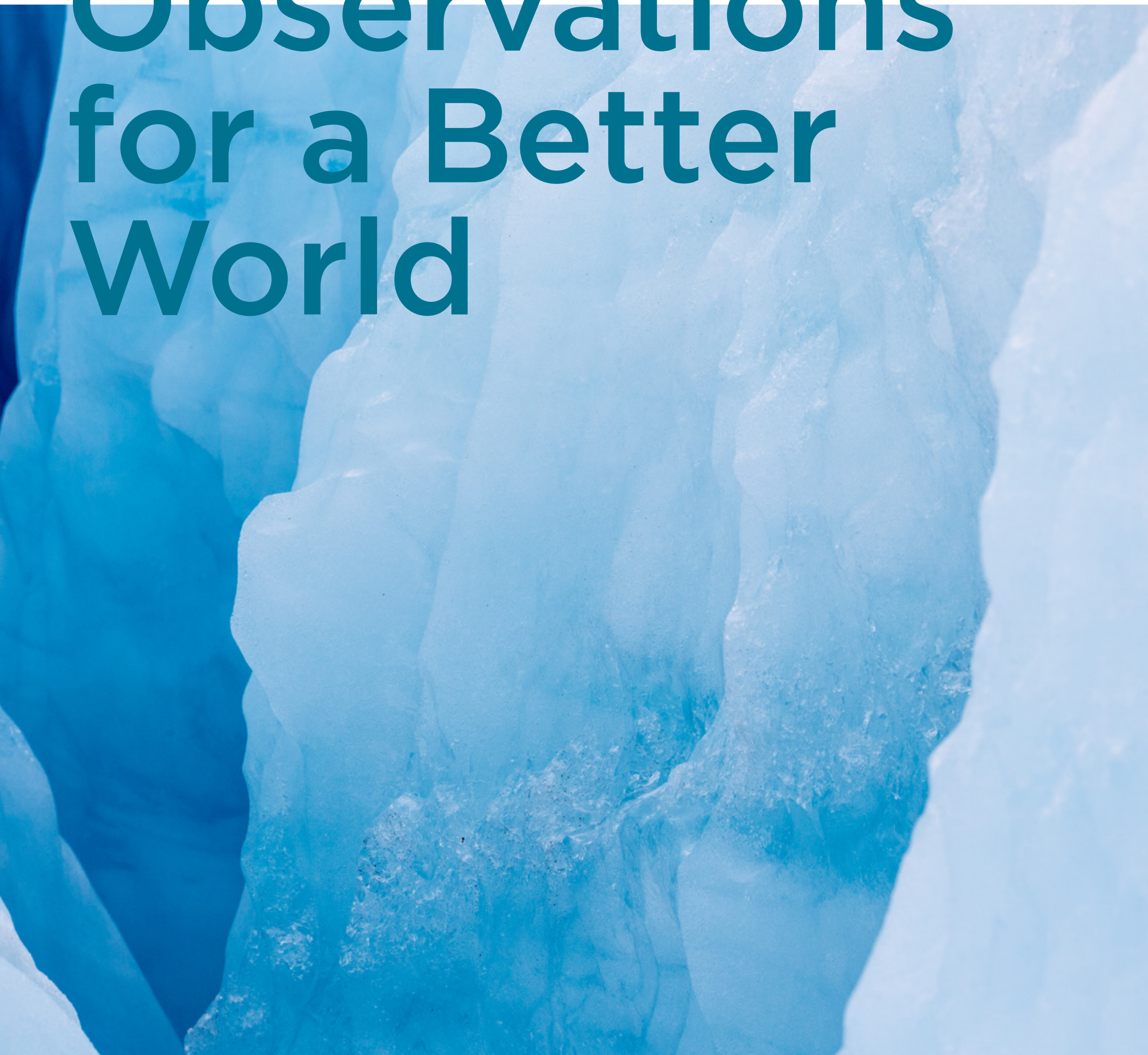

Observations for a Better World

VAISALA

Annual Report 2018

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ABOUT THIS REPORT

This Vaisala annual report is the third one to apply the International <IR> Framework. This comprehensive report includes information about Vaisala's sustainability, governance and financials as well as value creation to different stakeholders. Vaisala has published standalone sustainability reports since 2008.

This report caters also to those who gather data from GRI (Global Reporting Initiative) reports. You can find the GRI Content Index at the end of the Sustainability section together with an Independent Assurance Report. Disclosure of non-financial information in accordance with Finnish Accounting Act chapter 3 a is presented in the Sustainability section as well as on pages Business Model and Dashboard, included in the Creating Value section.

How to navigate this report

Read more about this topic on the web.

Read more about this topic in this report.

VAISALA IN BRIEF

Vaisala is a global leader in environmental and industrial measurements. Building on over 80 years of experience, Vaisala provides its customers with reliable measurement solutions and services for better decision-making, safety, and efficiency. Vaisala is headquatered in Finland, and Vaisala's A-shares are listed on the Nasdaq Helsinki stock exchange.

Key Figures for 2018

Net Sales
348.8 MEUR

Operating result
38.9 MEUR

Employees
1,800+

Offices
30+

Countries
18

Business Areas

WEATHER AND ENVIRONMENT

Weather and Environment Business Area serves selected weather-dependent markets where accurate, real-time, uninterrupted, and reliable weather data is essential to run efficient operations.

Main markets: meteorology, ground transportation, aviation, maritime, safety and security, renewable energy, and ambient air quality.

INDUSTRIAL MEASUREMENTS

Industrial Measurements Business Area serves a wide range of industrial customers. It offers a broad range of measurement instruments to ensure operational quality and productivity.

Main markets: high-end humidity and carbon dioxide measurements, life science, and power.

33% Industrial Measurements 116.4 MEUR
67% Weather and Environment 232.3 MEUR

Our Year

THE BEGINNING OF ALL WISDOM IS ACKNOW-LEDGEMENT OF FACTS

Climate change and global warming were among the most discussed themes in 2018. These phenomena are closely related to our core business in weather observation. We have been operating in this field since 1936, enabling meteorological institutes around the world to produce long series of measurements that are needed in order to verify climate change and global warming.

In 2018, we continued to manufacture accurate, reliable, and consistent measurement instruments that provided our customers with high-quality measurement results. Reliable measurement results are the only way to create a comparable series of measurements for analyzing and observing changes in climate and global temperature, as changes in trends can only be observed over the long term. Regularity is key: measurements must be carried out every day, regardless of cycles and conditions.

Our industrial measurement instruments, on the other hand, enable our customers to enhance both energy efficiency and productivity by gaining the best possible visibility into their processes. This helps them reduce energy consumption and waste as well as save natural resources, for example, in the steel industry and industrial drying processes.

As former Finnish President Paasikivi put it: "The beginning of all wisdom is acknowledgement of facts." To make educated decisions, we first need to be fully aware of the current situation, and our decisions must be based on facts. For this reason, Vaisala works in close and continuous cooperation with scientific communities and utilizes the results of this cooperation to the benefit of its customers.

The future holds interesting potential, as environmental measurements are related to many issues and customers' processes set more and more requirements. I believe that the importance of climate, environmental, and other measurements will increase in the future. We must focus on knowing and understanding our customers' needs and challenges profoundly as well as on serving all of our customers well and consistently in the long term.

Vaisala's products and solutions are present in many contexts, from incubators to airports and synoptic observation systems. Our mission, "Observations for a Better World", perfectly reflects our operations and future vision: we want to continue on our path of significant measurements and observations. We participate in building a world in which environmental observations improve the quality of daily life.

Raimo Voipio

Raimo Voipio
Chairman of the Board of Directors

HIGHLIGHTS – A YEAR IN OBSERVATIONS

Q1

We installed the wireless viewLinc Continuous Monitoring System in the Ähtäri Zoo in Finland, where it monitors the well-being of pandas.

Read more
vaisala.com/annualreport

Q2

We expanded our service offering to ISO/IEC 17025 accredited carbon dioxide calibrations.

Read more
vaisala.com/annualreport

Q2

Our challenge in the World Challenge Finland 2018 competition looked for solutions to mitigate air pollution.

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vaisala.com/annualreport

Q2

We launched the Vaisala Lightning Integrator and Lightning Exporter services that allow companies to access historical lightning data in the United States.

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Q2

We supplied state-of-the-art air quality sensors to ICE Gateway's real-time smart city network in Prague.

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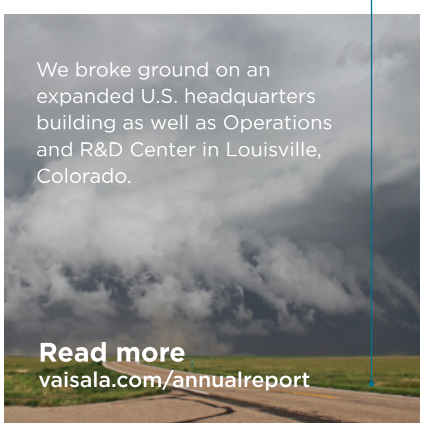
Q3

Construction work started at our headquarters in Finland, as the city of Vantaa issued a building permit for our new R&D building.

Q3



We broke ground on an expanded U.S. headquarters building as well as Operations and R&D Center in Louisville, Colorado.

Read more
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Q4

We strengthened our position in remote wind sensing by acquiring Leosphere SAS.

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Q4

We introduced the seventh generation of visibility and present weather sensors: Vaisala Forward Scatter FD70 Series.

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Q4

We introduced the next-generation automatic sounding system Vaisala AUTOSONDE® AS41.

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Q4

Our viewLinc Continuous Monitoring System was awarded by Laatukeskus Excellence Finland in the Quality Innovation Award competition in the Business Innovation category for large companies.

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Q4

We expanded our business to a new growth market by acquiring the pioneer in liquid measurements, K-Patents. The acquisition strengthens our position as the global leader in the industrial measurements market.

Read more
vaisala.com/annualreport

SOLVING GLOBAL CHALLENGES GUIDES US INTO THE FUTURE

In 2018, our net sales increased by 5% driven by good product deliveries. Net sales in Americas and APAC regions grew nicely, although weather related market in China was challenging. Operating result reached almost previous year's level and was 11% of net sales.

AN INCREASINGLY COMPLEX WORLD

We live in a world in which we need to solve more and more challenging and complex problems. There are no easy solutions to these problems.

Climate change, for example, is one of the most significant problems of our time. The most visible consequences of climate change include extreme weather conditions, which are increasingly common. Vaisala is investing heavily in promoting research on extreme weather. We also help the developing countries that are most prone to adverse weather effects to increase their meteorological capabilities, as they lack the infrastructure to detect storms and warn people. We are developing these capabilities in our long-term national projects in Vietnam and the Bahamas, for example.

In 2018, we introduced a next-generation dropsonde for extreme weather observation. Dropsondes provide measurement data that can be used to calculate the strength and structure of hurricanes and predict their routes and changes. Vaisala's dropsondes continued to play a significant role in measuring hurricanes and predicting their routes in 2018.

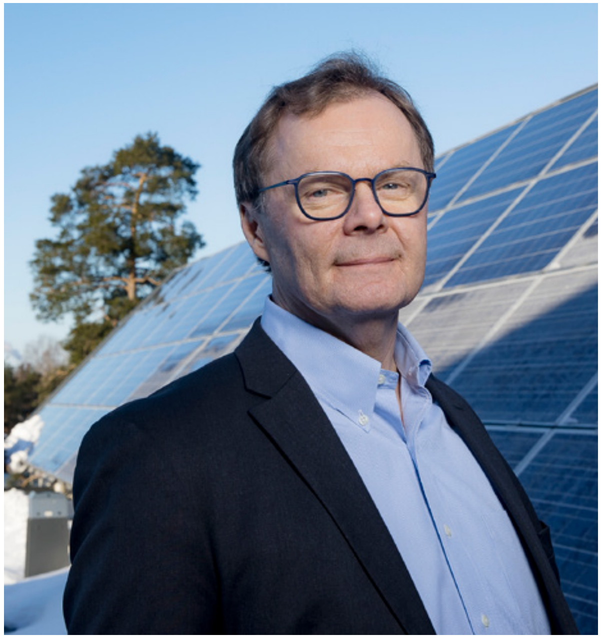
Current global challenges also include air quality, which carries an even more significant role as a result of urbanization. Air quality business is still a relatively new area for Vaisala, but it developed favorably in 2018. We entered into commercial agreements in Sydney, Prague, Marseille, and Ukraine, for example, and we continued our research and development projects in Helsinki and Nanjing, and within the LuxTurrim consortium. Air quality solutions are part of increasingly common smart city projects. In this field, we have also successfully used computer vision technology to enhance the efficiency of road maintenance in cities and towns throughout the year. We signed new agreements in England and in Central and Northern Europe.

In industrial measurements, we have been able to solve more and more difficult challenges and have created value for our customers by improving their process efficiency. In medicine, for example, vaporized hydrogen peroxide is used in the biodecontamination process to clean packaging, equipment, and facilities in an environmentally friendly manner, and validating the process would be difficult without reliable measurement data. In 2018, we expanded our selection of hydrogen peroxide probes to meet demand. This was well received by the market, and sales met our expectations.

Vaisala also promotes circular economy, with our most recent effort being the launch of the new biogas solution in January 2019. It is an excellent example of a product that can produce reliable measurement data in a challenging, even explosive environment. We are extremely pleased to be able to create significant and unique added value for our customers in this way.

