auditor are EUR 28 million in 2017 (EUR 37 million in 2016), including audit fees of EUR 25 million (EUR 31 million in 2016).

4. Other income and expenses

EURm	2017	2016
Other income		
Rental income	2	2
Interest income from customer receivables and overdue payments	5	4
Other	–	11
Total	7	17
Other expenses		
Foreign exchange loss on hedging forecasted sales and purchases	(12)	–
Divestment-related expenses	(13)	(10)
Other	(8)	(13)
Total	(33)	(23)

5. Financial income and expenses

EURm	2017	2016
Income from long-term investments		
Dividend income from Group companies	–	3
Total	–	3
Interest and other financial income		
Interest income from Group companies	309	55
Interest income from other companies	1	1
Other financial income from other companies	48	40
Total	358	96
Interest and other financial expenses		
Interest expenses to Group companies	(76)	(10)
Interest expenses to other companies	(320)	(73)
Other financial expenses	(31)	(42)
Total	(427)	(125)

Financial income and expenses includes EUR 24 million expenses for derivative financial instruments designated in hedge accounting relationships (EUR 15 million in 2016) and EUR 42 million income for liabilities under fair value hedge accounting (EUR 11 million in 2016).

6. Group contributions

EURm	2017	2016
Granted	(700)	(700)
Received	436	640
Total	(264)	(60)

7. Income taxes

EURm	2017	2016
Current tax	(43)	(65)
Deferred tax	(26)	(28)
Total	(69)	(93)
Income tax from operations	(131)	(93)
Income tax from appropriations	53	12
Income tax relating to previous financial years	9	(12)
Total	(69)	(93)

Deferred taxes

EURm	2017		2016	
	Deferred tax assets	Deferred tax liabilities	Deferred tax assets	Deferred tax liabilities
Total before netting	132	(6)	146	(7)
Netting of deferred tax assets and liabilities	(6)	6	(7)	7
Total after netting	126	–	139	–

Notes to Parent Company financial statements continued

8. Property, plant and equipment

EURm	Land and water areas	Buildings	Machinery and equipment	Other tangible assets	Advance payments and assets under construction	Total
Acquisition cost as of January 1, 2016	8	159	21	15	1	204
Additions	–	4	–	–	–	4
Disposals and retirements	–	(1)	(1)	–	–	(2)
Acquisition cost as of December 31, 2016	8	162	20	15	1	206
Accumulated depreciation as of January 1, 2016	–	(61)	(18)	–	–	(79)
Disposals and retirements	–	–	1	–	–	1
Depreciation ⁽¹⁾	–	(5)	–	(1)	–	(6)
Accumulated depreciation as of December 31, 2016	–	(66)	(17)	(1)	–	(84)
Net book value as of January 1, 2016	8	98	3	15	1	125
Net book value as of December 31, 2016	8	96	3	14	1	122
Acquisition cost as of January 1, 2017	8	162	20	15	1	206
Additions	–	1	–	–	1	2
Disposals and retirements	–	(1)	(1)	–	–	(2)
Reclassifications	–	1	–	–	(1)	–
Acquisition cost as of December 31, 2017	8	163	19	15	1	206
Accumulated depreciation as of January 1, 2017	–	(66)	(17)	(1)	–	(84)
Disposals and retirements	–	–	1	–	–	1
Depreciation ⁽¹⁾	–	(6)	–	(1)	–	(7)
Accumulated depreciation as of December 31, 2017	–	(72)	(16)	(2)	–	(90)
Net book value as of January 1, 2017	8	96	3	14	1	122
Net book value as of December 31, 2017	8	91	3	13	1	116

(1) Recognized in selling, general and administrative expenses.

9. Investments

EURm	2017	2016
Investments in subsidiaries		
Net carrying amount as of January 1	18 596	6 292
Additions ⁽¹⁾ ⁽²⁾	12 309	12 304
Disposals ⁽¹⁾	(12 314)	–
Net carrying amount as of December 31	18 591	18 596
Investments in associated companies		
Net carrying amount as of January 1	1	3
Impairment charges	–	(2)
Net carrying amount as of December 31	1	1
Available-for-sale investments		
Net carrying amount as of January 1	65	132
Additions	–	5
Impairment charges	(17)	(66)
Other changes	–	3
Disposals	(21)	(9)
Net carrying amount as of December 31	27	65

(1) In 2017, additions and disposals relate to share transactions made to optimize the legal structure of the Group following the acquisition of Alcatel Lucent in 2016.

(2) In 2016, the Parent Company acquired 100% of the shares in Alcatel Lucent SA, a parent company to the Alcatel Lucent Group, partially through a share exchange and partially in cash.

Investments in associated companies

Associated company	Ownership %	Carrying amount EURm
Sapura-Nokia Telecommunication Sdn Bhd	40	–
Noksel A.S	20	1
Sapura Nokia Software Sdn Bhd	50	–

10. Other non-current receivables

EURm	2017	2016
Expected future cash settlement to acquire non-controlling interest in Nokia Shanghai Bell ⁽¹⁾	556	–
Other	70	77
Total	626	77

(1) Refer to Note 33, Significant partly-owned subsidiaries in the consolidated financial statements.

11. Prepaid expenses and accrued income

EURm	2017	2016
Prepaid and accrued royalty income	117	108
Divestment-related receivables	39	44
Accrued interest	29	10
Other from Group companies	25	2
Other from other companies	10	3
Total	220	167

12. Shareholders' equity

EURm	Share capital	Share issue premium	Treasury shares	Fair value and other reserves	Reserve for invested non-restricted equity	Retained earnings	Total
As of January 1, 2016	246	46	(711)	25	3 805	6 362	9 773
Settlement of performance and restricted shares	–	–	68	–	(52)	–	16
Stock options exercised	–	–	–	–	3	–	3
Acquisition of treasury shares	–	–	(231)	–	–	–	(231)
Acquisition of Alcatel Lucent shares	–	–	–	–	11 566	–	11 566
Fair value reserve, decrease	–	–	–	(8)	–	–	(8)
Dividends	–	–	–	–	–	(1 503)	(1 503)
Profit for the year	–	–	–	–	–	321	321
As of December 31, 2016	246	46	(874)	17	15 322	5 180	19 937
Settlement of performance and restricted shares	–	–	170	–	(116)	–	54
Stock options exercised	–	–	–	–	1	–	1
Acquisition of treasury shares	–	–	(769)	–	–	–	(769)
Fair value reserve, decrease	–	–	–	(24)	–	–	(24)
Dividends	–	–	–	–	–	(963)	(963)
Profit for the year	–	–	–	–	–	284	284
As of December 31, 2017	246	46	(1 473)	(7)	15 207	4 501	18 520

Notes to Parent Company financial statements continued

13. Distributable earnings

EURm	2017	2016
Reserve for invested non-restricted equity	15 207	15 322
Retained earnings	4 217	4 859
Profit for the year	284	321
Non-restricted equity	19 708	20 502
Treasury shares	(1 473)	(874)
Fair value and other reserves	(7)	–
Total	18 229	19 628

14. Fair value and other reserves

EURm	Hedging reserve			Available for sale investments			Total		
	Gross	Tax	Net	Gross	Tax	Net	Gross	Tax	Net
As of January 1, 2016	9	(2)	7	22	(4)	18	31	(6)	25
Cash flow hedges									
Net fair value losses	(1)	–	(1)	–	–	–	(1)	–	(1)
Available-for-sale investments									
Net fair value losses	–	–	–	(1)	1	–	(1)	1	–
Transfer to income statement on disposal	–	–	–	(9)	2	(7)	(9)	2	(7)
As of December 31, 2016	8	(2)	6	12	(1)	11	20	(3)	17
Cash flow hedges									
Net fair value losses	(21)	5	(16)	–	–	–	(21)	5	(16)
Available-for-sale investments									
Net fair value losses	–	–	–	(4)	(1)	(5)	(4)	(1)	(5)
Transfer to income statement on disposal	–	–	–	(4)	1	(3)	(4)	1	(3)
As of December 31, 2017	(13)	3	(10)	4	(1)	3	(9)	2	(7)

