

Nokia Technologies in 2016

Technology to move us forward.

Our advanced technology development and licensing business group, Nokia Technologies, was established with two main objectives:

- to drive growth and renewal in the existing patent licensing business; and
- to build new businesses for us, based on breakthrough innovation in key Programmable World technologies and products.



Nokia Technologies in 2016

R&D investment over the last two decades

€50bn+

Patent families

9 900

Individual patents

30 000



The first professional virtual reality camera

The OZO virtual reality camera is the first ever professional virtual reality camera for content creators. Crafted by Nokia Technologies, OZO combines the ultimate in engineering capabilities and intelligent design to offer the best virtual reality production experience.

In 2016, Nokia Technologies is operating with the following structure:

- **Patent Business:** We aim to expand Nokia's industry leading patent licensing business and manage the Nokia Technologies portfolio of approximately 9 900 patent families. Built on more than EUR 50 billion invested in R&D over the last two decades, the approximately 30 000 individual patents and patent applications cover innovations including many enabling technologies used in virtually all mobile devices used today.
- **Brand Partnerships:** We aim to work with our partners to deliver Nokia-branded consumer products to the market, starting with the N1 Android tablet launched in 2015.
- **Digital Media:** We focus on connecting people to stories, experiences and the world around them through immersive virtual reality capture and playback technologies, including the previously launched OZO virtual reality camera for professional content creators. Beyond OZO, Nokia Technologies expects to establish a virtual reality ecosystem (format, player licensing, new virtual reality experiences) to optimally manage virtual reality workflows and content to offer new and compelling end-user experiences (in production, distribution and consumption of virtual reality digital content).
- **Digital Health:** We aim to connect people to digital solutions that can improve their health.
- **Labs:** Through the R&D unit of Nokia Technologies, we seek to continue our track record of R&D leadership and innovation. Labs primarily supports the long-term Digital Media and Digital Health offering, and drives the renewal of our intellectual property portfolio.

Market overview

Nokia Technologies aims to be a leader in technology development and licensing. We see a world where billions of devices—large, small and minuscule—will connect to form intelligent systems, and we see significant potential for our own technologies and intellectual property in that world.

Business overview

Nokia Technologies develops and licenses technologies we believe will enable the Programmable World. We seek to create value from our investments by expanding our successful patent licensing program and helping other companies and organizations benefit from our innovations through our established and successful licensing business. Additionally, we are exploring the possibility of utilizing new technologies in our own future products and services.

Nokia Technologies was formed upon the closing of the Sale of the D&S Business (as defined below). The Nokia Technologies business combines a leading team from our former CTO with our world-class IPR activities. The business builds on the foundation we have established through investing cumulatively more than EUR 50 billion in R&D over the last two decades.

Innovations from our R&D activities created and shaped the fundamental technologies used in all mobile products and in multiple wireless communications technologies today. We are continuing to build on that heritage to drive further innovations in the areas of digital media and digital health.

Strategy

Nokia Technologies' strategy consists of:

- 1) patent licensing, focused on licensing standard-essential and other patents in the Nokia Technologies portfolio to companies in the mobile devices market and beyond;
- 2) technology licensing, focused on licensing proprietary technologies to enable our customers to build better products;
- 3) brand partnerships, to help our customers leverage the value of the Nokia brand in consumer devices; and
- 4) incubation, focused on developing new products and solutions in the areas of Digital Media and Digital Health; all of these activities are supported by Labs, its world-class R&D team.

Sales and marketing

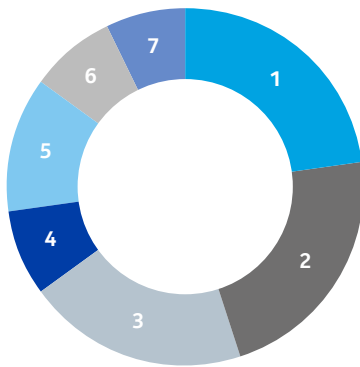
Nokia Technologies has significant ongoing R&D activities and an established patent licensing program. Nokia Technologies manages intellectual property as a technology asset and seeks a return on its investments by making its innovations available to the markets through licensing activities and transactions. Nokia Technologies currently has more than 100 licensees, mainly for our SEPs. Nokia Technologies is actively engaged in sales and marketing in support of the OZO virtual reality camera and related technology solutions that enable fully immersive audio and video experiences. Nokia Technologies is also building sales and marketing capabilities to support additional consumer and business-to-business products.

Nokia Technologies sees further opportunities in licensing its proprietary technologies, intellectual property and brand assets into telecommunications and adjacent industries. This has enabled numerous companies and businesses to benefit from our innovations in areas such as connectivity and imaging. Over the past ten years, we have also systematically licensed certain of our proprietary technologies, which we have decided not to reserve solely for our internal use.

“Nokia Technologies grows and renews our patent licenses and builds new businesses based on cutting-edge technologies and products.”

Nokia Technologies in 2016 continued

Breakdown of Nokia Technologies' IP portfolio



| | |
|-----------------------|-----|
| 1 Radio | 23% |
| 2 Networks & Services | 22% |
| 3 Hardware | 20% |
| 4 Maps & Location | 8% |
| 5 Multimedia | 12% |
| 6 User Interface | 8% |
| 7 Software | 7% |

Research and development

The Nokia Technologies team of world-class scientists and engineers has driven more than half of Nokia's recent patent filings. The applied nature of our R&D in Nokia Technologies has resulted in various relevant and valuable inventions in technology areas, which we believe are important for emerging consumer experiences in the Programmable World, such as underlying connectivity and sensing technologies as well as codecs for virtual reality video and audio and advanced machine learning-based analytics of health data.

Nokia Technologies has R&D activities in Finland, the United Kingdom and the United States.

Nokia Technologies holds several central roles in standardization bodies and contributes to standardization work by filing technical proposals which, when found relevant, are often accepted and embodied in standards. In addition, Nokia Technologies develops reference implementations while defining the standards, which result in significant innovations covering proprietary ways to implement relevant technologies.

Patents and licenses

Intellectual property assets are fundamental to Nokia, which now controls three distinct IP portfolios: the Nokia Networks, Alcatel Lucent and Nokia Technologies portfolios. For information on the first two portfolios, please refer to "Business Overview—Networks business in 2016—Patents and Licenses".

We continue to renew our patent portfolio with innovations from our strong R&D teams in Nokia Technologies.

Competition

The Nokia Technologies patent portfolio spans a number of technology categories including radio connectivity and networking, multimedia, user interface and mobile device software and hardware products. As Nokia Technologies expands its successful licensing program to cover patents which have not been broadly licensed to date, as well as proprietary technologies and other intellectual property, it could face competition from alternate technologies or solutions. However, it is too early to anticipate which of these may be significant in the future.

While several major technology companies are entering the virtual reality market, it is still nascent, and long-term trends for capture and playback solutions have not yet been identified.

Discontinued operations

The two businesses below are presented as Discontinued operations in this annual report on Form 20-F.

HERE business

We sold our HERE digital mapping and location services business to a German automotive industry consortium comprising of AUDI AG, BMW Group and Daimler AG and the sale was completed on December 4, 2015.

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 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.

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.