SIGNIFICANT PRODUCT LAUNCHES

Deliveries of the new Vaisala viewLinc Continuous Monitoring System began in May 2018. This unique wireless system offers superior reliability and has been received with enthusiasm among customers. In December 2018, viewLinc won also the Quality Innovation Award by Laatukeskus Excellence Finland in the business inno-



The most visible consequences of climate change include extreme weather conditions, which are increasingly common. Vaisala is investing heavily in promoting research on extreme weather.

vation category for large companies, which is a further proof of the quality of the system.

In October 2018, we introduced our seventh generation of sensors for the measurement of visibility and present weather. The products in the Vaisala Forward Scatter FD70 series feature novel, innovative technology that sets new accuracy standards for precipitation identification, quantification and visibility determination.

The same month, we also introduced the next-generation automatic sounding system Vaisala AUTOSONDE® AS41, which reduces the costs of soundings and enables flexible remote soundings. The system makes it possible to carry out automatic soundings for one month at a time, which is twice as long as with the previous systems.

NEW OPENINGS AND ACCELERATED GROWTH THROUGH ACQUISITIONS

The acquisition of the French company Leosphere SAS in October 2018 was the largest business acquisition in Vaisala's history. Leosphere supplies remote wind sensing LiDAR instruments for wind energy, aviation, meteorology, and air quality applications. Leosphere is the technology and market leader in its field, which offers excellent growth opportunities in the renewable energy, aviation, air quality, and meteorology sectors.

In December, we entered the significant liquid measurement market by acquiring the Finnish company K-Patents Oy, a pioneer in liquid measurements, and its research and development organization, Janesko Oy. This is a very attractive growth area for Vaisala, with the liquid measurement market being approximately the same size as Vaisala's current gas measurement market. We will continue to invest in this business and are expecting the new market to contribute strongly to Vaisala's growth in industrial measurements.

The Vaisala Production System (VPS) is one of the cornerstones of Vaisala's success. Short delivery times and high delivery quality are essential aspects of our expertise that we can also transfer to the companies we have acquired.

STRONG INVESTMENTS IN THE FUTURE

We are very confident about Vaisala's future, and growth will also offer new opportunities for our employees. Our investments in research and development totaled EUR 45 million in 2018 (EUR 40 million in 2017).

In September, we broke ground on our new U.S. headquarters in Louisville, Colorado. We also began to build new research and development facilities in Vantaa, Finland at the end of 2018. The new building will rise next to our headquarters. Both buildings are expected to be completed in 2020.

Overall, 2018 was an eventful year for Vaisala, and I would like to express my warmest thanks to all of our employees for their commitment to our common goals and for their flexibility. The atmosphere in Vaisala is positive and constructive: our community is characterized by curiosity and willingness to learn, which will continue to be our recipe for success also in the future.

Kjell Forsén
President and CEO

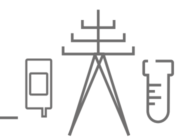
Creating Value

OBSERVATIONS FOR A BETTER WORLD

Our customer value is built on reliability, science-based technology leadership, industry expertise, engaged and talented employees, as well as strong partnerships.

WEATHER AND ENVIRONMENT

Growth through industry-leading offering and digital services



INDUSTRIAL MEASUREMENTS

Growth through product leadership

Vaisala Production System (VPS)

We drive excellence in high-mix, low-volume supply chain.

We deliver value to our customers globally through three business models.

Products | **Projects** | **Services**

Our Values Guide Us

Customer Focus
We strive for deep understanding of our customers' needs and aim at meeting them in everything we do.

/

Innovation and Renewal
We embrace pioneering innovation and drive change through continuous improvement and learning.

/

Strong Together
We excel by sharing, learning, and working together with each other and our stakeholders.

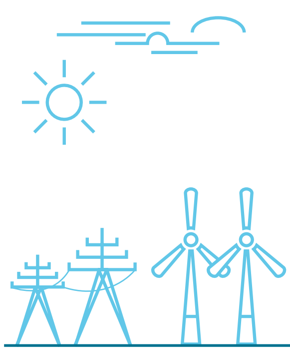
/

Integrity
We are honest, respectful, and reliable. We promote sustainable and ethical behavior.

BUSINESS MODEL

Partners

- Key customers
- Meteorological institutes
- Distributors
- R&D partners
- Universities and research organizations
- Manufacturing partners
- Suppliers and sub-contractors



Activities

- Research and development
- Sales and marketing
- Sensor production
- Manufacturing

Delivery models:

1. Product shipments
2. System projects, including installations, testing, and training
3. Services, including calibration, maintenance, and digital solutions

Resources

- Application expertise
- Engaged and talented people
- Vaisala Production System
- In-house cleanroom
- Science-based technology leadership
- Strong financial position

VAISALA

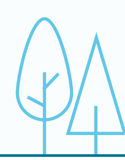
Value Propositions

Reliable, high-quality measurements and observations for decision-making, safety, and efficiency

Global technology and market leader in weather and industrial measurements

Excellence in high-mix, low-volume businesses

Solid dividend payer



Products and Technologies

Large product portfolio based on proprietary leading technologies

Measurement sensors and instruments, systems, software, digital solutions and services for measuring weather, environment, and industrial conditions and processes, as well as air conditioning

Over 6,000 products

Thin-film humidity sensors, infrared gas sensors, optical weather sensors, and radio frequency technologies

Sales Channels

Direct global sales
- Sales personnel in **18** countries
- E-commerce

Distribution network
- Distributors and agents in over **100** countries
- Retailers

Customers in over **150** countries

Customer Segments

Wide customer base covering public and private sector customers

WEATHER AND ENVIRONMENT

Meteorology
Aviation, ground transportation, and maritime
Renewable energy
Ambient air quality

INDUSTRIAL MEASUREMENTS

High-end humidity
High-end carbon dioxide
Life science
Power

Cost Structure

- R&D investment 13.0% of net sales
- Personnel costs EUR 133.6 million
- Material costs EUR 97.2 million
- Asset-light business model
- CAPEX EUR ~15 million

Revenue Streams

Products: 66% of total sales
Projects: 20% of total sales
Services: 14% of total sales

Net sales EUR 348.8 million
EBIT EUR 38.9 million

EMEA 29%
AMERICAS 39%
APAC 31%

VALUE CREATION MODEL

We create value in continuous interaction with our stakeholders. The focus of our value creation is to provide our customers with solutions that help them make reliable decisions and improve their productivity and processes in the areas of weather and environment as well as industrial measurements. This way we are also able to have an impact on current challenges, related to different megatrends, by increasing awareness, resource efficiency, and safety in societies.

DIGITALIZATION
CLIMATE CHANGE
ENERGY EFFCIENCY
URBANIZATION
WELL-BEING AND HEALTH
RENEWABLE ENERGY
SUSTAINABILITY AWARENESS
FUTURE OF MOBILITY
RESOURCE EFFCIENCY AND CIRCULAR ECONOMY

OUR FUNDAMENTALS

- RELIABILITY
- APPLICATION EXPERTISE
- ENGAGED AND TALENTED PEOPLE
- VAISALA PRODUCTION SYSTEM
- SCIENCE-BASED TECHNOLOGY LEADERSHIP
- PARTNERSHIPS
- STRONG FINANCIAL POSITION
- SUSTAINABILITY

OUR MISSION

VAISALA

Observations for a Better World

VALUE CREATED

CUSTOMERS
RELIABLE DECISIONS, PRODUCTIVITY, QUALITY

SOCIETY AND ENVIRONMENT
BETTER INFORMED SOCIETIES, RESOURCE EFFICIENCY, SAFETY

EMPLOYEES
PURPOSEFUL WORK, WELL-BEING, LEARNING

INVESTORS
RESPONSIBLE RETURNS

SOCIETY AND ENVIRONMENT
ECONOMIC VALUE, COLLABORATION IN THE SCIENTIFIC COMMUNITY, COMMUNITY OUTREACH

DASHBOARD

OUR FUNDAMENTALS	TOPIC	PERFORMANCE 2018	TARGET
Reliability Vaisala Production System Partnerships	On-time delivery accuracy*	94.5%	98%
	Product failure rate, including warranty units*	1.2%	Continuous reduction
Engaged and Talented People	Employee Engagement Index*	4.05/5	> 4.00/5
	Learning Index*	3.84/5	> 4.00/5
Science-Based Technology Leadership Application Expertise	R&D investments, % of net sales	13.0%	Over 10% of net sales
Strong Financial Position	Net sales growth year-on-year	5%	5% growth year-on-year
	EBIT % of net sales	11.1%	15%
	Return on equity (ROE)	16.0%	
	Earnings per share (EPS), euros	0.82	
Sustainability	Carbon footprint, Scope 1-3*	16,085 tonnes CO_2-e	Continuous reduction
	Carbon footprint reduction, Scope 2*	-90% from 2014 baseline	> 90% by 2020
	Renewable electricity of Group consumption*	94%	100% by 2020
	Waste recovery rate*	96%	Maintain high ratio
	Suppliers scored for ESG metrics, % of spend*	93%	> 90%
	Total Recordable Injuries rate (TRI)*	3.2 injuries per million working hours	Continuous reduction

* Leosphere SAS and K-Patents Group acquired at the end of 2018 are not included in the figures.

MEGATRENDS

We have identified several megatrends that affect and drive Vaisala's business. These transformational shifts provide both a source for inspiration and opportunities for growth. We constantly assess markets and technologies to find new ways to engage with these megatrends. Together with our customers, we can create solutions to the pressing societal and environmental challenges posed by these trends.

CLIMATE CHANGE

Vaisala helps its customers to establish weather observation networks and build up capabilities that improve their capacity to assess, predict, and prepare for extreme weather. In addition, we support the scientific community in its efforts to increase knowledge of our changing climate and its impacts, by enabling the most accurate observations of the world.

Our aim is to help nations to better understand their vulnerabilities and risks as well as become more resilient to climate change through state-of-the-art environmental observations and forecasting.

DIGITALIZATION & BIG DATA

Data gathered through Vaisala's weather observation platforms establishes a basis for decision-making by governmental organizations, research organizations, and the public. We deliver decision support by integrating data from our observation platforms and open data sources into applications that provide observational intelligence for effective operations and better decisions.

We focus on meeting the expanding needs and requirements of customers across multiple industries and application areas; for example, in meteorology, transportation, air quality, renewable energy, and power industry.

URBANIZATION

Vaisala provides reliable instruments, systems, and digital solutions to measure air quality and road weather as well as urban weather and microclimates. This helps smart cities overcome their challenges with urbanization and meet their objectives with regards to sustainability, economic growth, safety, and well-being.

From the viewpoint of urbanization and industrial growth, we offer diverse and advanced measurement technologies needed in environments that require precise and constant monitoring, such as hospitals, subways, and large manufacturing facilities.

RENEWABLE ENERGY

Various forms of clean and renewable energy are growing and becoming increasingly competitive. Vaisala's measurement technologies help developers and owners get more out of their wind power plants. The atmosphere is a valuable asset that Vaisala's customers can leverage as a source of clean and renewable energy.

FUTURE OF MOBILITY

Vaisala provides solutions that help transportation authorities and operators to ensure the safety and efficiency of road, rail, sea, and air transport. Vaisala fuses measurements, computer vision observations, forecasts, and open data into intelligence and decision support for authorities and contractors that maintain and operate transportation infrastructure.

This will be increasingly important as new modes of mobility arise and become more common. For example, autonomous vehicles require an increasing amount of road state analysis and environmental observations to support safe and efficient traffic in various conditions. Hence, also the future road and infrastructure maintenance needs to match the needs of these new modes of transportation.

SUSTAINABILITY AWARENESS

Trust, reliability, quality, respect, and sustainability lay the foundation for our business. As an industry leader, we incorporate sustainability into our operations, providing long-lasting, reliable products and solutions to our customers.

We have a positive impact on society through our customers, as they apply our solutions towards reaching their own sustainability targets.

ENERGY EFFICIENCY

Vaisala's measurement technologies improve energy efficiency by optimizing the control of many industrial processes. We help customers in a multitude of energy intensive industries to reduce energy consumption as well as improve operations.

To improve the energy efficiency of buildings, our building automation solutions optimize indoor air and conserve energy through accurate measurement of humidity, carbon dioxide, and temperature.

RESOURCE EFFICIENCY & CIRCULAR ECONOMY

Vaisala's industrial measurement solutions improve productivity, end-product quality, and resource efficiency in industrial processes.

Our instruments have a very long lifetime and they operate reliably even in harsh environmental conditions. For example, for the very demanding biogas process, we have developed a solution that enables biogas plants to improve their production yield and get more value out of waste by optimizing the biogas production process.

WELL-BEING & HEALTH

Technological advances make it possible to increase environmental monitoring of indoor and outdoor conditions to secure people's health and well-being.

Vaisala's indoor air quality solutions safeguard and optimize living and working conditions inside buildings. In the area of health and well-being, accurate and reliable monitoring of conditions is particularly important, for example, in laboratories, hospitals, and incubators. Our solutions also help to monitor the conditions in pharmaceutical and biotech manufacturing and supply chains, guaranteeing the quality and safety of medicines.

Vaisala's ambient air quality sensors, on the other hand, monitor urban environments and provide data for better decision-making to improve health and quality of life.

BUSINESS AREAS

Vaisala provides its customers with a wide offering of products and services for better decision-making, increased productivity, and improved safety and quality.