15. Fair value of financial instruments

EURm	Carrying amounts			Fair value ⁽¹⁾
	Amortized cost	Fair value	Total	
As of December 31, 2017				
Available-for-sale investments	27	–	27	27
Long-term loan receivable from Group companies	1 950	–	1 950	2 054
Long-term loan receivables from other companies	7	–	7	7
Accounts receivable from Group companies	353	–	353	353
Accounts receivable from other companies	97	–	97	97
Current loans receivable from Group companies ⁽²⁾	9 199	–	9 199	9 199
Other financial assets from Group companies, derivatives	–	30	30	30
Other financial assets from other companies, derivatives	–	179	179	179
Other current receivables from Group companies	436	–	436	436
Short-term investments	–	810	810	810
Cash and cash equivalents	3 644	–	3 644	3 644
Total financial assets	15 713	1 019	16 732	16 836
Long-term interest-bearing liabilities to other companies ⁽³⁾	3 225	–	3 225	3 301
Current interest-bearing liabilities to Group companies ⁽²⁾	11 194	–	11 194	11 194
Current interest-bearing liabilities to other companies	50	–	50	50
Current liabilities to Group companies, other	700	–	700	700
Other financial liabilities to Group companies, derivatives	–	151	151	151
Other financial liabilities to other companies, derivatives	–	241	241	241
Other non-current financial liabilities ⁽⁴⁾	–	556	556	556
Accounts payable to Group companies	333	–	333	333
Accounts payable to other companies	43	–	43	43
Total financial liabilities	15 545	948	16 493	16 569
As of December 31, 2016				
Available-for-sale investments	65	–	65	65
Long-term loan receivable from Group companies	637	–	637	637
Long-term loan receivables from other companies	7	–	7	7
Accounts receivable from Group companies	552	–	552	552
Accounts receivable from other companies	154	–	154	154
Current loans receivable from Group companies	3 735	–	3 735	3 735
Other financial assets from Group companies, derivatives	–	69	69	69
Other financial assets from other companies, derivatives	–	155	155	155
Other current receivables from Group companies	640	–	640	640
Short-term investments	1 298	327	1 625	1 625
Cash and cash equivalents	2 132	–	2 132	2 132
Total financial assets	9 220	551	9 771	9 771
Long-term interest-bearing liabilities to other companies ⁽³⁾	1 972	–	1 972	2 080
Current interest-bearing liabilities to Group companies	4 108	–	4 108	4 108
Current interest-bearing liabilities to other companies	62	–	62	62
Current liabilities to Group companies, other	700	–	700	700
Other financial liabilities to Group companies, derivatives	–	19	19	19
Other financial liabilities to other companies, derivatives	–	144	144	144
Accounts payable to Group companies	361	–	361	361
Accounts payable to other companies	46	–	46	46
Total financial liabilities	7 249	163	7 412	7 520

(1) The fair value is based on quoted prices from third party pricing services (level 2) for items carried at fair value except for other non-current liabilities, where discounted cash flow analysis (level 3) is used. The following fair value measurement methods are used for items not carried at fair value: the fair value is estimated to equal the carrying amount for available-for-sale investments carried at cost less impairment for which it is not possible to estimate fair value reliably as there is no active market for these private fund investments. These assets are tested for impairment annually using a discounted cash flow analysis. The fair value of loans receivable and loans payable is estimated based on the current market values of similar instruments (level 2). The fair values of long-term interest-bearing liabilities are primarily based on quotes from third-party pricing services (level 2). The fair value is estimated to equal the carrying amount for short-term financial assets and financial liabilities due to limited credit risk and short time to maturity.

(2) Centralization of Group financing activities to Parent Company was finalized during 2017.

(3) The fair values of long-term interest-bearing liabilities to other companies are based on quoted prices from third party pricing services (level 2).

(4) Other non-current financial liabilities include conditional obligation to China Huaxin as part of the Nokia Shanghai Bell definitive agreements where China Huaxin obtained the right to fully transfer its ownership interest in Nokia Shanghai Bell to the Group in exchange for a future cash settlement. Refer to Note 24, Fair value of financial instruments and Note 33, Significant partly-owned subsidiaries in the consolidated financial statements.

Notes to Parent Company financial statements continued

Financial assets and liabilities recorded at fair value are categorized based on the amount of unobservable inputs used to measure their fair value. Three hierarchical levels are based on an increasing amount of judgment associated with the inputs used to derive fair valuation for these assets and liabilities, level 1 being market values for exchange traded products, level 2 being primarily based on quotes from third-party pricing services, and level 3 requiring most management judgment. At the end of each reporting period, the Group categorizes its financial assets and liabilities to appropriate level of fair value hierarchy.

16. Derivative financial instruments

EURm	Assets		Liabilities	
	Fair value ⁽¹⁾	Notional ⁽²⁾	Fair value ⁽¹⁾	Notional ⁽²⁾
As of December 31, 2017				
Cash flow and fair value hedges⁽³⁾				
Cross-currency interest rate swaps	–	–	(141)	1 512
Derivatives not designated in hedge accounting relationships carried at fair value through profit and loss				
Forward foreign exchange contracts, Group companies	26	2 292	(139)	8 222
Forward foreign exchange contracts, other companies	167	10 815	(96)	8 317
Currency options bought, Group companies	4	166	–	–
Currency options bought, other companies	12	664	–	–
Currency options sold, Group companies	–	–	(12)	665
Currency options, other companies	–	–	(4)	163
Total	209	13 937	(392)	18 879
As of December 31, 2016				
Fair value hedges				
Interest rate swaps	42	300	–	–
Cash flow and fair value hedges⁽³⁾				
Cross-currency interest rate swaps	42	1 002	–	–
Derivatives not designated in hedge accounting relationships carried at fair value through profit and loss				
Forward foreign exchange contracts, Group companies	69	5 806	(16)	1 458
Forward foreign exchange contracts, other companies	68	5 868	(115)	7 804
Currency options bought	3	569	–	–
Currency options sold, Group companies	–	–	(3)	498
Interest rate swaps	–	–	(29)	324
Total	224	13 545	(163)	10 084

(1) Included in other financial assets and other financial liabilities in the statement of financial position.

(2) Includes the gross amount of all notional values for contracts that have not yet been settled or cancelled. The amount of notional value outstanding is not necessarily a measure or indication of market risk as the exposure of certain contracts may be offset by that of other contracts.

(3) Cross-currency interest rate swaps have been designated partly as fair value hedges and partly as cash flow hedges.

Derivative financial instrument designation to hedging relationships in the table above presents the use of and accounting for derivative financial instruments from the perspective of the Parent Company's standalone financial statements, which may differ from the designation in the consolidated financial statements. Refer to Note 25, Derivative financial instruments in the consolidated financial statements.