We have decades of experience in manufacturing measurement instruments. Our instruments are used for measuring of weather-related phenomena and environmental conditions in industrial processes.

Weather and Environment

The Weather and Environment Business Area drives profitability and growth through expanding its product and digital solution offering.

MAIN MARKETS


Meteorology


Renewable energy


Aviation, ground transportation, maritime


Ambient air quality

PRODUCT CATEGORIES

- Radiosondes and sounding systems
- Pressure, humidity, and weather sensors
- Visibility and present weather sensors
- Ceilometers
- Remote wind sensing instruments
- Lightning sensors
- Road and airport weather stations
- Weather radars
- Air quality sensors

UNIQUE DIGITAL SOLUTIONS FOR

- Ground transportation
- Aviation
- Lightning observations
- Renewable energy

PARTNERS

- Customers
- Meteorological institutes
- Governmental organizations
- Universities
- Research organizations

Global Market Sizes and Growth

MEUR	Meteorology	Transportation	Renewable energy	Ambient air quality
Market size*	450–500	300–350	330–380	150–200
Market growth p.a.	0%	0–5%	> 10%	> 5%
Vaisala market share 2018*	High	High	Mid	Low
Market size total	**~1,300 MEUR / ~20% market share**			

Market share indication: Low < 10%, Mid 10–25%, High > 25%

* Vaisala estimate of the size of market that is addressable currently or with organic development of the business.

GROWTH THROUGH EXPANSION

- We continue to strengthen our position as the provider of leading weather observation products.
- We drive success with large capacity building projects related to weather infrastructure development.
- We embrace digital transformation and grow our digital solutions business.
- We develop new business in environmental measurements.

COMPETITIVE ADVANTAGE

- Science- and research-based technology leadership combined with strong application and customer expertise
- Reliability and high customer satisfaction
- Fast, customer-configured deliveries
- Broad product and solution portfolio with global project deliveries

The implementation of large system projects is one of the strategic focuses of the Weather and Environment Business Area. The goal of the business area is to create growth through capacity building projects in developing countries.

Innovation at the Core of Customer-Oriented Operations

STRATEGY IMPLEMENTATION IN THE WEATHER AND ENVIRONMENT BUSINESS AREA

The strategy and organization of Vaisala's Weather and Environment Business Area were renewed in 2017, and its strategy implementation progressed as planned in 2018. We improved our competitiveness by introducing significant new products that further strengthen our position as a provider of leading weather observation products. In October 2018, we introduced the Vaisala Forward Scatter FD70 series, which sets new accuracy standards for precipitation measurement, present weather identification, and visibility determination. At the same time, we took automated weather observations to a completely new level by introducing Vaisala AUTOSONDE® AS41, a next-generation automatic upper-air observation system.

One of the main goals of the Weather and Environment Business Area is to further improve its innovation capabilities. We have worked toward this goal, for example, by strengthening the LEAN approach in our research and development to create the highest possible value for Vaisala and our customers as efficiently as possible. We seek to improve customer satisfaction and quality, reduce operational costs, and accelerate development project lead times, among other objectives.

INDUSTRY LEADERSHIP AND GROWTH STRATEGY

The implementation of large system projects is one of our strategic focuses, and our goal is to create growth through capacity building projects in developing countries. In 2018, the national projects in the Bahamas and Vietnam progressed considerably. Our new Computer Vision team strongly supports the development of digital solutions for weather-critical operations, and the team also helped us to secure several agreements for Vaisala's RoadAI situational picture service. At the same time, we have carried out strong innovation work related to the need for autonomous cars to understand road surface conditions. Autonomous vehicles and digitalization of traffic are currently one of the most significant paradigm shifts. As a company, Vaisala plays an important role in developing this new ecosystem.

In October, we acquired the French company Leosphere SAS, which manufactures remote wind sensing instruments and solutions for applications in wind energy, aviation, meteorology, and air quality. The acquisition supports our industry leadership and growth strategy. Leosphere's Wind Iris measurement instrument holds particularly interesting potential. The instrument is designed to be mounted directly on a turbine to measure the horizontal wind speed ahead of the turbine.

Urban air pollution is a significant health threat affecting the quality of life of millions of people globally. It also creates a significant financial burden for society. The ability to understand and model urban air pollution comprehensively and accurately helps organizations to make more effective decisions as well as implement measures to reduce emissions and minimize adverse

> We seek to find ways to provide our customers with real-time weather data for more accurate decision-making in land, sea, and air operations. We believe that machine learning, artificial intelligence, and the integration and analysis of multiple data sources are important aspects of this development work.

effects. Vaisala offers the latest technology for monitoring air quality and measuring weather conditions that are essential for predicting air quality. We are participating in several smart city projects for example in Prague and in Helsinki. In Nanjing, China, we are participating in building next-generation air quality solutions.

SIGNIFICANCE OF RESEARCH CONTINUES TO GROW

Climate change creates a need to understand the weather in more detail – even at the level of a small, very specific area. Through its research and solutions, Vaisala works to ensure that humankind will be able to respond to the challenges created by increasingly frequent and stronger extreme weather conditions. We seek to find ways to provide our customers with real-time weather data for more accurate decision-making in land, sea, and air operations. We believe that machine learning, artificial intelligence, and the integration and analysis of multiple data sources are important aspects of this development work.

New measurement applications and customer segments, such as urban air quality and intelligent traffic, require more densely built observation networks. Vaisala will introduce supplementary measurement instruments and technologies that help our customers to create more accurate and comprehensive situational picture about present air quality, local weather, or road network surface conditions, to name just a few examples. Computer vision applications, compact weather stations, and air quality sensors are good examples of Vaisala's supplementary measurement offering.

What motivates you in your work?

I like change and demanding challenges. Here at Vaisala, we are seeking answers to a multitude of questions related to business development and future global changes. It's great to solve these challenges with a highly competent team.

Jarkko Sairanen
EVP, Weather and Environment

Industrial Measurements

The Industrial Measurements Business Area accelerates growth through a product leadership strategy. The strategic priority is to achieve a strong foothold in the growth markets: power, life science, and liquid measurements. We continuously create new winning products by discovering customers' needs and seek new business opportunities in industrial applications.

MAIN MARKETS

High-end humidity

Life science

High-end carbon dioxide

Power

Industrial Measurements helps customers improve

- Product quality
- Productivity
- Energy efficiency
- Maintenance activities
- Regulatory compliance in life science

PRODUCT CATEGORIES

- Instruments for measuring, for example, humidity, dew point, carbon dioxide, hydrogen peroxide vapor, and pressure
- Continuous monitoring systems
- Dissolved gas analysis for power transformers
- Concentrations of liquids

PARTNERS

- End-users
- Original equipment manufacturers
- Integrators
- Global distribution network
- Research and development partners
- Manufacturing partners and suppliers

GROWTH THROUGH PRODUCT LEADERSHIP

- Discovering customers' needs
- Achieving #1 position in selected markets
- Continuous product development

FLAGSHIP MARKETS

- Strong position with our high-end humidity and carbon dioxide offering
- Continuous investments in research and development

GROWTH MARKETS

- Growth potential in life science, power, and liquid measurements markets
- Identification of new growth markets
- Investments in new products addressing specific market needs

COMPETITIVE ADVANTAGE

- World's most reliable measurements
- Best customer experience
- Fast delivery times
- Global sales and services network

Industrial Measurements Business Area will continue to expand into new markets with new products and parameters, as the need for measuring industrial processes continues to grow.

Global Market Sizes and Growth

MEUR	Instruments	Power	Life science
Market size*	440–490	190–260	300–360
Market growth p.a.	5%	15%	10%
Vaisala market share 2018*	Mid	Low	Low
Market size total	**~1,100 MEUR / ~10% market share**		

Market share indication:
Low < 10%
Mid 10–25%
High > 25%

No major changes to market overwiew or growth rates
Market sizes updated based on the growth rates

* Vaisala estimate of the size of the market that is addressable currently or with organic development of the business.

Growth Through an Effective Product Leadership Strategy

STRATEGY IMPLEMENTATION IN THE INDUSTRIAL MEASUREMENTS BUSINESS AREA

2018 was an interesting period for the Industrial Measurements Business Area. We innovated, developed, and prepared expansions into new markets, and we further strengthened our position as a provider of measurement instruments and continuous monitoring systems. In 2017, we introduced a probe for measuring vaporized hydrogen peroxide. This product attracted a great deal of interest in the market in 2018, and its sales are progressing well. In addition, deliveries of our continuous monitoring system, based on VaiNet technology, are off to a brisk start.

NEW MARKETS AHEAD

As a result of our successful development work, we recently introduced a groundbreaking innovation for measuring the methane, humidity, and carbon dioxide content of biogas. This new measurement instrument enables our customers to optimize the production process and improve the quality of biogas to make its production more profitable. Biogas is a renewable form of energy that enables Vaisala to implement its mission for a better world, circular economy and sustainable development.

Our product leadership strategy has remained unchanged for the past five years, and we have succeeded in creating growth year after year. This shows well that our strategy is working.

To accelerate growth, we expanded our business operations into the liquid measurement market through an acquisition. I'm very pleased that K-Patents Oy – a Finnish company specializing in liquid measurements – and its research and development organization, Janesko Oy, became part of Vaisala through the acquisition. In terms of our growth, it is significant that the transaction included a strong distribution channel and customer interface, in addition to extremely high-quality technology, products, and application expertise. The acquisition supports our product leadership strategy and strengthens our position as a world-leading measurement technology manufacturer.

We strongly invested in developing and expanding our sales channel last year. This is particularly evident in our new distributor agreements, which we have secured in many important countries. These agreements expand and strengthen the geographical reach of our products in the global operating environment. Our recently

> Our product leadership strategy has remained unchanged for the past five years, and we have succeeded in creating growth year after year. This shows well that our strategy is working.

opened sales office in Italy is a good example of this. The main purpose of the new office is to support local distributors and also to serve customers directly. In addition, we reinforced internal training last year to ensure our continuous expertise and operational ability.

ENABLING BETTER DECISIONS

Vaisala's mission, "Observations for a better world", is at the core of the Industrial Measurements Business Area. Our products provide our customers with better visibility into their processes. This enables them to save energy and natural resources, improve quality, productivity, and yield, as well as reduce waste. Our operations are strongly in line with global megatrends, such as resource and energy efficiency.

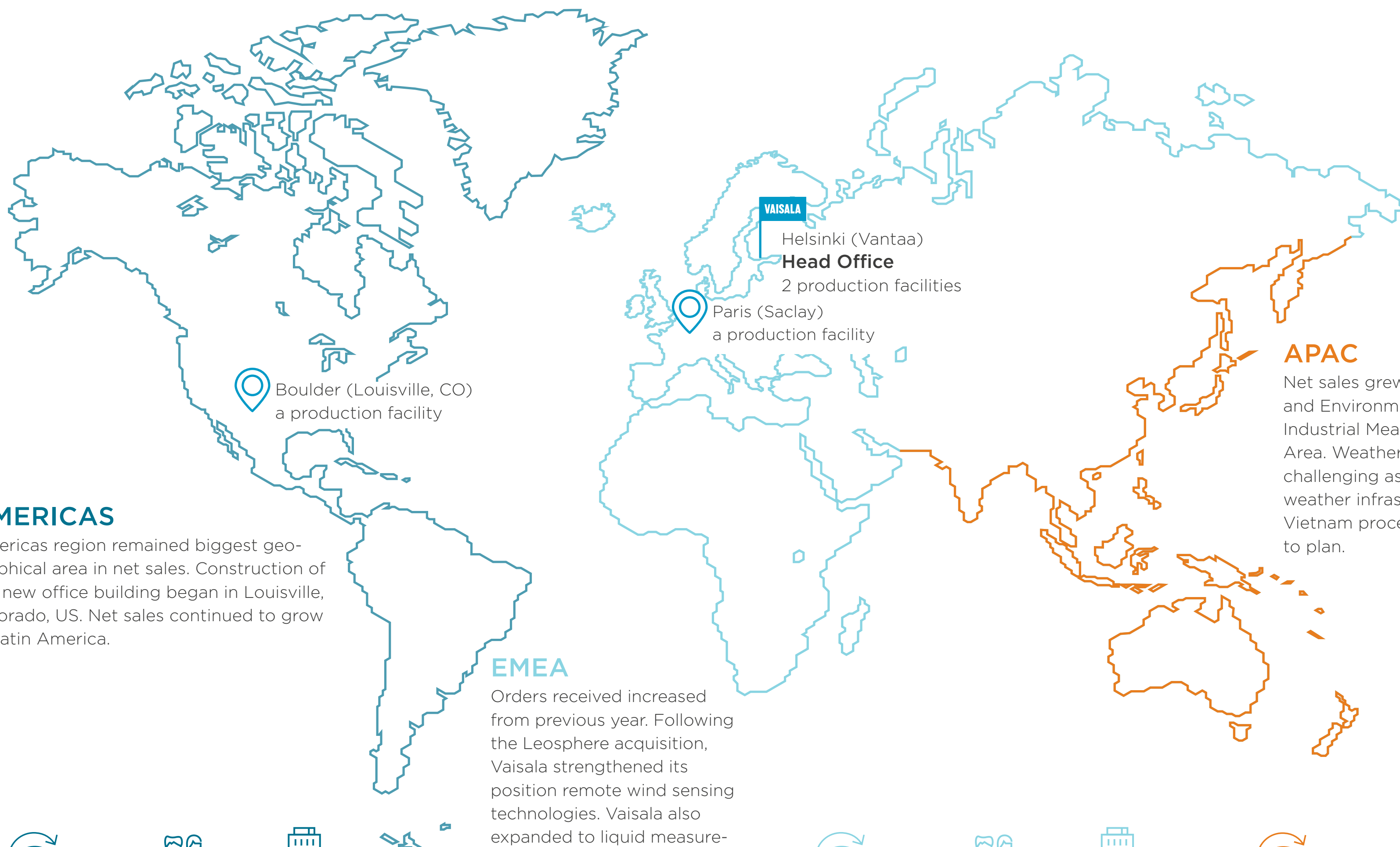
We will continue to expand into new markets with new products and measurement parameters, as the need for measuring industrial processes keeps growing. We continue to invest in our product leadership strategy, which ensures our leading position in markets where we are able to solve customers' problems better than others.

What motivates you in your work?

Inspired and committed employees, who have made our success possible. I'm also inspired by our company's mission and operations reflecting my own values.

Sampsa Lahtinen
EVP, Industrial Measurements

GLOBAL MARKETS



AMERICAS

Americas region remained biggest geographical area in net sales. Construction of the new office building began in Louisville, Colorado, US. Net sales continued to grow in Latin America.

39% Net sales
339 Employees
11 Offices

EMEA

Orders received increased from previous year. Following the Leosphere acquisition, Vaisala strengthened its position remote wind sensing technologies. Vaisala also expanded to liquid measurements market by acquiring K-Patents in Finland. Construction of the new office building and laboratory facilities began in Vantaa, Finland.

29% Net sales
1,327 Employees
12 Offices

APAC

Net sales grew both in Weather and Environment Business Area and Industrial Measurements Business Area. Weather market in China was challenging as expected. Large weather infrastructure project in Vietnam proceeded according to plan.

31% Net sales
150 Employees
10 Offices

OPERATIONS

The foundation for Operations is the Vaisala Production System, which incorporates a LEAN management system, systematic improvement, and standardized ways of working. In addition, Operations' strategy is guided by strategic choices: in-house manufacturing of key technologies, and partnership-based sourcing.

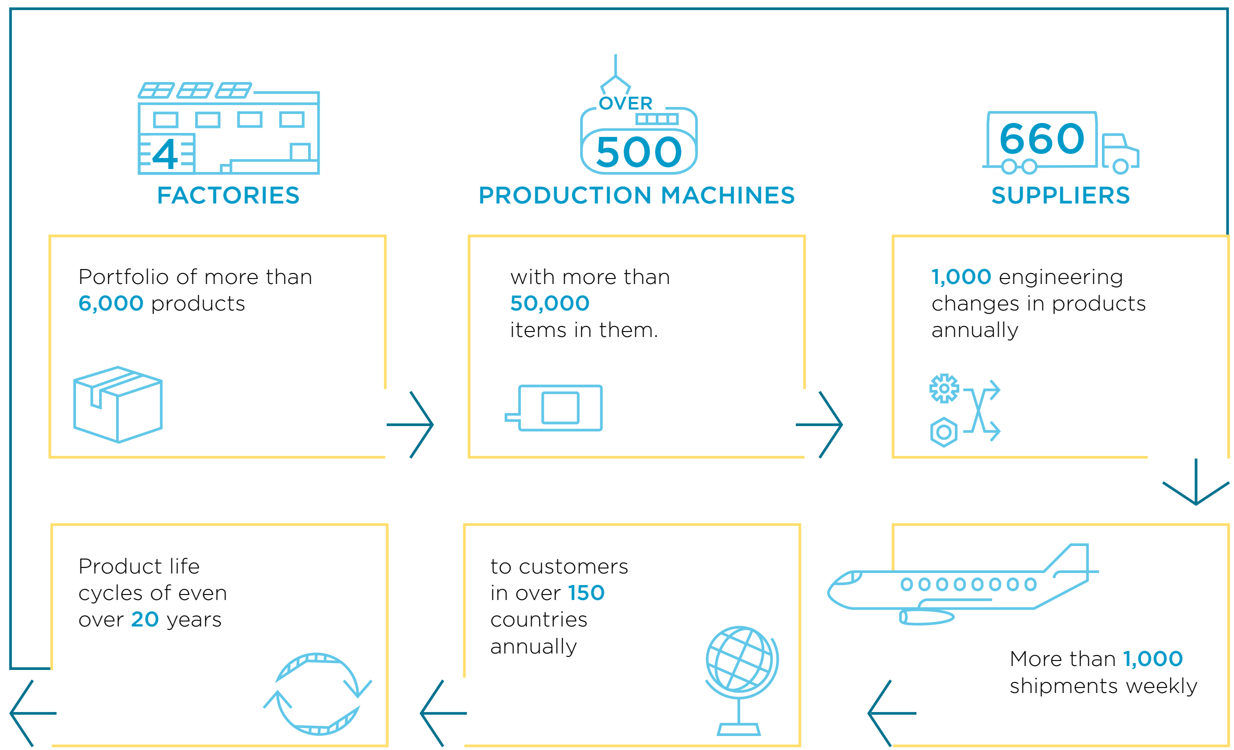
STRATEGIC DEVELOPMENT AREAS

In addition to further development of the Vaisala Production System, the strategic development areas in 2018 were:

- improving the product development process together with Research & Development;
- increasing productivity; and
- Intelligent Factory project for identifying and adopting new technologies.

Our strategic objectives are to enable sales growth through an efficient supply chain and to be a great place to work.

Quality defects in manufacturing decreased by 22% compared to the previous year.



We Develop Our Operations Together

STRATEGY IMPLEMENTATION IN OPERATIONS

Vaisala's Operations strategy implementation was largely successful in 2018. Our most significant achievements included a 22% decrease in quality defects and an reduction of 1.1% in product costs as a result of increased productivity and lower material costs. During the year, we further developed productivity measurement methods and incentives to increase productivity. We succeeded in improving productivity, but we didn't achieve our annual target. We will continue our productivity program in 2019-2020 in an effort to improve productivity by 20 percentage points by 2020, in comparison with the 2016 baseline.

We achieved the targets set for our other strategic programs, and we completed them as separate programs. These programs were related to better product ramp-down process management, product adjustment process development, sourcing practice development, calibration capability development, and an upgrade of the cleanroom's infrastructure.

NEW WAYS TO IMPROVE MANUFACTURABILITY AND MATERIALS

Alongside our productivity program, we are developing ways to enable earlier participation in new product projects to improve manufacturability and the choice of materials. We are further improving the product development process in cooperation with our Research and Development by means of LEAN and other methods. This is to accelerate product development projects and develop even better products for our customers.

We started our Intelligent Factory program to identify and adopt new technologies. In this program, we are studying, for example, the use of collaborative robots in some product configurations as well as Robotic Process Automation, in addition to the automation of material storage and mobility in factories, and the digital sharing of data to suppliers.

We continued the development of the Vaisala

In the future, LEAN will be more strongly evident in our operations in the form of rapid responses to deviations and systematic problem-solving. In addition, we will increasingly invest in knowledge management.

Production System as planned. The system is at the core of our strategy. As part of this development work, we held problem-solving trainings for around 25% of our employees, in addition to further improving internal development project management. We will also deepen our LEAN-based problem-solving capabilities and will productize the Vaisala Production System, so we are able to transfer expertise to units outside Operations in conjunction with business acquisitions, for example.

In the future, LEAN will be more strongly evident in our operations in the form of rapid responses to deviations and systematic problem-solving. In addition, we will increasingly invest in knowledge management. We will seek to improve our ability to analyze situations where we have failed to achieve our targets, so we are able to implement corrective measures. This will result in more error-free products and deliveries to customers and in improved cost-efficiency. In doing so, we will also improve our resource efficiency.

500,000 MANUFACTURED AND DELIVERED MEASUREMENT INSTRUMENTS

The measurement instruments we produce and deliver enable our customers to carry out measurements that improve safety, efficiency, and decision-making in very complex and meaningful issues. In 2018, we manufactured and delivered approximately 500,000 measurement instruments or systems to our customers. This is an excellent achievement, for which I would like to thank all of our employees in Operations.

What motivates you in your work?

I am motivated by challenging goals and visible results. The performance of Operations is easy to measure, and the feedback is immediate. Operations strategy implementation and organizational development – such as LEAN, LEAN coaching and PDCA practices, and Vaisala's growth – are close to my heart.

Vesa Pylvänäinen
EVP, Operations

STAKEHOLDER ENGAGEMENT

As our stakeholders are the ones who influence the future of our business, we want to have a transparent relationship with them.

We identify and evaluate our stakeholders as part of our sustainability management and preparatory work for strategy reviews. The stakeholder analysis and materiality assessments are typically done at the beginning of the fourth quarter each year. The process can be an internally conducted update, or it can involve surveying or interviewing key stakeholders.

We determine the impact of various stakeholders on the company and analyze how our actions in turn affect them. We actively seek partnerships and joint opportunities with customers, suppliers, academia, research institutes, and other parties. We maintain a constant dialogue with our most important stakeholders.

The latest update to our stakeholder review and materiality assessment was done in the fall of 2017. A more in-depth study was commissioned in 2016, when an external consultancy carried out a survey by interviewing investors, customers, employees, research partners, and Vaisala management. The results provided insight into our strategy, sustainability issue management, and reporting. Some of the key takeaways were how Vaisala should present value creation of its business to stakeholders, how this value creation should be discussed with them, and how sustainability should be integrated into the strategy, processes, and operations.

	Description	Main activities
Customers	Thousands of private and public sector customers in more than 150 countries. Distributors in more than 100 countries.	• Continuous customer relationship development and management, e.g., in online channels, meetings, events, and exhibitions • Ongoing online surveys on customer training and field services operations as well as on technical support and services
Employees	Over 1,800 professionals in more than 30 locations in 18 countries.	• Learning and career development opportunities • Monitoring employee satisfaction and well-being • Active internal communications
Society & Environment	Universities and research collaborators, meteorological institutes, manufacturing partners and suppliers, governments and regulators, local communities, the media, the public, and the environment.	• Partnerships and collaboration with academic and scientific institutions • Scholarships and donations • Close cooperation with our global supply chain • Sharing expertise with external organizations and decision-makers • Raising awareness of environmental issues among experts and the public • Press releases and media relations
Investors	Major shareholders include descendants of the founder Professor Vilho Väisälä, Novametor Oy, Finnish pension funds and other financial institutions, the Finnish Academy of Science and Letters, and private households. Ownership outside Finland and nominee registrations amounted to 15.7% of shares on December 31, 2018.	• Quarterly result presentations and Q&A for investors, analysts, and media • Annual General Meeting • Stock exchange releases • Roadshows, investor and analyst meetings and conference calls

VALUE FOR CUSTOMERS

Vaisala's technology and solutions help safeguard life and property, while enabling critical decision-making that facilitates efficient and high-quality operations. The common denominator is that by measuring the environment or a process accurately, our customers can make more reliable decisions and ensure more efficient, safer, and more sustainable operations in any application area.

Reliable Decisions

We enable our customers to make reliable decisions based on accurate environmental observations. Whether in transportation, the energy sector, or industrial applications, the information produced with our technologies helps our customers make superior choices for the efficiency, safety, and sustainability of their operations.

For example, investments in wind energy production are based on reliable data on wind field behavior. Our remote wind sensing solutions help customers make profitable investments, because with our solutions they are able to select the best possible location for efficient wind energy production.

We Strengthened Our Remote Wind Sensing Offering

Vaisala strengthened its position in remote wind sensing by acquiring Leosphere SAS that manufactures ground-based and turbine-mounted remote wind sensing instruments and solutions for wind energy, aviation, meteorology, and air quality applications.

Read the whole story:
vaisala.com/annualreport

Vaisala's Gas Analyzer Decreases Power Outages in China

Like all power utilities, Zhejiang Zheneng Shaoxing Binhai Thermoelectric, a producer of electricity and thermal energy in Shaoxing, China, wants to prevent unexpected power outages. Vaisala's Optimus OPT100 DGA Monitor for Transformers offers a solution that enables them to prolong the service life of the transformers and decrease transformer failures.

Read the whole story:
vaisala.com/annualreport

Productivity

Vaisala's solutions improve the cost efficiency of our customers' operations as well as increase productivity. The high quality and long life-cycles of our products offer superior total cost of ownership. Our solutions make maintenance and monitoring of crucial systems, such as high voltage power transformers, efficient and cost-effective.

Continuous, automated monitoring of conditions makes operations more efficient, for example in warehouses, manufacturing processes, or in support operations, such as measuring insulation gas or oil.

Online monitoring frees maintenance crews of the need to visit facilities for on-site testing and reduces errors related to sampling and spot-checking. Reliable online monitoring enables a transition from reactive to preventive maintenance, with substantial savings and profitability in many industries.

We also help road authorities to improve their operational efficiency. The data generated by Vaisala's road weather stations, thermal mapping, and decision-support systems help our customers optimize anti-icing, de-icing, and snowploughing, ensuring safety in the most environmental way possible. Analyzing the road network with computer vision, on the other hand, helps to detect surface damage and prioritize repair work.