17. Provisions

EURm	2017		2016	
Divestment-related		64		92
Other		12		12
Total		76		104

18. Long-term interest-bearing liabilities

	Nominal value million	Nominal interest %	2017 EURm	2016 EURm
Bonds				
2009-2019 ⁽¹⁾	231 EUR	6.750	242	527
2009-2019 ⁽²⁾	581 USD	5.375	488	962
2017-2021 ⁽¹⁾	500 EUR	1.000	500	–
2017-2022 ⁽²⁾	500 USD	3.375	409	–
2017-2024 ⁽¹⁾	750 EUR	2.000	750	–
2017-2027 ⁽²⁾	500 USD	4.375	408	–
2009-2039	500 USD	6.625	428	483
Total			3 225	1 972

(1) In March 2017, the Parent Company issued EUR 500 million 1.00% Senior Notes due 2021 and EUR 750 million 2.00% Senior Notes due 2024 under our 5 billion Euro Medium-Term Note Programme. The proceeds of the new notes were used to redeem (nominal amounts) EUR 269 million of the 2019 Euro Notes, USD 86 million of the 2028 USD Notes and USD 401 million of the 2029 USD Notes and for general corporate purposes.

(2) In June 2017, the Parent Company issued USD 500 million 3.375% Senior Notes due 2022 and USD 500 million 4.375% Senior Notes due 2027 under U.S. Securities Act of 1933, as amended. The proceeds of the new notes were used to redeem (nominal amounts) USD 419 million of the 2019 USD Notes, USD 140 million of the 2028 USD Notes and USD 753 million of the 2029 USD Notes and for general corporate purposes.

All these borrowings are senior unsecured and have no financial covenants.

19. Accrued expenses and other liabilities

EURm	2017	2016
VAT and other indirect taxes	51	47
Accrued interest	39	41
Salaries and social expenses	14	15
Divestment-related	12	12
Other to Group companies	95	13
Other to other companies	21	39
Total	232	167

20. Commitments and contingencies

EURm	2017	2016
Contingent liabilities on behalf of Group companies		
Leasing guarantees	78	64
Other guarantees	1 445	871
Contingent liabilities on behalf of associated companies		
Financial guarantees	–	11
Contingent liabilities on behalf of other companies		
Other guarantees	27	131

Certain India related accounts receivable are under payment restrictions due to ongoing tax proceedings.

As of December 31, 2017 operating lease commitments amounted to EUR 1 million (EUR 2 million in 2016).

21. Loans granted to the management of the company

There were no loans granted to the members of the Group Leadership Team and Board of Directors as of December 31, 2017 or 2016.

Notes to Parent Company financial statements continued

22. Notes to the statement of cash flows

EURm	2017	2016
Adjustments for		
Depreciation and amortization	7	8
Income tax expense	69	93
Financial income and expenses	(27)	172
Impairment charges	16	54
Loss on sale of shares and businesses	3	7
Asset retirements	1	–
Share-based payment	54	16
Other income and expenses, net	265	60
Total	388	410
Change in net working capital		
(Increase)/decrease in accounts receivable	(160)	128
Decrease in interest-free short-term liabilities	(294)	(343)
(Decrease)/increase in interest-free long-term liabilities	(1)	54
Total	(455)	(161)

In 2017, following the acquisition of Alcatel Lucent, various intra-group subsidiary share transfers were made to enable consolidation of legal entities. Transfers were made through share exchanges with no cash impact.

In 2016, the Parent Company acquired 100% of the shares in Alcatel Lucent SA, a parent company of the Alcatel Lucent Group, partially through a share exchange offer and partially in cash. The fair value of the shares issued by the Parent Company as a purchase consideration amounted to EUR 11 566 million and was recognized as an increase in reserve for invested non-restricted equity.

23. Principal Group companies

Refer to Note 32, Principal Group companies in the consolidated financial statements.

The full list of Group companies is included in the Financial statements filed with the Registrar of Companies.

24. The shares of the Parent Company

Refer to Note 20, Shares of the Parent Company in the consolidated financial statements.

25. Risk Management

The Group has a systematic and structured approach to risk management across business operations and processes. Risk management policies and procedures are Group-wide, there are no separate or individual risk management policies or procedures for the Parent Company. Hence, internal and external risk exposures and transactions are managed only in the context of the Group risk management strategy. The Parent Company is the centralized external dealing entity in the Group. The Parent Company executes all significant external financial transactions with banks based on the Group's risk management strategy, and executes identical opposite internal financial transactions with Group Companies as required. Refer to Note 36, Risk management in the consolidated financial statements.

Signing of the Annual Accounts 2017 and proposal by the Board of Directors for distribution of profits

The distributable funds in the statement of financial position of the Parent company at December 31, 2017 amounted to EUR 18 229 million.

The Board proposes to the Annual General Meeting that from the retained earnings a dividend of EUR 0,19 per share be paid out on the shares of the company. At December 31, 2017 the total number of the shares of the company was 5 839 404 303, based on which the maximum amount to be distributed as dividend would be EUR 1 109 million.

The proposed dividend is in line with the company's distribution policy.

March 22, 2018

Risto Siilasmaa
Chair of the Board

Bruce Brown

Jeanette Horan

Louis R. Hughes

Edward Kozel

Jean C. Monty

Elizabeth Nelson

Olivier Piou

Carla Smits-Nusteling

Kari Stadigh

Rajeev Suri
President and CEO

Auditor's report

To the Annual General Meeting of Nokia Oyj Report on the audit of the financial statements

Opinion

In our opinion:

- The consolidated financial statements give a true and fair view of the group's financial position and financial performance and cash flows in accordance with International Financial Reporting Standards (IFRS) as issued by the International Accounting Standards Board and as adopted by the European Union; and,
- The financial statements give a true and fair view of the parent company's financial performance and financial position in accordance with the laws and regulations governing the preparation of the financial statements in Finland and comply with statutory requirements.

Our opinion is consistent with our additional report to the Audit Committee.

What we have audited

We have audited the financial statements of Nokia Oyj (business identity code 0112038-9) for the year ended 31 December 2017. The financial statements comprise:

- The consolidated statement of financial position, income statement, statement of comprehensive income, statement of changes in shareholders' equity and statement of cash flows, and notes to the consolidated financial statements including a summary of significant accounting policies; and
- The parent company's statement of financial position, income statement, statement of cash flows and notes to the financial statements.

Basis for opinion

We conducted our audit in accordance with good auditing practice in Finland. Our responsibilities under good auditing practice are further described in the Auditor's Responsibilities for the Audit of the Financial Statements section of our report.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Independence

We are independent of the parent company and of the group companies in accordance with the ethical requirements that are applicable in Finland and are relevant to our audit, and we have fulfilled our other ethical responsibilities in accordance with these requirements.

To the best of our knowledge, the non-audit services that we have provided to the parent company and to the group companies are in accordance with the applicable law and regulations in Finland and we have not provided non-audit services that are prohibited under Article 5(1) of Regulation (EU) No 537/2014. The non-audit services that we have provided are disclosed in Auditor fees and services in Note 3 to the parent company financial statements.

Our audit approach Overview



- Overall group materiality: EUR 125 million, which represents 0.5% of consolidated net sales
- We performed specific audit procedures at 39 reporting components, in addition to group level procedures over specific consolidated accounts and analytical procedures to assess unusual movements across all entities
- Valuation of goodwill
- Revenue recognition on complex contracts
- Valuation of deferred tax assets
- Fair value of pension and post-retirement plan assets

As part of designing our audit, we determined materiality and assessed the risks of material misstatement in the financial statements. In particular, we considered where management made subjective judgements; for example, in respect of significant accounting estimates that involved making assumptions and considering future events that are inherently uncertain.

Materiality

The scope of our audit was influenced by our application of materiality. An audit is designed to obtain reasonable assurance whether the financial statements are free from material misstatement. Misstatements may arise due to fraud or error. They are considered material if individually or in aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of the financial statements.

Based on our professional judgement, we determined certain quantitative thresholds for materiality, including the overall group materiality for the consolidated financial statements as set out in the table below. These, together with qualitative considerations, helped us to determine the scope of our audit and the nature, timing and extent of our audit procedures and to evaluate the effect of misstatements on the financial statements as a whole.

Overall group materiality EUR 125 million (previous year EUR 125 million)

How we determined it 0.5% of consolidated net sales

Rationale for the materiality benchmark applied The Group's loss before tax was substantial, in part as a result of significant charges recorded that relate to the continued integration of the Alcatel Lucent acquisition and therefore we assessed that an earnings based measure was not the most appropriate basis to determine our materiality.

In light of the loss for the year, we chose net sales as a most appropriate measure of the operating results of the company. We chose 0.5% of revenue which is based on perspectives and expectations of the users of the financial statements in the context of our understanding of the entity and the environment in which it operates.

How we tailored our group audit scope

We tailored the scope of our audit in order to perform sufficient work to enable us to provide an opinion on the consolidated financial statements as a whole, taking into account the structure of the Group, the accounting processes and controls, and the industry in which the Group operates.

The Group operates in a significant number of legal entities or “reporting components” globally. We determined the nature, timing and extent of audit work that needed to be performed at reporting components by us, as the group engagement team, or component auditors from other PwC network firms operating under our instruction. Where the work was performed by reporting component auditors, we issued specific instructions to those auditors which included our risk analysis, materiality and global audit approach to centralized processes and systems. We visited all significant reporting components and communicated regularly with the reporting component auditors throughout our audit. We performed audits of reporting component financial information at each of the 9 reporting components which are considered significant based on our overall risk assessment and materiality.

We also performed targeted audit procedures at an additional 30 less significant reporting components in order to provide further coverage over the Group’s revenue and consolidation process. None of the remaining reporting components individually contributed greater than 1% of either Group net sales or Group total assets. In addition to the audit work performed on internal controls which operate on a Group-wide basis, we performed analytical procedures over these components, which corroborated our assessment that these components did not present a reasonable risk of material misstatement. By performing the procedures above at reporting components, combined with additional procedures at the Group level, we have obtained sufficient and appropriate evidence regarding the financial information of the Group as a whole to provide a basis for our opinion on the consolidated financial statements.

Key audit matters

Key audit matters are those matters that, in our professional judgment were of most significance in our audit of the financial statements of the current period. These matters were addressed in the context of our audit of the financial statements as a whole, and in forming our opinion thereon, and we do not provide a separate opinion on these matters.

As in all of our audits, we also addressed the risk of management override of internal controls, including among other matters consideration of whether there was evidence of bias that represented a risk of material misstatement due to fraud.

Key audit matter in the audit of the group

Valuation of goodwill

Refer to Note 3, Use of estimates and critical accounting judgments, Note 14, Intangible assets of the consolidated financial statements, and Note 16 Impairment

At December 31, 2017, the total carrying value of goodwill amounted to EUR 5,3 billion, representing 13% of the group’s total assets.

Goodwill is tested for impairment when indicators of impairment exist or, at least annually. Goodwill impairment testing is conducted by assessing the fair value of cash generating units (CGU) (to which goodwill is allocated) against the carrying amount of those cash generating units. Management estimates the fair value of the cash generating units using a discounted cash flow model.

We focus on this area given the significant judgements and estimates required to be made in applying the discounted cash flow approach to determine fair value. Specifically, estimates relating to future business operations that impact operating cash flows, anticipated future tax payments, changes in working capital and other estimates such as the discount rate used in the modelling exercise may significantly impact management’s assessment of the fair value of a CGU.

We have determined that this area constitutes a significant risk of material misstatement referred to in Article 10(2c) of Regulation (EU) No 537/2014.

How our audit addressed the key audit matter

We designed our audit procedures to be responsive to this risk.

We obtained an understanding of management’s goodwill impairment assessment process, evaluated the design and tested the operating effectiveness of internal controls in this area with a focus on the controls in place over the modelling of the fair value of CGU’s.

Our detailed audit work over the fair value of CGU’s with the involvement of our valuation specialists included:

- Evaluation of the methodology adopted by management for calculating fair values;
- Reconciliation of management’s expected cash flows to the Group’s most recent business plan, which reflected management’s current expectations of market trends and was consistent with information provided to Board of Directors;
- Validating and challenging key inputs and data used in valuation models such as revenue growth, discount rates, and cash flow projections by reference to historical data and our expectations based on observable data; and,
- Performing sensitivity analysis by stress testing key assumptions in the model to consider the degree to which these assumptions would need to change before an impairment would have to be recognized.

We also assessed the adequacy of the Company’s disclosure as included in Note 14, Intangible assets and Note 16, Impairment.

Auditor's report continued

Key audit matter in the audit of the group	How our audit addressed the key audit matter
<p>Revenue recognition on complex contracts</p> <p>Refer to Note 3, Use of estimates and critical accounting judgments, and Note 7, Revenue recognition of the consolidated financial statements</p> <p>Certain revenue contracts in the Networks business and at Nokia Technologies involve multiple deliverables or elements; for example, a revenue arrangement may combine the delivery of hardware, software, licensing of intellectual property and rendering of services. Such agreements require management to identify all of the deliverables in the arrangement and record revenue based on the fair value of the deliverables at the appropriate time, generally upon delivery of equipment or acceptance of products and services.</p> <p>These complex contracts give rise to the risk of material misstatement due to the incorrect identification of revenue elements and timing of revenue recognition for each element. We have determined that this area constitutes a significant risk of material misstatement referred to in Article 10(2c) of Regulation (EU) No 537/2014.</p>	<p>We designed our audit procedures to be responsive to this risk.</p> <p>We obtained an understanding of management's revenue recognition process and evaluated the design and tested the operating effectiveness of controls over revenue recognition, with particular focus on the controls executed globally for the initial identification of multiple elements within revenue contracts and determination of the timing of recognition for each revenue element.</p> <p>Audit procedures were performed over revenue recognition at the Group level and at each of the reporting components that were in scope for the Group audit.</p> <p>We completed detailed testing procedures over revenue arrangements that we selected based on size and complexity to assess the appropriateness of judgements made by management regarding revenue elements, the determination of fair value of deliverables and the appropriateness of recognition triggers.</p> <p>We tested a sample of revenue transactions recorded during the year at each component by tracing them to supporting evidence of delivery and acceptance and assessed the revenue recorded in the period by comparing it to contractual terms.</p> <p>We assessed the Group's revenue recognition accounting policies for compliance with IFRS.</p>
<p>Valuation of deferred tax assets</p> <p>Refer to Note 3, Use of estimates and critical accounting judgments, and Note 12, Income taxes of the consolidated financial statements</p> <p>At December 31, 2017, the Group had recognized net deferred tax assets of EUR 4.2 billion. The Group also had temporary differences of EUR 1.9 billion and tax losses carried forward of EUR 18.4 billion which were not recognized due to uncertainty of utilization.</p> <p>The analysis of the recoverability of the deferred tax assets was significant to our audit as the amounts are material, the assessment process is judgemental and is based on assumptions that are impacted by expected future market conditions, specifically as it relates to future performance in United States and the Eurozone where the majority of the Group's deferred tax assets reside.</p> <p>We have determined that this area constitutes a significant risk of material misstatement referred to in Article 10(2c) of Regulation (EU) No 537/2014.</p>	<p>We designed our audit procedures to be responsive to this risk.</p> <p>We obtained an understanding of process that management has implemented for accounting for deferred tax assets. We also evaluated the design and tested the operating effectiveness of controls in this area.</p> <p>We performed substantive audit procedures to validate the deferred tax balances which are recorded with a consideration of enacted tax laws in each jurisdiction in accordance with IFRS.</p> <p>Our audit work on the valuation of deferred tax assets, with the involvement of our tax specialists, included:</p> <ul style="list-style-type: none">■ Validating the completeness and accuracy of tax attributes;■ Confirming the appropriate application of tax rules for utilizing deferred tax assets, including expiry of those attributes;■ Evaluating the Company's ability to generate sufficient taxable income to utilize deferred tax assets. This evaluation takes into account the Company's historical profitability and future projections; and,■ Reviewing the adequacy of the disclosures made by the company in accordance with IFRS. <p>In addition, we assessed the Group's accounting for compliance with IFRS.</p>

Key audit matter in the audit of the group

How our audit addressed the key audit matter

Fair value of pension and post-retirement plan assets

Refer to Note 3, Use of estimates and critical accounting judgments, and Note 27, Pensions and other post-employment benefits. The fair value of the Group's pension and post-retirement plan assets is EUR 25.5 billion, primarily in the United States and includes EUR 5.2 billion in unquoted investments for which the valuation requires the use of estimates and significant judgement. A small change in the assumptions used could have a material impact on the consolidated financial statements.