Vaisala's RoadAI Service Provides Up-to-Date Situational Picture of the Road Network and Environment in Finland

With the RoadAI service, Posti collects data including, among other things, surface damage to streets and roads as well as analyses of road conditions and road weather. An up-to-date situational picture increases the efficiency of road maintenance, which in turn promotes the flow and safety of traffic and helps to reduce personal injuries and property damage.

Read the whole story:
vaisala.com/annualreport

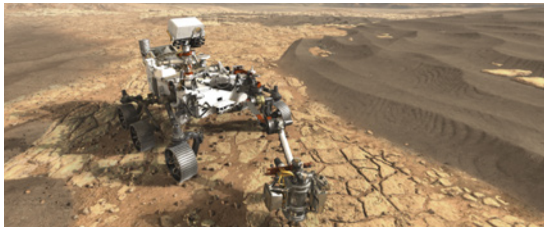
Quality

Our customers appreciate quality. High-quality products and services have always been at the core of Vaisala, but it is equally important to us that our customers can ensure the quality of their own end-products and operations with the help of our technologies and expertise. In many industries, such as food and electronics, strictly monitored process and test conditions are key for producing quality end-products. Our measurement instruments and continuous monitoring systems ensure high quality and regulatory compliance of operations also in very demanding conditions, such as life science cleanrooms.

Safeguarding Invaluable Tissues

Vaisala's viewLinc Continuous Monitoring System monitors the tissues and organs in the tissue bank of the new Children's Hospital in Helsinki. Continuous monitoring of the conditions is important, because reliable temperature control and alarms when conditions change ensure the usability of the organs.

Read the whole story:
vaisala.com/annualreport



The Sky is No Limit for Vaisala

Vaisala's innovative technology will again land on the red planet with NASA's next Mars mission, planned for the year 2020. The Finnish Meteorological Institute will deliver humidity and pressure sensors, based on Vaisala's technology, to the instrumentation package that will be installed in the Mars 2020 Rover.

Read the whole story:
vaisala.com/annualreport

VALUE FOR EMPLOYEES

Vaisala offers meaningful challenges to curious and passionate professionals who value work with a purpose. Being at the forefront of solving the most difficult challenges of our time makes it exciting to work for Vaisala. We want to improve the well-being of our employees and make sure they have the chance to continuously learn something new.

Purposeful Work

Vaisala's products and solutions have true positive influence on the environment, societies, businesses, and individuals. Our employees value the opportunity to have an impact on some of the most difficult challenges of our time. Sustainable and ethical behavior is an integral part of the values of both Vaisala and our employees.

We focus on good and motivating leadership, and we continuously support supervisors in developing their leadership skills by organizing different training programs and courses. In 2018, the annual employee survey's Leadership Index was 4.04 on the scale of 1–5, remaining on a good level as before. Being fair and objective and having a positive attitude towards initiatives are the key strengths of Vaisala managers. In addition, Vaisala's employees found that the purpose and goals of their work are very clear. Our employee survey had a response rate of 78% in 2018, with 1,260 employees taking part in the survey.

Teamwork on the Journey to Mars

In 2018, the Products and Systems unit in the Industrial Measurements Business Area took up the endeavor to develop their team through gamification. The project utilized the same concept for development that was introduced in Operations in 2017. The game set project teams with goals related to collaboration between teams, information sharing, continuous improvement, and satisfaction at work.

Read the whole story:
vaisala.com/annualreport

Well-Being

At Vaisala, well-being at work is regarded as a whole, including the work community, leadership, the company, and the individuals themselves. Thus well-being consists of great leadership, motivating work community, balanced workload, meaningful work, as well as a safe working environment. As preventive measures, Vaisala supports well-being and energy at work by supporting sports and recovery, providing occupational healthcare, and preventing problems early on.

With these preventive measures, we aim to support our professionals manage their work, ensure recovery, and maintain a healthy lifestyle. In Finland, we provide our personnel with sports and recreational clubs, well-being weeks, trainings on time management and recovery, as well as the opportunity to participate in a well-being analysis on stress and quality of sleep. In the U.S., the Vaisala FIT program supports the well-being of employees.

Employee well-being is measured regularly in Vaisala employee surveys. The results show that Vaisala employees find their work meaningful and are proud to work in Vaisala. There is some room for development in ensuring that workloads are manageable. In 2018, Vaisala Well-Being Index score was 3.91 on the scale of 1–5, staying at the same level as in 2017.

Praised VESPA Sales Academy Is Based on Continuous Learning

VESPA is Vaisala Environmental Sales Professional Academy for the Weather and Environment sales personnel. It combines different learning methods and tailors them into a training program that is relevant for each team. The training is based on continuous learning both in and outside the trainings. VESPA kicked off in 2017, expanding also to our U.S. office in 2018.

Read the whole story:
vaisala.com/annualreport

Learning

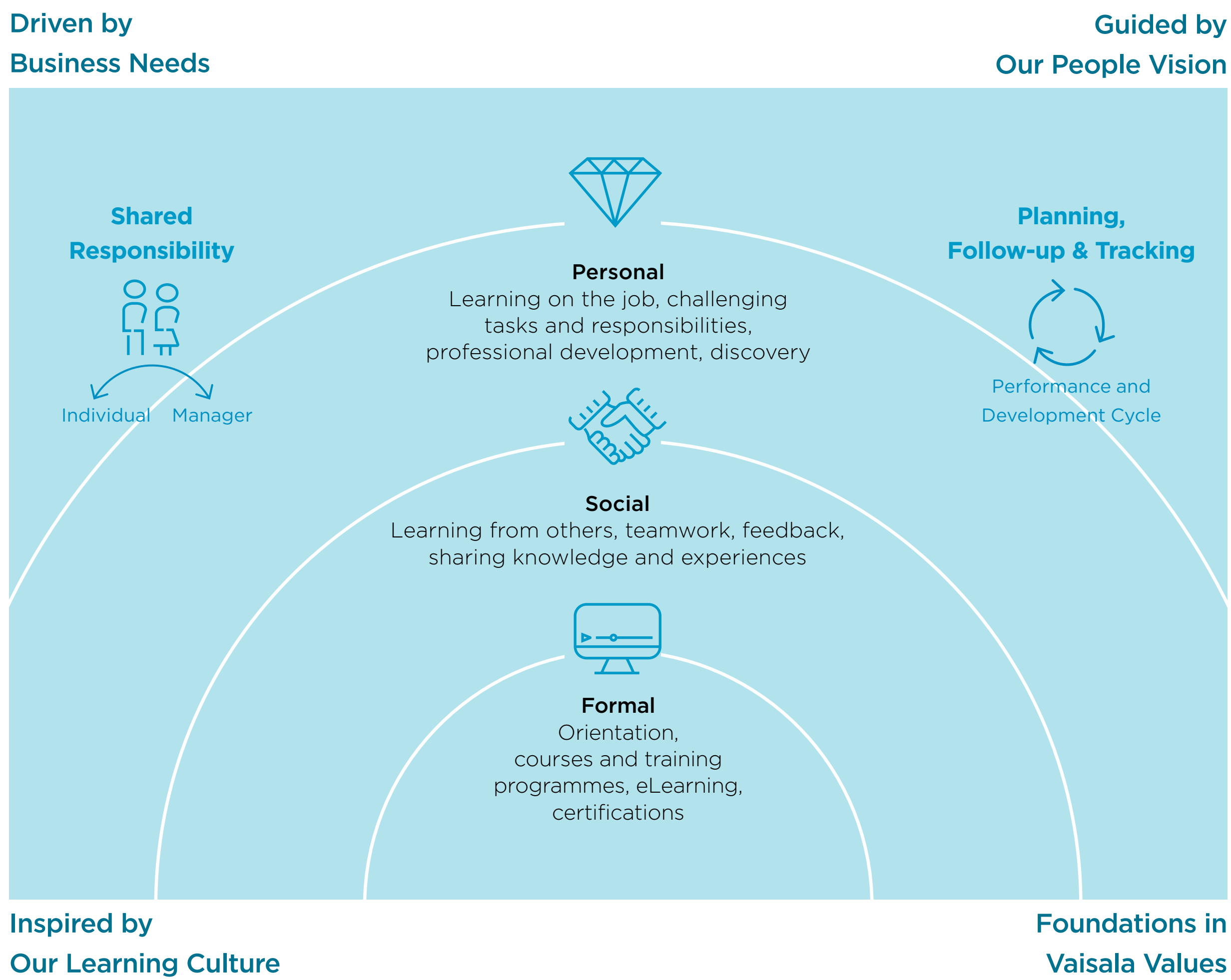
Vaisala's competitive strength stems from our capable, motivated, and engaged personnel. Changes in the business environment, technologies, working methods, and tools require our employees to learn and take in new things continuously. We support and encourage the whole personnel to actively develop and keep up their knowledge and expertise.

Vaisala's Learning Landscape depicts principles and methods for learning. It is the foundation for all learning activities and initiatives in Vaisala. Through this framework, we emphasize every employee's responsibility for their own learning and development. Managers play an important role in enabling and supporting learning, and it is the responsibility of all managers to plan development and learning activities together with their teams. Developing expertise and knowledge is always in line with Vaisala's business needs and objectives. Defining competence development needs is part of the annual execution planning process.

In 2018 Vaisala Learning Index, derived from the personnel survey, was 3.84 on a scale of 1–5. Employee training costs amounted to EUR 1.37 million and averaged EUR 850 per employee in 2018.

Development discussions are an integral part of performance evaluation and development planning of each employee in Vaisala. By the end of January 2019, 89% had had the annual development discussion with their supervisor.

LEARNING LANDSCAPE



VALUE FOR SOCIETY AND ENVIRONMENT

We bring value to societies through accurate and reliable environmental measurements as well as decision-making support for national and local authorities and businesses. This way we help societies become better-informed, more resource efficient, and safer.

Better-Informed Societies

Vaisala works together with nearly all meteorological institutes in the world, supporting them in providing accurate, real-time information and forecasts on weather all around the globe. We also collaborate with international funding agencies and weather experts to build capacity for weather observation networks and competence in developing economies.

Extreme weather, such as hurricanes, can have devastating consequences on local economies and livelihoods. We manufacture hurricane-tracking dropsondes that are used in in situ measurements inside a hurricane, providing essential information for forecasting the path and the intensity of the hurricane.

Air pollution is a threat to the health and well-being of people. The World Health Organization (WHO) has estimated that poor air quality causes seven million premature deaths annually (www.who.int/airpollution/en 12.2.2019); three million of these are directly linked to ambient air pollution. People living in low and middle-income countries are affected the most by outdoor air pollution.

Local air quality monitoring networks will help authorities pinpoint and manage the problem areas, especially in cities. With accurate and real-time air quality information, also citizens can adjust their activities according to the current air quality situation in different parts of the city.

Resource Efficiency

Our solutions improve the energy and material efficiency of our customers' operations.

Soundings Data Helps Fight Bush Fires in Australia

Vaisala's MARWIN® sounding system (MW32) provides fire services in New South Wales, Australia, with vital information on bush and grass fires, helping save lives and property.

Read the whole story:
vaisala.com/annualreport

Buildings are globally one of the biggest consumers of energy. Smart buildings save energy and keep their users healthy. For good results, building automation must be based on reliable measurements. Vaisala's building automation solutions optimize indoor air and conserve energy by timely air conditioning through accurate measurement of humidity, temperature, and carbon dioxide levels in buildings. We also help the operators of energy-intensive data centers to cool down their facilities as energy efficiently as possible through measurement instruments attached to their building automation systems.

Vaisala's measurement technologies also improve resource efficiency in various industrial production processes. Accurate measurements enable our customers to optimize their production and reduce their energy consumption. In diverse condition-sensitive processes, for example in the wood-processing and metal industries, accurate measurements can prevent the waste of materials caused by incorrect process conditions.

Energy Efficient Offices and Better Decision-Making through Optimizing Indoor Air Quality

Indian IT company Infosys sees that good indoor air influences employees' productivity and decision-making positively. Vaisala's HVAC sensors enable optimizing indoor air quality in an energy efficient way.

Read the whole story:
vaisala.com/annualreport

Safety

Our technologies help our customers maintain safe operating environments in many parts of society. Weather affects all transportation sectors, whether shipping goods or transporting people. The aviation industry is dependent on accurate weather information to minimize delays and ensure safe operations. Road authorities can mitigate accidents with roadside weather warnings and plan winter operations more efficiently with advance information about prevailing weather conditions. Railway operators, especially those of high-speed trains, benefit from wind warnings: trains can slow down when wind conditions become dangerous. The maritime sector depends on weather forecasts in harbor operations as well as safe transportation of people and goods. Even missions to space require safe weather conditions during launches.

Economic Value

Vaisala has a positive impact on local communities through employment and taxes, both directly and through its supply chain. Responsible business practices and use of local suppliers create indirect benefits to local communities.

Vaisala Improves Aviation Safety at Palermo Airport

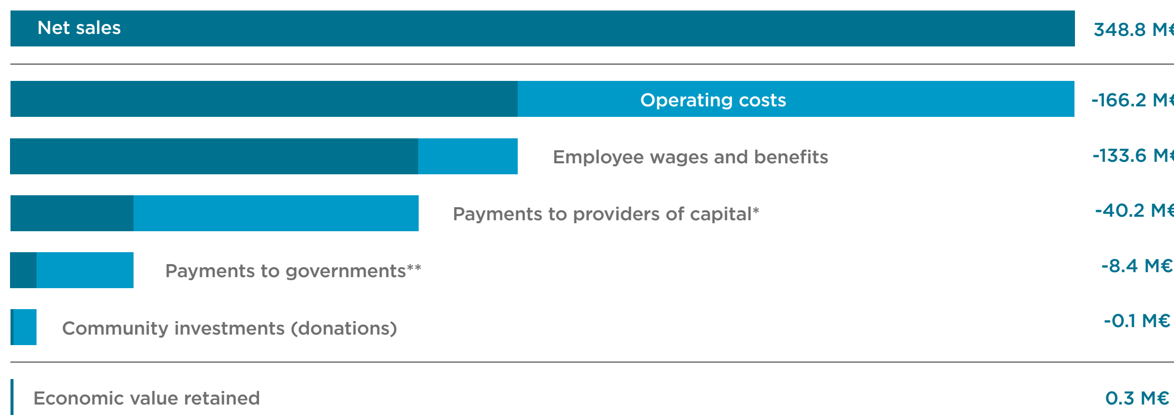
Already prior to the acquisition, Vaisala and Leosphere have collaborated at Palermo Airport, where our integrated system warns airplanes of severe wind shear that this airport in particular is subject to.

Read the whole story:
vaisala.com/annualreport

Direct economic value generated and distributed

MEUR	2018	2017	2016	2015	2014
Net sales	348.8	332.6	319.1	318.5	299.7
Operating costs	-166.2	-152.8	-144.8	-143.9	-142.3
Employee wages and benefits	-133.6	-129.9	-128.4	-130.0	-116.3
Payments to providers of capital*	-40.2	-17.8	-17.1	-16.4	-16.3
Payments to governments**	-8.4	-8.7	-7.9	-7.2	-6.1
Community investments (donations)	-0.1	-0.1	-0.7	-0.5	-0.3
Economic value retained	**0.3**	**23.2**	**20.2**	**20.5**	**18.4**

DIRECT ECONOMIC VALUE GENERATED AND DISTRIBUTED



* Includes dividends paid and repayment of borrowings
** Includes income taxes

Collaboration in the Scientific Community

Vaisala is an active player in the scientific community. Scientific collaboration strengthens our position as an industry pioneer and an innovative technology leader. Vaisala continues to be a contributor to many organizations, advancing technological development in several fields of study.

We collaborate with the leading research institutes and universities to advance studies related to environmental and industrial measurements across various scientific and technological fields. Our collaboration partners include the International Civil Aviation Organization (ICAO) and Colorado State University, the National Oceanic and Atmospheric Administration (NOAA), and the National Center for Atmospheric Research (NCAR) in the United States. Vaisala's key scientific research partners also include a number of national meteorological offices around the world.

Vaisala is an active participant in United Nations' World Meteorological Organization (WMO). WMO coordinates the study of the state and behavior of the Earth's atmosphere, including the weather and climate. It also facilitates its members' observational networks and free, unrestricted exchange of data and information. In addition, WMO supports research to optimize the production of weather, climate, and water-related services worldwide.

The Commission for Instruments and Methods of Observation (CIMO) is part of WMO. Vaisala is actively involved in several CIMO expert teams focusing on the development of industry practices and standards.

Vaisala is also a member of the Association of Hydro-Meteorological Equipment Industry© (HMEI), acknowledged by the WMO. The association represents private industry providers of products and services in the meteorological, hydrological, environmental, and related fields. Its goal is to facilitate interaction between its members and a broad range of governmental and private organizations. As a member of HMEI, Vaisala's representatives participate in the expert teams of WMO's Commission for Basic Systems (CBS) in order to help advance the improvement of environmental observations and weather forecasts worldwide.

Vaisala supports the Global Climate Reference Measurement Network (GRUAN) in characterizing climatologic data when migrating to a new radiosonde model.

We also participate in various industry standards development work in fields that are important to us. For example in the area of wind energy, Vaisala takes active part in International Electrotechnical Commission's (IEC) wind energy standards committees and groups.

In 2018, Vaisala received research and development grants from governments amounting to EUR 488,000.

IN THE UNITED STATES

In the United States, Vaisala is an active member in the Environmental Information Services Working Group of the NOAA Science Advisory Board. Vaisala also supports NOAA in the development of the new Geostationary Lightning Mapper (GLM), the first technology to map lightning from geostationary orbit. Combined with other weather measurement technologies, the GLM can help authorities better predict severe weather conditions. Vaisala participates in the evaluation of this

new technology, and Vaisala's lightning data is used as an important reference to validate the performance of the GLM.

Vaisala is also a strong contributor and corporate sponsor to the American Meteorological Society (AMS), a leading scientific organization dedicated to atmospheric, oceanic, and hydrologic sciences. In addition to sponsorships, Vaisala representatives contribute to the AMS through a number of activities, including the governance of the society and scientific committee memberships, reviewing and editing journals and articles, and actively sharing scientific advancements in various channels.

IN ASIA

Vaisala has a long-standing cooperation with the Chinese Meteorological Administration's Institute of Urban Meteorology in various projects.

In Australia, Vaisala cooperates with the University of New South Wales in a project aimed at advancing the scientific understanding of urban environments among students, the scientific community, government officials, and the wider public. Vaisala has provided 20 primary schools in the Sydney metropolitan area with the Vaisala meteorological and air quality sensor network, mobile communications gateway, and cloud-based data acquisition platform (Beacon Cloud). The platform enables the students to collect and analyze data from the sensor network. In addition to the students, the public can monitor conditions online in real time, and the information can be utilised by the government and the international scientific community.

IN EUROPE

In Germany, Vaisala has a research collaboration agreement with the Karlsruhe Institute of Technology in the area of LiDAR applications and with the Fraunhofer Institute for microsensor technology development.

IN FINLAND

In Finland, Vaisala operates in close cooperation with various scientific stakeholders, including the Finnish Meteorological Institute, VTT Technical Research Centre of Finland Ltd., the University of Helsinki, Tampere University of Technology, Lappeenranta University of Technology, and Aalto University. We are also collaborating with the University of Jyväskylä to develop novel measurement methods and to utilize the University's expertise in material analysis.

Vaisala has representation in several working groups of the Technology Industries of Finland organization and in the International Chamber of Commerce (ICC) Finland, which promotes international trade and investment worldwide.

Vaisala is also a member in FIBS, Finland's leading corporate responsibility network, and in the Climate Leadership Coalition (CLC). The purpose the CLC is to improve the competitiveness of Finnish businesses and research organizations and their ability to respond to the threats posed by climate change. In addition, Vaisala partners with the Technology Academy Finland (TAF).

Vaisala is a shareholder and research partner of CLIC Innovation Oy, an open innovation cluster with the mission to create breakthrough solutions in bioeconomy, energy, and cleantech by facilitating joint research between industry and academia in Finland.

Vaisala is also a project partner of the CITYZER project, which develops new digital services and products to support decision-making processes related to weather and air quality in cities. The results of the project work are utilized in the Helsinki and Nanjing Air Quality Testbeds.

Vaisala's Technology and Air Quality Know-How Will Help Cities Become Smarter and Cleaner

Vaisala is part of collaborative projects that aim to offer local air quality data in the Helsinki Metropolitan area as well as in Nanjing, China. The data will be used to accelerate new innovations, develop new services, and improve decision-making to enhance air quality and quality of life.

Read the whole story:
vaisala.com/annualreport

Community Outreach

In Vaisala, we are building a world in which environmental and industrial observations improve daily lives. As a global leader in measurement technology and as an active member of society, we support our stakeholders, promote higher education and research, and help new generations learn more about science.

COMMUNITY OUTREACH PROGRAM

Vaisala provides charitable donations with products, funding, or services to non-profit organizations through its Community Outreach Program. The Program's overall objective is to support organizations and projects that advance environmental awareness and science education. All our outreach activities are in line with our values and resonate well with topical issues close to our business, such as climate, weather, environmental and industrial measurements, and environmental sciences.

Vaisala allocates the donations and continuously correlates them with the community outreach program. Vaisala does not donate funds to political parties, causes, or campaigns.

Within science education, Vaisala aims to increase understanding of natural sciences, innovation, and the environment by supporting universities, scientists, and researchers focusing on these fields. Scholarships paid in the form of salary are outside the scope of the Outreach Program.

Another focus for the Program are non-profit organizations working for environmental disaster prevention and recovery. Furthermore, impartial humanitarian organizations that provide protection and assistance to people affected by disasters are within the scope of the Community Outreach Program.

In 2018, donations amounted to EUR 101,000 globally.

IMAGE: MUSEUM OF TECHNOLOGY

Promoting Science through Collaboration

In Finland, Vaisala partners with the Heureka Science Centre to increase awareness of atmospheric sciences. Vaisala also participates in the TechLand exhibition in the Museum of Technology to showcase the importance measurement technology carries for society. This way Vaisala promotes innovation and encourages youth and adults alike to take an interest in science.

Read the whole story:
vaisala.com/annualreport

PROFESSOR DR VILHO VÄISÄLÄ AWARD

Vaisala funds the Professor Dr. Vilho Väisälä Award, established in 1985 to encourage and stimulate interest in research in the field of environmental measurement instruments and observation methods. The award is administered by the World Meteorological Organization (WMO), which selects winners every second year.

In 2004, the WMO Executive Council decided to establish a second Professor Dr. Vilho Väisälä Award. The main focus of this award is meteorological instrument work in developing countries and countries with economies in transition. Both awards carry a cash prize of USD 10,000, and they are granted in connection with the CIMO TECO conference.

In 2018, the awards were granted in October in Amsterdam.

VILHO, YRJÖ AND KALLE VÄISÄLÄ FUND

In the 1960s, Professor Vilho Väisälä, Vaisala's founder, donated Vaisala shares to the Finnish Academy of Science and Letters. These shares were used to establish the Vilho, Yrjö and Kalle Väisälä Fund, which provides grants to research in mathematics, physics, geophysics, meteorology, and astronomy annually. The Fund's available grants are dependent on Vaisala's dividends, so the Fund's prosperity depends on Vaisala's long-term financial success.

In 2018, the Finnish Academy of Science and Letters granted over 1.4 million euros of grants and university compensations in total to researchers in the fields of mathematics natural science. The grants were targeted especially to young students for their doctoral studies, in addition to which grants were also given for short-term research visits abroad. Overall, 77 researchers received grants that were distributed to nine universities and research facilities in Finland. Furthermore, four of the grant recipients work abroad.

The Finnish Academy of Science and Letters gave out also four grants from the Väisälä Fund through Post doc Pool: altogether around 140,000 euros. The Pool promotes internationalization of Finnish science by providing young researchers with flexible funding from one source.

In 2018, the fund also granted three awards, each worth 15,000 euros, to internationally distinguished researchers in the fields of mathematics and natural science.

Within science education, Vaisala aims to increase understanding of natural sciences, innovation, and the environment by supporting universities, scientists, and researchers focusing on these fields.

VALUE FOR INVESTORS

Vaisala is a stable, globally operating company based in Finland. The company's series A shares have been quoted on Nasdaq Helsinki stock exchange since 1994. Vaisala's target is to maintain high solvency and to pay a stable dividend which will increase in line with net profit development.

Why Invest in Vaisala?

1

TECHNOLOGY LEADER AND STRONG MARKET POSITION

- Leading technologies in environmental and industrial sensing with most accurate and reliable instruments; core capability in in-house sensor design and manufacturing
- Clear market leadership position in key products, high customer satisfaction, estimated total market size over EUR 2 billion
- High continuous investments in R&D (2018: 45.4 MEUR or 13.0% of net sales)

2

GROWTH FROM MULTIPLE DIMENSIONS

- New technologies
- New products and applications by leveraging current technologies and platforms
- Geographical expansion

3

WELL DIVERSIFIED SALES MIX

- Vaisala is a global player in its relevant markets with representatives in more than 100 countries
- 2018 geographical net sales split: 39% Americas | 29% EMEA | 31% APAC
- Several customer segments in governmental and private sectors

4

ASSET-LIGHT BUSINESS MODEL

- High-mix–low-volume business model
- Sales growth does not require capex: related annual capex around EUR 10 million
- Potential for productivity improvement with volume growth

5

STRONG CASH GENERATION AND FINANCIAL POSITION

- Enable investing in growth and long-term business development
- Strong cash conversion rate (2018: 1.2)
- Solvency ratio 55.6% (2018)
- Gearing -17.6% (2018)