We considered valuation of the unquoted plan assets as a key audit matter due to materiality of the related balances and judgments involved in these estimates.

We designed our audit procedures to be responsive to this risk.

We obtained an understanding of process that management has related to the preparation and review of plan asset valuations. We also evaluated the design and tested the operating effectiveness of controls in this area.

We tested the existence of a sample of unquoted investments by obtaining confirmations from investment custodians including administrators, investment managers, and trustees. Our audit work on the valuation of these investments, with the involvement of our valuation specialists, included:

- Assessing the appropriateness of the valuation method, estimates and judgements used by the Group to value these investments;
- Testing the inputs used in the valuations; and,
- Confirming the valuation of net asset value of investment funds with the investment custodian.

Finally, we reviewed the adequacy of the disclosures made by the company in accordance with IFRS.

There are no key audit matters to report or significant risks of material misstatement referred to in Article 10(2c) of Regulation (EU) No 537/2014 with respect to the parent company financial statements.

Responsibilities of the Board of Directors and the Managing Director for the Financial Statements

The Board of Directors and the Managing Director are responsible for the preparation of consolidated financial statements that give a true and fair view in accordance with International Financial Reporting Standards (IFRS) as adopted by the EU, and of financial statements that give a true and fair view in accordance with the laws and regulations governing the preparation of financial statements in Finland and comply with statutory requirements. The Board of Directors and the Managing Director are also responsible for such internal control as they determine is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, the Board of Directors and the Managing Director are responsible for assessing the parent company's and the group's ability to continue as a going concern, disclosing, as applicable, matters relating to going concern and using the going concern basis of accounting. The financial statements are prepared using the going concern basis of accounting unless there is an intention to liquidate the parent company or the group or to cease operations, or there is no realistic alternative but to do so.

Auditor's Responsibilities for the Audit of the Financial Statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with good auditing practice will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

As part of an audit in accordance with good auditing practice, we exercise professional judgment and maintain professional skepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control;
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the parent company's or the group's internal control;
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management;
- Conclude on the appropriateness of the Board of Directors' and the Managing Director's use of the going concern basis of accounting and based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the parent company's or the group's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the parent company or the group to cease to continue as a going concern;

Auditor's report continued

- Evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events so that the financial statements give a true and fair view; and,
- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the group to express an opinion on the consolidated financial statements. We are responsible for the direction, supervision and performance of the group audit. We remain solely responsible for our audit opinion.

We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

We also provide those charged with governance with a statement that we have complied with relevant ethical requirements regarding independence, and to communicate with them all relationships and other matters that may reasonably be thought to bear on our independence, and where applicable, related safeguards.

From the matters communicated with those charged with governance, we determine those matters that were of most significance in the audit of the financial statements of the current period and are therefore the key audit matters. We describe these matters in our auditor's report unless law or regulation precludes public disclosure about the matter or when, in extremely rare circumstances, we determine that a matter should not be communicated in our report because the adverse consequences of doing so would reasonably be expected to outweigh the public interest benefits of such communication.

Other reporting requirements

Appointment

We were first appointed as auditors by the annual general meeting on 25 March 1987. Our appointment represents a total period of uninterrupted engagement of 31 years.

Other Information

The Board of Directors and the Managing Director are responsible for the other information. The other information comprises the report of the Board of Directors and the information included in the Annual Report, but does not include the financial statements and our auditor's report thereon.

Our opinion on the financial statements does not cover the other information.

In connection with our audit of the financial statements, our responsibility is to read the other information and, in doing so, consider whether the other information is materially inconsistent with the financial statements or our knowledge obtained in the audit, or otherwise appears to be materially misstated. With respect to the report of the Board of Directors, our responsibility also includes considering whether the report of the Board of Directors has been prepared in accordance with the applicable laws and regulations.

In our opinion:

- the information in the report of the Board of Directors is consistent with the information in the financial statements; and,
- the report of the Board of Directors has been prepared in accordance with the applicable laws and regulations.

If, based on the work we have performed, we conclude that there is a material misstatement of the other information, we are required to report that fact. We have nothing to report in this regard.

Other Statements

We support that the financial statements and the consolidated financial statements should be adopted. The proposal by the Board of Directors regarding the use of profit shown in the balance sheet is in compliance with the Limited Liability Companies Act. We support that the Members of the Board of Directors and the Managing Director should be discharged from liability for the financial period audited by us.

Helsinki, March 22, 2018

PricewaterhouseCoopers Oy
Authorised Public Accountants

Pasi Karppinen
Authorised Public Accountant (KHT)

Other information

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Forward-looking statements

It should be noted that Nokia and its businesses are exposed to various risks and uncertainties and certain statements herein that are not historical facts are forward-looking statements, including, without limitation, those regarding:

- A) our ability to integrate acquired businesses into our operations and achieve the targeted business plans and benefits, including targeted benefits, synergies, cost savings and efficiencies;
- B) expectations, plans or benefits related to our strategies and growth management;
- C) expectations, plans or benefits related to future performance of our businesses;
- D) expectations, plans or benefits related to changes in organizational and operational structure;
- E) expectations regarding market developments, general economic conditions and structural changes;
- F) expectations and targets regarding financial performance, results, operating expenses, taxes, currency exchange rates, hedging, cost savings and competitiveness, as well as results of operations including targeted synergies and those related to market share, prices, net sales, income and margins;
- G) expectations, plans or benefits related to any future collaboration or to business collaboration agreements or patent license agreements or arbitration awards, including income to be received under any collaboration or partnership, agreement or award;
- H) timing of the deliveries of our products and services;
- I) expectations and targets regarding collaboration and partnering arrangements, joint ventures or the creation of joint ventures, and the related administrative, legal, regulatory and other conditions, as well as our expected customer reach;
- J) outcome of pending and threatened litigation, arbitration, disputes, regulatory proceedings or investigations by authorities;
- K) expectations regarding restructurings, investments, capital structure optimization efforts, uses of proceeds from transactions, acquisitions and divestments and our ability to achieve the financial and operational targets set in connection with any such restructurings, investments, capital structure optimization efforts, divestments and acquisitions; and
- L) statements preceded by or including "believe", "expect", "anticipate", "foresee", "sees", "target", "estimate", "designed", "aim", "plans", "intends", "focus", "continue", "project", "should", "is to", "will" or similar expressions.