6

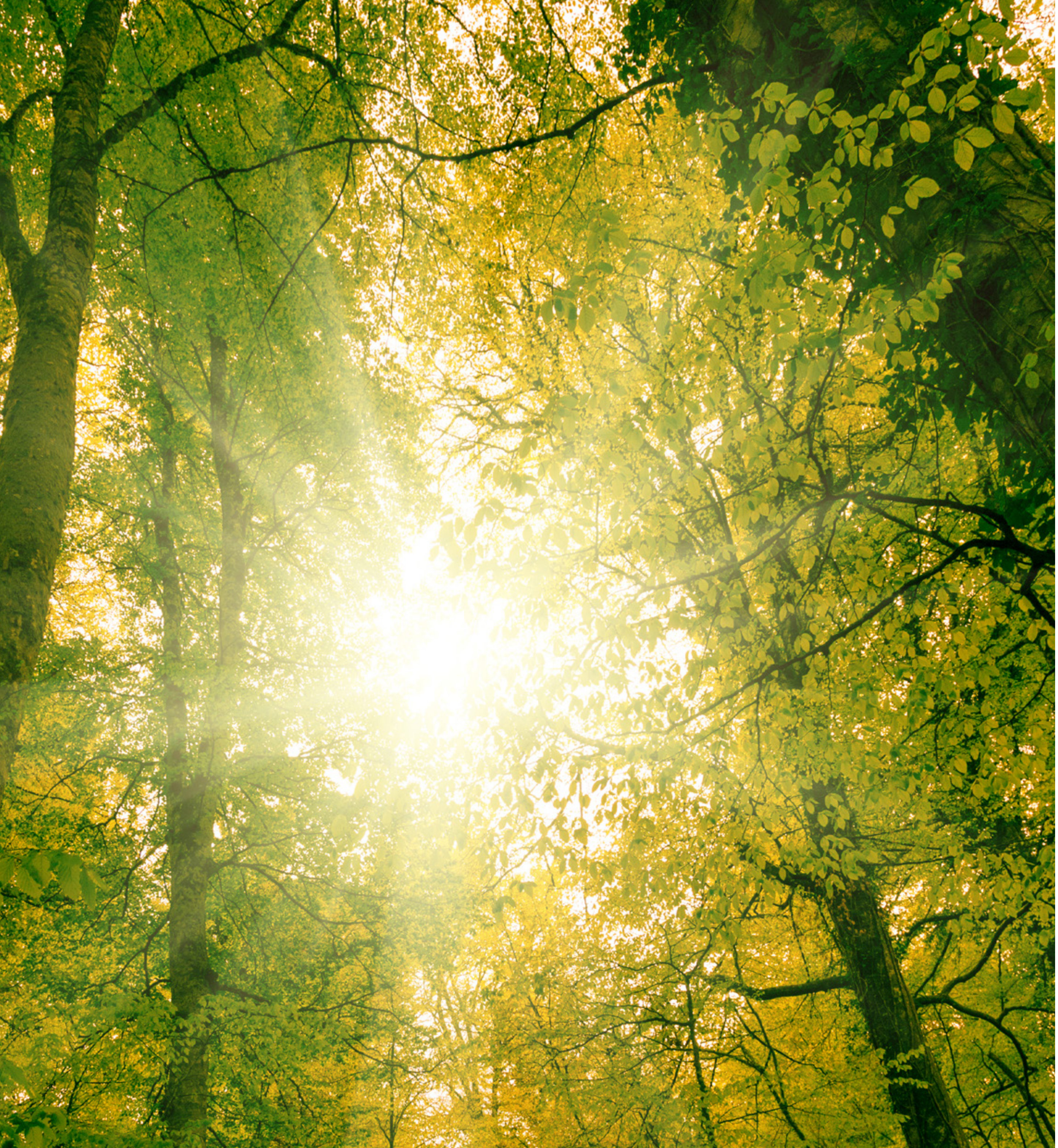
SOLID DIVIDEND PAYER

- Aim to distribute a stable dividend which will increase in line with net profit development
- Dividend per share for the last five years paid at the average rate of 103% on earnings, and the average effective dividend yield of share 3.9%

7

SUSTAINABLE TECHNOLOGIES IN A RESPONSIBLE WAY

- Reliable partner, whose corporate responsibility work has been recognized, for example, by CDP and RE100
- Member of several organizations that promote responsible business, such as Climate Leadership Coalition, Cleantech Finland, and the Caring for Climate initiative of the UN Global Compact
- Technologies and products that contribute to building better informed, safer and more resource efficient societies



Sustainability

Reporting Principles

Vaisala has reported on its sustainability since 2008. This is the eleventh report to apply the reporting framework of Global Reporting Initiative (GRI) and the third one to include reporting guidance of the International Integrated Reporting Framework.

NON-FINANCIAL REPORTING

Disclosure of non-financial information in accordance with the Finnish Accounting Act chapter 3 a is presented in the Sustainability section as well as on pages Business Model and Dashboard, included in the Creating Value section. The Sustainability section includes information on environmental matters, social and employee matters, respecting human rights, and anti-corruption and anti-bribery compliance.

INTEGRATED REPORTING

Vaisala applies the Integrated Reporting Framework, as defined by the International Integrated Reporting Council (IIRC), in its annual report. The primary purpose of an Integrated Report is to describe how a company creates value over time. We started our work towards this goal in 2016, and our aim is to develop our operations through exploring the different types of value Vaisala creates for its stakeholders.

IMPLEMENTING THE GRI GUIDELINES

To maintain transparency and consistency in our sustainability reporting, we apply the Global Reporting Initiative's (GRI) reporting guidelines. This report has been prepared in accordance with the GRI Standards: Core option. The GRI reference index is on page 66 of this report.

BOUNDARIES

Following the GRI boundary guidelines, our financial and human resource data is reported for the entire Group and in all locations. The scope of our environmental data is divided into Key Environmental Performance Indicators, which cover the manufacturing sites, and Carbon Footprint, which covers manufacturing sites and offices with more than 15 employees, as well as indirect sources.

Leosphere SAS, acquired in October 2018, and K-Patents Group, acquired in December 2018, are included only in the reporting of personnel data (headcount, personnel by area and contract, page 54) and direct economic value generated and distributed (page 39). The acquired companies have not been included in other sustainability information.

INDEPENDENT ASSURANCE

According to our reporting process, we seek assurance for the report from a third-party assurance provider. An independent third party, Deloitte Oy, has externally assured the contents and indicators of the Sustainability section on pages 47–62, indicator 201-1 on page 39, and the research and development grants received from governments on page 40 of the 2018 Annual Report. Independent assurance report is on page 64.

MATERIALITY

Vaisala's management reviews the material aspects, stakeholders, value creation model, and megatrends annually as part of the reporting process. The material issues are included in the Creating Value and Sustainability sections. The GRI Content Index includes indicators that have been determined material to Vaisala in the materiality review process.

The latest update to the stakeholder review and materiality assessment was done in the fall of 2017. A more in-depth study was commissioned in 2016, when an external consultancy carried out a survey by interviewing investors, customers, employees, research partners, and Vaisala management.

Environment

Our environmental responsibility work is guided by our environmental management system, which helps us to identify and continuously reduce our adverse environmental effects.

ENVIRONMENTAL MANAGEMENT

Vaisala's environmental management system is an integral part of our global management system structure. Our environmental management system has been ISO 14001 certified since 2004, and we upgraded the certification to ISO 14001:2015 in 2018. In addition to our manufacturing plants, the certification covers many of our offices. At the moment, 91% of our employees work in ISO 14001 certified locations. All of our certified locations are audited by an independent third party and are a part of our internal audit program.

Our environmental management system helps us to identify the most significant environmental impacts in each location and set environmental targets locally and for the entire company. Many of our locations have voluntary green teams that promote measures necessary for the achievement of the environmental targets. In addition to reducing energy consumption and waste, these teams have implemented many other measures to protect the environment, including environmental clean-up and tree-planting events and measures to reduce the consumption of bottled water.

ENVIRONMENTAL IMPACTS

We aim to continuously reduce the environmental impact of our product portfolio, business operations, and supply chain. Vaisala's environmental management system is shaped by the major challenges of our time: climate change and scarcity of resources. We regularly assess our environmental impacts as part of our environmental management system. The most significant environmental aspects related to our operations are energy consumption, waste management, water consumption, the materials our products contain, and indirect emissions. Such emissions arise from purchased products and services, business travel, logistics, energy consumption during product use, and the disposal of products at the end of their life cycles.

-90%
Emissions from 2014 baseline (Scope 2)

94%
Renewable electricity

96%
Waste recovery rate

91%
Employees working on ISO 14001 certified sites

ENVIRONMENTAL IMPACTS

MINIMIZING OUR ENVIRONMENTAL FOOTPRINT

MAXIMIZING OUR ENVIRONMENTAL HANDPRINT

Supply chain

1,229 t
Materials used

Our operations

208 MWh
Solar energy generated

5,497 t CO_2
Emissions from business travel

94%
Renewable electricity

667 t CO_2
Emissions from purchased energy

2,325 t CO_2
Emissions from employee commuting

Manufacturing
96% Recovered waste
21,777 m³ Water consumption
17.26 GWh Energy consumption

Logistics

564 t
Products shipped

6,088 t CO_2
Emissions from logistics

Product use

1,085 t CO_2
Emissions from product use, weather radars

Reducing customers' environmental footprint through product use

Service and maintenance

Extending life-cycles through calibration and updates

Product take-back and recycling

Vaisala services and calibrates **over 50,000** instruments annually

* CO_2 indicates CO_2-equivalent

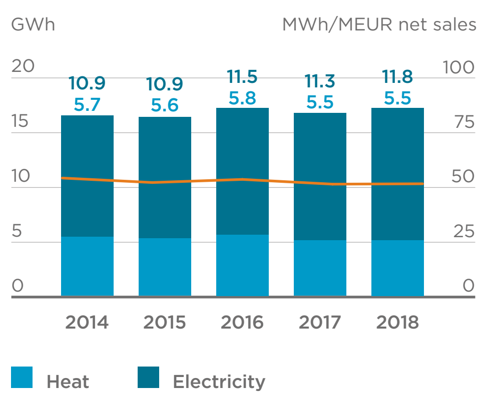
ENERGY AND EMISSIONS

We believe in a future in which societies are powered by renewable energy. Vaisala is a member of RE100, a global initiative encouraging the world's most influential companies to make a 100% renewable energy commitment within a clear timeframe. To minimize our own impact on climate, we are committed to using 100% renewable electricity in our facilities by 2020. We have been improving the energy efficiency of our operations for years, so this commitment was a natural step towards even more environmentally conscious operations. Even though our manufacturing sites in Finland and the United States are already using solar panels to produce clean energy, we still need to purchase most of our electricity from local energy companies.

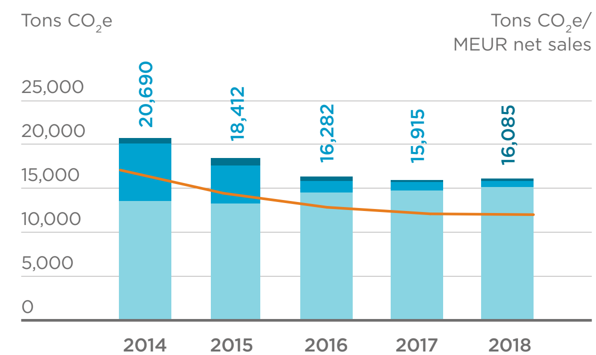
94% of the electricity we consumed in 2018 came from renewable sources, mainly from wind power. The increased use of renewable electricity has reduced our energy consumption emissions by 90% compared to 2014 (Scope 2, market-based).

In 2018, our market-based Scope 2 emissions (calculated with supplier-specific emission factors) were 667 metric tons of CO_2e (2017: 949). Our location-based Scope 2 emissions (calculated with country-specific average emission factors) were 3,545 metric tons of CO_2e (2017: 3,873).

ENERGY CONSUMPTION, MANUFACTURING SITES



CARBON FOOTPRINT



	2014	2015	2016	2017	2018
Scope 1	626	816	477	220	288
Scope 2	6,536	4,366	1,257	949	667
Scope 3	13,528	13,231	14,548	14,746	15,130

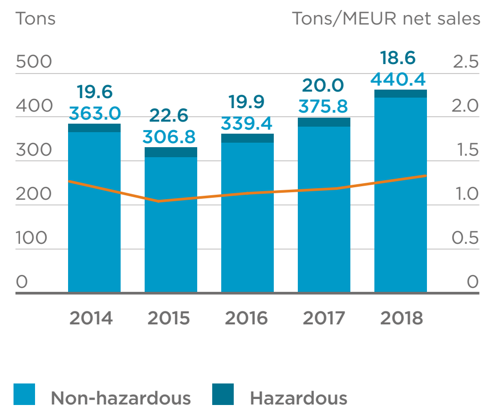
WASTE

In 2018, our manufacturing sites generated 16% more waste than in the previous year. The increase was due to renovation work carried out in Finland. Our waste recovery rate was 96%, and we continuously aim to improve the recyclability of our waste. On our main manufacturing site in Finland, for example, waste is sorted into 14 categories to make its processing and use as efficient and easy as possible. In 2018, we started to collect plastic separately at our factory in Finland, with the goal of recycling an even larger proportion of materials.

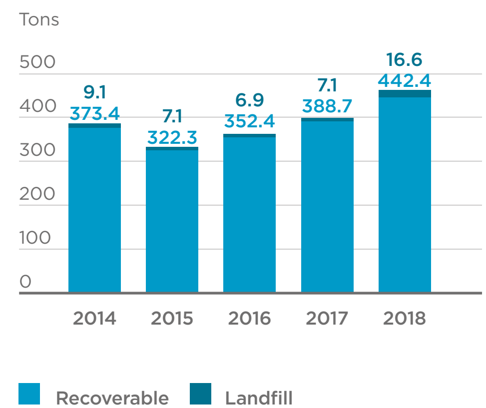
WATER CONSUMPTION

The sensor manufacturing process in our Finnish factory is our only water-intensive manufacturing process. Our own water cleaning facility purifies municipal water to be used in our cleanroom. After the cleanroom, all process water is treated before it is directed to municipal wastewater treatment. We have been able to reduce our total water consumption by closing cooling water cycles. We only use municipal water, and our water consumption has remained steady for years.