These statements are based on management's best assumptions and beliefs in light of the information currently available to it. Because they involve risks and uncertainties, actual results may differ materially from the results that we currently expect. Factors, including risks and uncertainties that could cause these differences include, but are not limited to:

- 1) our strategy is subject to various risks and uncertainties and we may be unable to successfully implement our strategic plans, sustain or improve the operational and financial performance of our business groups, correctly identify or successfully pursue business opportunities or otherwise grow our business;
- 2) general economic and market conditions and other developments in the economies where we operate;
- 3) competition and our ability to effectively and profitably invest in new competitive high-quality products, services, upgrades and technologies and bring them to market in a timely manner;
- 4) our dependence on the development of the industries in which we operate, including the cyclicity and variability of the information technology and telecommunications industries;
- 5) our dependence on a limited number of customers and large multi-year agreements;
- 6) our ability to maintain our existing sources of intellectual property-related revenue, establish new sources of revenue and protect our intellectual property from infringement;
- 7) our global business and exposure to regulatory, political or other developments in various countries or regions, including emerging markets and the associated risks in relation to tax matters and exchange controls, among others;
- 8) our ability to achieve the anticipated benefits, synergies, cost savings and efficiencies of acquisitions, including the acquisition of Alcatel Lucent, and our ability to implement changes to our organizational and operational structure efficiently;
- 9) our ability to manage and improve our financial and operating performance, cost savings, competitiveness and synergies generally and after the acquisition of Alcatel Lucent;
- 10) exchange rate fluctuations, as well as hedging activities;
- 11) our ability to successfully realize the expectations, plans or benefits related to any future collaboration or business collaboration agreements and patent license agreements or arbitration awards, including income to be received under any collaboration, partnership, agreement or arbitration award;
- 12) our dependence on IPR technologies, including those that we have developed and those that are licensed to us, and the risk of associated IPR-related legal claims, licensing costs and restrictions on use;
- 13) our exposure to direct and indirect regulation, including economic or trade policies, and the reliability of our governance, internal controls and compliance processes to prevent regulatory penalties in our business or in our joint ventures;
- 14) our reliance on third-party solutions for data storage and service distribution, which expose us to risks relating to security, regulation and cybersecurity breaches;

- 15) inefficiencies, breaches, malfunctions or disruptions of information technology systems;
- 16) Nokia Technologies' ability to generate net sales and profitability through licensing of the Nokia brand, technology licensing and the development and sales of products and services for instance in digital health, as well as other business ventures, which may not materialize as planned;
- 17) our exposure to various legal frameworks regulating corruption, fraud, trade policies, and other risk areas, and the possibility of proceedings or investigations that result in fines, penalties or sanctions;
- 18) adverse developments with respect to customer financing or extended payment terms we provide to customers;
- 19) the potential complex tax issues, tax disputes and tax obligations we may face in various jurisdictions, including the risk of obligations to pay additional taxes;
- 20) our actual or anticipated performance, among other factors, which could reduce our ability to utilize deferred tax assets;
- 21) our ability to retain, motivate, develop and recruit appropriately skilled employees;
- 22) disruptions to our manufacturing, service creation, delivery, logistics and supply chain processes, and the risks related to our geographically-concentrated production sites;
- 23) the impact of litigation, arbitration, agreement-related disputes or product liability allegations associated with our business;
- 24) our ability to re-establish investment grade rating or maintain our credit ratings;
- 25) our ability to achieve targeted benefits from, or successfully implement planned transactions, as well as the liabilities related thereto;
- 26) our involvement in joint ventures and jointly-managed companies;
- 27) the carrying amount of our goodwill may not be recoverable;
- 28) uncertainty related to the amount of dividends and equity return we are able to distribute to shareholders for each financial period;
- 29) pension costs, employee fund-related costs, and healthcare costs; and
- 30) risks related to undersea infrastructure, as well as the risk factors specified under "Operating and financial review and prospects—Risk factors" of this annual report and in our other filings or documents furnished with the U.S. Securities and Exchange Commission. Other unknown or unpredictable factors or underlying assumptions subsequently proven to be incorrect could cause actual results to differ materially from those in the forward-looking statements. We do not undertake any obligation to publicly update or revise forward-looking statements, whether as a result of new information, future events or otherwise, except to the extent legally required.

Introduction and use of certain terms

Nokia Corporation is a public limited liability company incorporated under the laws of the Republic of Finland. In this annual report, any reference to "we," "us," "the Group," "the company" or "Nokia" means Nokia Corporation and its consolidated subsidiaries and generally to Nokia's Continuing operations, except where we separately specify that the term means Nokia Corporation or a particular subsidiary or business segment only or our Discontinued operations. References to "our shares" matters relating to our shares or matters of corporate governance refer to the shares and corporate governance of Nokia Corporation.

Nokia Corporation has published its consolidated financial statements in euro for periods beginning on or after January 1, 1999. In this annual report, references to "EUR," "euro" or "€" are to the common currency of the European Economic and Monetary Union, and references to "dollars", "U.S. dollars", "USD" or "\$" are to the currency of the United States. Solely for the convenience of the reader, this annual report contains conversions of selected euro amounts into U.S. dollars at specified rates or, if not so specified, at the year-end rate of 1.1993 U.S. dollars per euro, which was the European Central Bank reference rate on December 29, 2017. No representation is made that the amounts have been, could have been or could be converted into U.S. dollars at the rates indicated or at any other rates.

Glossary of terms

3G (Third Generation Mobile Communications): The third generation of mobile communications standards designed for carrying both voice and data generally using WCDMA or close variants.

4G (Fourth Generation Mobile Communications): The fourth generation of mobile communications standards based on LTE, offering IP data connections only and providing true broadband internet access for mobile devices. Refer also to LTE.

4.5G Pro: Our next step in a technology path that will optimize the journey to 5G. Powered by the 5G-ready AirScale, 4.5G Pro delivers ten times the speeds of initial 4G networks, enabling operators to offer gigabit peak data rates to meet growing demands from the programmable world. Using extended carrier aggregation techniques across up to five frequency bands, operators will be able to leverage their diverse paired (FDD) and unpaired (TDD) licensed spectrum as well as unlicensed spectrum.

4.9G: Our evolutionary step to enable future service continuity with 5G network fabric. 4.9G will provide significant increases in capacity and several gigabits of speed-per-second on the path to 5G. This will include allowing additional numbers of carriers to be aggregated, opening the door to additional licensed and unlicensed spectrum, and advancing the radio systems to allow highly directional antennas to be used and to allow signals sent via multiple transmit/receive paths to be added together.

5G (Fifth Generation Mobile Communications): The next major phase of mobile telecommunications standards. 5G will be the set of technical components and systems needed to handle new requirements and overcome the limits of current systems.

5G FIRST: Nokia's end-to-end 5G solution that incorporates AirScale and AirFrame technology, including AirScale massive MIMO Adaptive Antenna, Cloud Packet Core and mobile transport to bring new capabilities to operators.

Access network: A telecommunications network between a local exchange and the subscriber station.

AirFrame: Our 5G-ready, end-to-end data center solution that combines the benefits of Cloud computing technologies with the requirements of the core and radio telecommunications world. It is available in Rackmount and Open Compute Project (OCP) form factors. This enables the solution to be very scalable: from small distributed latency-optimized data centers, all the way to massive centralized hyper scale data center deployment.

AirScale Radio Access: A 5G-ready complete radio access generation that helps operators address the increasing demands of today and tomorrow. The solution comprises: Nokia AirScale Base Station with multiband RF elements and system modules; Nokia AirScale Active Antennas; Cloud RAN with Nokia AirScale Cloud Base Station Server and the Cloud-based AirScale RNC for 3G; Nokia AirScale Wi-Fi; common software; and services which use intelligent analytics and extreme automation to maximize the performance of hybrid networks.

Altiplano: Nokia's cloud-native software platform, Altiplano, is uniquely designed for the SDN/NFV space, renewing operators' ability to scale by centralizing and virtualizing network functionality that was traditionally embedded in the access equipment. Altiplano offers intuitive business logic to cut across traditional network management silos and auto-align the network. Leveraging open interfaces, open data models and open industry initiatives, Altiplano allows operators to integrate Nokia SDAN easily in a multivendor environment.

API (Application Programming Interface): A set of routines, protocols, and tools for building software applications, specifying how software components should interact.

AVA: Nokia AVA cognitive services platform that integrates cloud-based delivery, intelligent analytics and extreme automation to deliver instant and flawless personalized services.

Bandwidth: The width of a communication channel, which affects transmission speeds over that channel.

Base station: A network element in a mobile network responsible for radio transmission and reception to or from the mobile station.

Broadband: The delivery of higher bandwidth by using transmission channels capable of supporting data rates greater than the primary rate of 9.6 Kbps.

BSS (Business Support Systems): The components that a telecommunications service provider uses to run its business operations towards customers.

CDMA (Code Division Multiple Access): A technique in which radio transmissions using the same frequency band are coded in a way that a signal from a certain transmitter can be received only by certain receivers.

Churn: Churn rate is a measure of the number of customers or subscribers who leave their service provider, e.g. a mobile operator, during a given time period.

Cloud: Cloud computing is a model for enabling ubiquitous, convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications and services) that can be rapidly provisioned and released with minimal management effort.

CloudBand: Our Cloud management and orchestration solutions enabling a unified Cloud engine and platform for NFV.

Cloud Native Core: Optimizes Cloud core applications and architecture to support massive IoT, mobile broadband and the 5G programmable world.

Continuing operations: Refers to the Continuing operations following the acquisition of Alcatel Lucent, the Sale of the HERE Business in 2015 and the Sale of the D&S Business in 2014. Our Continuing operations in 2017 included two businesses: our Networks business and Nokia Technologies.

Convergence: The coming together of two or more disparate disciplines or technologies. Convergence types are, for example, IP convergence, fixed-mobile convergence and device convergence.

Core network: A combination of exchanges and the basic transmission equipment that together form the basis for network services.

CSPs: Communications service providers.

Customer Experience Management: Software suite used to manage and improve the customer experience, based on customer, device and network insights.

Devices & Services: Our former mobile device business, substantially all of which was sold to Microsoft.

DevOps: An agile software engineering culture and practice that aims at unifying software development (Dev) and software operation (Ops).

Discontinued operations: Mainly refers to the divestment of our HERE business to an automotive consortium and the sale of substantially all of our Devices & Services business to Microsoft.

Ecosystem: An industry term to describe the increasingly large communities of mutually beneficial partnerships that participants such as hardware manufacturers, software providers, developers, publishers, entertainment providers, advertisers and ecommerce specialists form in order to bring their offerings to market. At the heart of the major ecosystems in the mobile devices and related services industry is the operating system and the development platform upon which services are built.

Engine: Hardware and software that perform essential core functions for telecommunication or application tasks.

EPON: Ethernet Passive Optical Network.

ETSI (European Telecommunications Standards Institute): Standards produced by the ETSI contain technical specifications laying down the characteristics required for a telecommunications product.

Fixed Networks: Our Fixed Networks business group provides copper and fiber access products, solutions, and services.

FP4: Nokia FP4 is the world's first 2.4 Tb/s network processor. It builds on three generations of Nokia's leading-edge network processors and sets a new standard in IP routing silicon design.

Future X: A network architecture—a massively distributed, cognitive, continuously adaptive, learning and optimizing network connecting humans, senses, things, systems, infrastructure, processes.

Gainspeed: California-based start-up specializing in Distributed Access Architecture solutions for the cable industry. Acquired by Nokia in 2016.

G.fast: A fixed broadband technology able to deliver up to 1Gbps over very short distances (for example, for in-building use, also called "Fiber-to-the-Building"). Launched in 2014, G.fast uses more frequencies and G.fast Vectoring techniques to achieve higher speeds.

Global Delivery Center: A remote service delivery center with a pool of services experts, automated tools and standardized processes to ensure that services across the entire network life cycle are delivered to operators globally.

Global Services: Our Global Services business group provides mobile operators with a broad range of services, including professional services, network implementation and customer care services.

GPON (Gigabit Passive Optical Networking): A fiber access technology that delivers 2.5Gbps over a single optical fiber to multiple end points including residential and enterprise sites.

GSM (Global System for Mobile Communications): A digital system for mobile communications that is based on a widely-accepted standard and typically operates in the 900 MHz, 1800 MHz and 1900 MHz frequency bands.

HERE: A former Nokia company focused on mapping and location intelligence services, which was divested to an automotive consortium in 2015.

IFRS (International Financial Reporting Standards): International Financial Reporting Standards as issued by the International Accounting Standards Board and in conformity with IFRS as adopted by the European Union.

Implementation patents: Implementation patents include technologies used to implement functionalities in products or services which are not covered by commitments to standards-setting organizations, so they typically offer product differentiation by giving competitive advantage, such as increased performance, smaller size or improved battery life, and the patent owner has no obligation to license them to others.

Internet of Things (IoT): All things such as cars, the clothes we wear, household appliances and machines in factories connected to the Internet and able to automatically learn and organize themselves.

Internet Protocol (IP): Principal communications protocol in the Internet protocol suite for relaying packets across network boundaries.

Intellectual Property: Intellectual property results from original creative thought, covering items such as patents, copyright material and trademarks, as well as business models and plans.

IP Multimedia Subsystem (IMS): Architectural framework designed to deliver IP-based multimedia services on telecommunications networks; standardized by 3GPP.

IPR (Intellectual Property Right): Legal right protecting the economic exploitation of intellectual property, a generic term used to describe products of human intellect, for example patents, that have an economic value.

IPR licensing: Generally refers to an agreement or an arrangement where a company allows another company to use its intellectual property (such as patents, trademarks or copyrights) under certain terms.

IP/Optical Networks: Our IP/Optical Networks business group provides the key IP routing and optical transport systems, software and services to build high capacity network infrastructure for the internet and global connectivity.

Lightspan: The Nokia Lightspan family delivers programmable access nodes, specifically designed for SDAN use cases, which bring data center practices to the central office and introduce cloud and operational agility to the copper/fiber outside plant. The innovative and compact Lightspan hardware comes with powerful processing, increased throughput and power-efficient design. It features the Lightspan SX-16F, the world's first 16-port reverse-powered G.fast micro-node which can be safely reverse-powered from the home. It also includes the Lightspan CF-24W, a stackable software-defined optical line terminal (OLT) that delivers the industry's highest next-generation PON (NG-PON) capacity in a single one-rack unit.

LTE (Long-Term Evolution): 3GPP radio technology evolution architecture and a standard for wireless communication of high-speed data. Also referred to as 4G, refer to 4G above.

LTE-M: An IoT radio technology addressing demanding IoT applications needs with low to mid-volume data use of up to about 1Mbps. The technology also simplifies modems by about 80%.

Mika: Multi-purpose Intuitive Knowledge Assistant, a customized digital assistant, powered by the Nokia AVA cognitive services platform, that improves telecom operators' efficiency by providing engineers faster access to critical information.

MIMO: Multiple-input and multiple-output, or MIMO, is a method for multiplying the capacity of a radio link using multiple transmit and receive antennas.

Mobile broadband: Refers to high-speed wireless internet connections and services designed to be used from arbitrary locations.

Mobile Networks: Our Mobile Networks business group offers an industry-leading portfolio of end-to-end mobile networking solutions comprising hardware, software, and services for telecommunications operators, enterprises, and related markets/verticals such as public safety and IoT.

Networks business: Comprised the Mobile Networks, Fixed Networks, Global Services, Nokia Software, and IP/Optical Networks business groups in 2017.

NFV (Network Functions Virtualization): Principle of separating network functions from the hardware they run on by using virtual hardware abstraction.

Nokia Bell Labs: Our research arm discovering and developing the technological shifts needed for the next phase of human existence as well as exploring and solving complex problems to radically redefine networks.

Nokia Networks: Our former business focused on mobile network infrastructure software, hardware and services.

Nokia Software: Our business group offering carrier-grade software applications and platforms to provide operations and business support systems, build, deliver, and optimize services, enable their monetization, and to improve customer experience. On February 1, 2018, we announced that we would rename our Applications & Analytics business group as Nokia Software.

NSN (Nokia Solutions and Networks): The former name of our Networks business. From 2007, NSN was known as Nokia Siemens Networks until we acquired Siemens' 50% stake in the joint venture in 2013.

Nokia Technologies: Our business group focused on advanced technology development and licensing.

Glossary of terms continued

Operating system (OS): Software that controls the basic operation of a computer or a mobile device, such as managing the processor and memory. The term is also often used to refer more generally to the software within a device, including, for instance, the user interface.

Operational Support Systems (OSS): Computer systems used by telecommunications service providers to manage their networks. They support management functions such as network inventory, service provisioning, network configuration and fault management.

OZO: Our professional Virtual Reality camera, crafted by Nokia Technologies, that is no longer in production.

Packet: Part of a message transmitted over a packet switched network.

Picocell: A small cellular base station typically covering a small area typically up to 200 meters wide. Typically used to extend coverage to indoor areas or to add network capacity in areas with very dense phone usage, such as train stations.

Platform: Software platform is a term used to refer to an operating system or programming environment, or a combination of the two.

PON (Passive Optical Networking): A fiber access architecture in which unpowered Fiber Optic Splitters are used to enable a single optical fiber to serve multiple end-points without having to provide individual fibers between the hub and customer.

Programmable World: A world where connectivity will expand massively, linking people as well as billions of physical objects—from cars, home appliances and smartphones, to wearables, industrial equipment and health monitors. What distinguishes the Programmable World from the Internet of Things is the intelligence that is added to data to allow people to interpret and use it, rather than just capture it.

RAN (Radio Access Network): A mobile telecommunications system consisting of radio base stations and transmission equipment.

SDAN: Software Defined Access Network

SDN (Software Defined Networking): An approach to computer networking that decouples the network control and forwarding functions enabling the network control to become programmable and the underlying hardware to be abstracted.

SD-WAN: Software-defined networking in a wide area network (WAN). An SD-WAN simplifies the management and operation of a WAN by decoupling the networking hardware from its control mechanism.

SEPs (Standard-Essential Patents): Generally, patents needed to produce products which work on a standard, which companies declare as essential and agree to license on fair, reasonable and non-discriminatory (FRAND) terms.

Service Delivery Hub: Smaller service delivery centers, typically focused on specific technology or language.

Shared Data Layer (SDL): A highly reliable, scalable and readily-available data store in the Cloud. Moving subscribers and session data to SDL and using this shared data in an open ecosystem enable rapid innovations of services and faster revenue growth due to better insight into subscriber behavior.

Single RAN: Single RAN allows different radio technologies to be provided at the same time from a single base station, using a multi-purpose platform.

Small cells: Low-powered radio access nodes (micro cells or picocells) that are a vital element in handling very dense data traffic demands. 3G and LTE small cells use spectrum licensed by the operator; WiFi uses unlicensed spectrum which is therefore not under the operator's exclusive control.

SON (Self-Organizing Network): An automation technology designed to make the planning, configuration, management, optimization and healing of mobile radio access networks simpler and faster.

TD-LTE (Time Division Long-Term Evolution, also known as TDD (Time Division Duplex): An alternative standard for LTE mobile

broadband networks. Time Division means that a single connection is used alternately to carry data from the base station to the mobile device ("downlink") and then from the mobile device to the base station ("uplink").

Technology licensing: Generally refers to an agreement or arrangement where under certain terms a company provides another company with its technology and possibly know-how, whether protected by intellectual property or not, for use in products or services offered by the other company.

Telco Cloud: Applying Cloud computing, SDN and NFV principles in telecommunications environment, e.g. separating application software from underlying hardware with automated, programmable interfaces while still retaining telecommunications requirements such as high availability and low latency.

Transmission: The action of conveying signals from one point to one or more other points.

TWDM-PON (Time Wavelength Division Multiplexing Passive Optical Network): The latest generation fiber access technology, which uses multiple wavelengths to deliver up to 40Gbps total capacity to homes, businesses, and base stations. Also known as NG-PON2.

TXLEs (Technical extra-large enterprises): Technically sophisticated companies, such as banks, that invest heavily in their own network infrastructures to gain a key competitive advantage.

vDAA: Virtualized Distributed Access Architecture.

VDSL2 (Very High Bit Rate Digital Subscriber Line 2): A fixed broadband technology, the successor of ADSL. Launched in 2007, it typically delivers a 30Mbps broadband service from a street cabinet (also called a "Fiber-to-the-Node" deployment) over existing telephone lines.

VDSL2 Vectoring: A fixed broadband technology launched in 2011, able to deliver up to 100Mbps over a VDSL2 line by applying noise cancellation techniques to remove cross-talk between neighboring VDSL2 lines.

Virtual Reality (VR): The simulation of a three-dimensional image or environment that can be interacted with in a seemingly real or physical way by a person using special electronic equipment, such as a helmet with a screen inside or gloves fitted with sensors.

VoLTE (Voice over LTE): Required to offer voice services on an all-IP LTE network and generally provided using IP Multimedia Subsystem.

Vplus: A fixed broadband technology, between VDSL2 Vectoring and G.fast in terms of bandwidth and distances, typically used in FTTN (ode) deployments. Launched in 2015, it delivers up to 300Mbps and has been standardized as VDSL2 35b.

WAN (Wide Area Networking): A geographically distributed private telecommunications network that interconnects multiple local area networks.

WCDMA (Wideband Code Division Multiple Access): A third-generation mobile wireless technology that offers high data speeds to mobile and portable wireless devices.

Webscales: Companies—such as Google, Microsoft, and Alibaba—which are investing in Cloud technology and network infrastructure on an increasing scale to fulfill their needs for massive, mission-critical networks.

WLAN (Wireless Local Area Network): A local area network using wireless connections, such as radio, microwave or infrared links, in place of physical cables.

XG-FAST: A Nokia Bell Labs extension of G.fast technology, using even higher frequencies. Capable of delivering over 10Gbps, over 2 bonded telephone lines, over very short distances.

Investor information

Information on the internet

www.nokia.com

Available on the internet: financial reports, members of the Group Leadership Team, other investor-related materials and events and press releases as well as environmental and social information, including our Sustainability Report, Code of Conduct, Corporate Governance Statement and Remuneration Statement.

Investor Relations contacts

investor.relations@nokia.com

Annual General Meeting

Date: May 30, 2018

Place: Helsinki, Finland

Dividend

The Board proposes to the Annual General Meeting a dividend of EUR 0.19 per share for the year 2017.

Financial reporting

Our interim reports in 2018 are planned to be published on April 26, 2018, July 26, 2018 and October 25, 2018. The full-year 2018 results are planned to be published in February 2019.

Information published in 2017

All our global press releases and statements published in 2017 are available on the internet at www.nokia.com/en_int/news/releases.

Stock exchanges

The Nokia Corporation share is quoted on the following stock exchanges:

	Symbol	Trading currency
Nasdaq Helsinki (since 1915)	NOKIA	EUR
New York Stock Exchange (since 1994)	NOK	USD
Euronext Paris (since 2015)	NOKIA	EUR

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