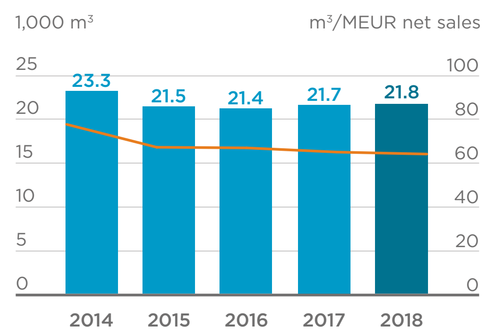
WASTE, MANUFACTURING SITES



WASTE RECOVERY, MANUFACTURING SITES



WATER CONSUMPTION, MANUFACTURING SITES



45.5% Recycling
35.3% Energy recovery
15.2% Composting
3.8% Landfill
0.3% Reuse

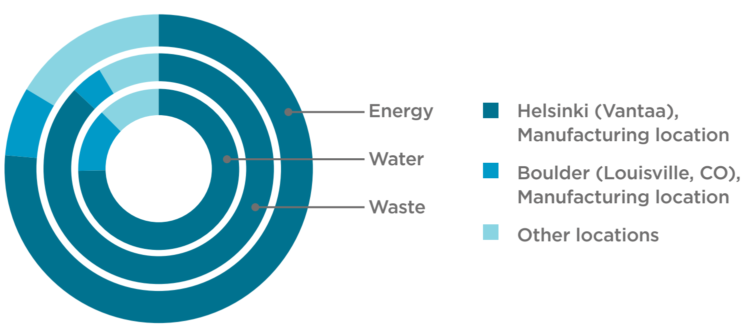
SCOPE OF ENVIRONMENTAL REPORTING

Most of our Group's energy consumption, water consumption, and waste generation are attributable to our manufacturing locations in Finland and the United States, so these key indicators are reported for these two locations. The energy consumption of these manufacturing locations does not include the fuel consumption of field-service vehicles due to the low number of such vehicles.

To calculate our carbon footprint, we collect data more extensively from those locations with more than 15 employees (Helsinki, Boulder, Boston, Seattle, Tucson, Vancouver, Tokyo, Birmingham, Hamburg and Beijing). Vaisala's carbon footprint includes various parts of the company's value chain. Our reported carbon footprint is divided into three levels (Scope 1–3) in line with the GHG Protocol Corporate Accounting and Reporting Standard. Scope 1 includes field-service vehicles owned by Vaisala. Purchased-energy emissions (Scope 2) includes purchased power and heat. Other indirect emissions (Scope 3) include business travel (flights, train travel, and rental cars), inbound and outbound logistics, the energy consumption of installed weather radars, commuting, and waste management (only in Finland, where 87% of the Group's waste is generated).

Vaisala's environmental reporting for 2018 does not include Leosphere SAS and K-Patents Group. This applies also to the net sales figure, to which some of the environmental indicators are proportionally compared.

DIVISION OF ENVIRONMENTAL IMPACTS: MANUFACTURING LOCATIONS / OTHER LOCATIONS



METHODOLOGY AND ASSUMPTIONS

Energy, water and waste data are collected from various sources. If a location does not have a monitoring system, we receive data from service providers. Electricity and heating bills are used as energy consumption data sources. Solar energy production and water consumption are measured using on-site meters. Data about waste amounts and disposal methods are provided mainly by waste management companies. The recoverable waste amount includes everything but landfill waste.

The environmental figures for 2018 are estimates based on data that was available at the time of publication of the report. This covers actual data for the first 10 months of the year. The figures for November and December 2018 are estimates based on actual data for the past 12 months. There is no reason to assume that there are significant differences between the estimates and the actual figures for 2018.

EMISSION FACTORS

Greenhouse gas emissions are calculated using the best available conversion factors. These emission factors mainly come from the DEFRA database and GHG Protocol calculation tools. Certain emission factors come from other sources, such as our logistics partners, local energy companies, and vehicle manufacturers.

We primarily use the market-based calculation method to determine our Scope 2 carbon footprint, as this method takes our purchased-energy specific emissions into account. In this calculation, locations using 100% renewable energy use 0.0 g CO_2e / kWh as their emission factor.

In addition, we report our location-based Scope 2 emissions, which are based on average country-specific emissions from energy production. The location-based emission factors for electricity and district heating in Finland are based on the annual information provided by Finnish Energy. An update has been made accordingly to the 2017 emission factors for Finland, which causes the difference in location-based Scope 2 emissions compared to last year's report.

Our carbon footprint includes all greenhouse gases converted into carbon dioxide using global warming potential (GWP-100). With the further development and expansion of our carbon dioxide footprint calculation, we have calculated our carbon dioxide footprint retrospectively to ensure comparability between reporting periods.

PRODUCTS

A significant portion of the environmental impacts generated by our products arise during their use. Our industrial products and solutions help our customers improve their environmental performance, and our weather measurement solutions support decision-making in the society by providing a wide range of critical information.

The environmental footprint generated by products over their life cycle can be affected during the product design phase. Our product development process includes environmental requirements, and many of the required product qualities, such as energy efficiency and maintainability, are beneficial for the environment. The updateability and modular design of many of our products, combined with our field services, extend the product life cycle, which typically ranges from a year to over 20 years. However, we are aware that the global scarcity of resources and changing environmental regulations require us to improve our product design process continuously.

To ensure that our products are safe for people and the environment, we set strict requirements during the product design process for the materials used in our products. We analyze the components early on in the new product development process to ensure compliance. Between 2016 and 2018, our product engineers analyzed more than 20,000 components used in our product portfolio. We cooperate with our component suppliers to ensure that the components delivered to Vaisala contain only allowed materials. We select new suppliers carefully and ensure that they meet our strict requirements.

At the end of product life cycle, we advise customers to recycle the products in accordance with local regulations or to return them to Vaisala for recycling.

Personnel

The total number of employees at the end of 2018 was 1,816, and the average number of personnel employed during the year was 1,678. The average age of personnel was 43 years. At the year-end, 94% of employees were permanent and 6% were temporary.

TURNOVER

During 2018, 127 permanent employees were recruited and 206 employees left the company, out of whom 14 had retired. The turnover rate for permanent employees was 7.1%, and the recruitment rate was 8.3%.

Recruitments

	-19	20–29	30–39	40–49	50–59	60–	Total
Male	16	60	31	33	8	2	**150**
Female	3	34	22	16	5	1	**81**
Total	**19**	**94**	**53**	**49**	**13**	**3**	**231**

Recruitments by region

	Finland	EMEA	Americas	APAC	Total
Permanent	78	6	24	19	**127**
Temporary	97	1	4	2	**104**
Total	**175**	**7**	**28**	**21**	**231**

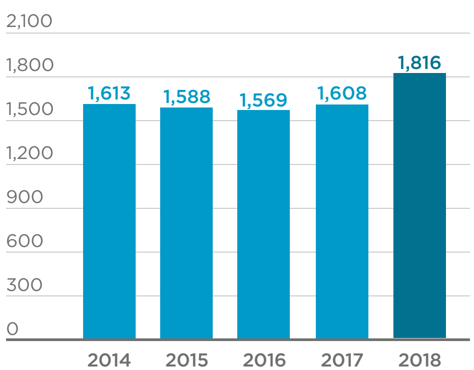
Turnover

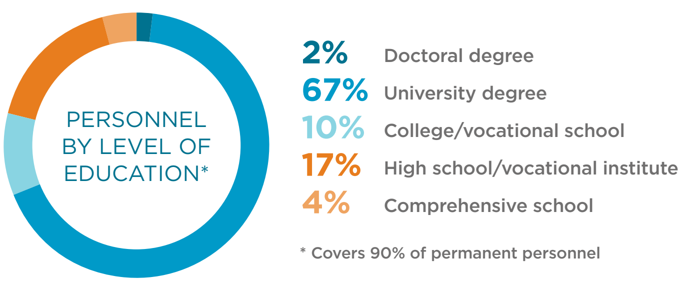
	-19	20–29	30–39	40–49	50–59	60–	Total
Male	12	52	23	26	8	10	**131**
Female	5	25	18	10	5	12	**75**
Total	**17**	**77**	**41**	**36**	**13**	**22**	**206**

Turnover by region

	Finland	EMEA	Americas	APAC	Total
Permanent	48	7	41	12	**108**
Temporary	92	1	4	1	**98**
Total	**140**	**8**	**45**	**13**	**206**

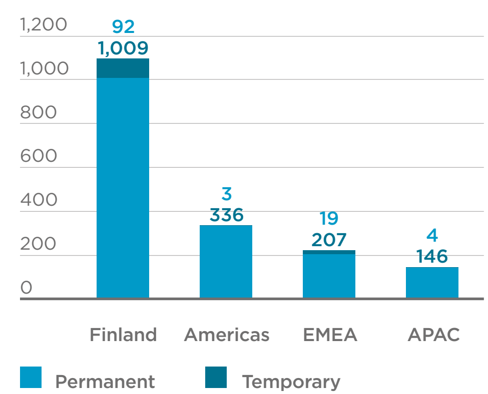
PERSONNEL, AT YEAR-END





* Covers 90% of permanent personnel

PERSONNEL BY REGION AND CONTRACT



EMEA: Europe, Middle-East, and Africa; Americas: North and South America; APAC: Asia-Pacific region

MAJOR CHANGES DURING THE REPORTING PERIOD

In 2018, Vaisala's headcount grew as a result of two acquisitions: in October Vaisala acquired the French Leosphere SAS, employing 126 people, and in December the Finnish K-Patents Group, employing 62 people.

COLLECTIVE AGREEMENTS AND TRADE UNIONS

Vaisala recognizes Technology Industries of Finland as its trade union. Vaisala's employees in Finland are covered by three collective agreements: the collective agreement for employees in technology industries, the collective agreement for salaried employees in technology industries, and the collective agreement for senior salaried employees in technology industries.

Salaries and wages paid by the company are based on local collective and individual agreements, individual performance, and the requirements of each job. The base salaries are supplemented by performance-based bonus systems, which cover all Vaisala personnel.

DIVERSITY, EQUALITY AND INCLUSIVENESS

We aim to treat all our employees and applicants equally in all recruitment, hiring, training, and development. In North America, Vaisala Inc. is an Equal Opportunity Employer (EOE). Qualified applicants are considered for employment without regard to age, race, color, religion, gender, marital status, national origin, sexual orientation, disability, or veteran status.

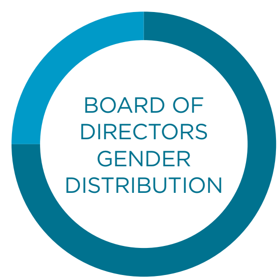
According to the Finnish Non-Discrimination Act, section 4, an employer must create a plan to advance equality. The aim of our equality plan is that Vaisala's personnel, jobseekers and the subcontractors operating within Vaisala's guidance and offices, as well as leased personnel will be treated equally, independently of their attributes. Furthermore, our goal is that our employees work within a safe, caring, communal, and accessible operating environment.

Equality and fairness are also important elements of Vaisala's compensation policy. We do not distinguish between gender or other non-professional attributes in employee compensation or benefits plans.

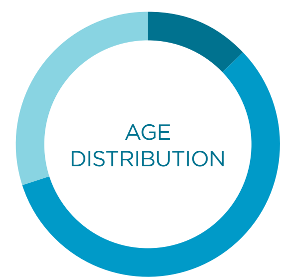
70% Male
30% Female

73% Male
27% Female

57% Male
43% Female



75% Male
25% Female



13% < 30
57% 30–49
30% ≥ 50

2% < 30
66% 30–49
33% ≥ 50

Occupational Health and Safety

Vaisala continues to focus on the development of occupational health and safety. Our global goals guide us towards excellent safety performance. Such goals include increasing the visibility of management commitment, reducing risks, and engaging contractors in safety management, to name just a few examples. We believe that our goal of zero accidents can be achieved, and we are committed to its achievement through continuous improvement. One of our main goals is to receive the ISO 45001 certification for our occupational health and safety system. For this purpose, we have been closely following the preparation of the standard at ISO for several years. We expect to receive the certification during the first half of 2019.

In 2018, we focused on ensuring the implementation of existing health and safety management practices. We also sought to increase awareness of safety on all organizational levels. Vaisala invests in comprehensive training for employees to ensure that people working in risk-prone environments or jobs – such as working at heights, electrical work and work involving chemicals or gases – have the necessary qualifications. In 2018, we also introduced an e-learning program in Finland to inform our employees and long-term contractors about their opportunities to further improve safety and the work atmosphere and to create a culture of caring for others. This training will be made mandatory for everyone, and it will be introduced at our other locations during 2019.

PROACTIVE REPORTING AND INVESTIGATION

We encourage our employees and contractors to proactively report any health and safety risks in the workplace and make suggestions to improve the safety of working conditions and methods. To prevent injuries, harmful exposure, and the recurrence of incidents, reported deviations and their causes are investigated. After the investigation, corrective measures are implemented without delay. A globally consistent reporting procedure and database improve the efficiency and transparency of monitoring health and safety performance.

Our goal was to improve proactive reporting frequency (risks, near misses, and suggestions for improvement) by a third compared to the previous year, which translates into one reported near miss, risk, or suggestion per 10 employees. We received 154 reports in total, meaning that we achieved 94% of our target. In addition to these reports, several suggestions for improvements were made in manufacturing to further develop ergonomics and the work environment, for example.

COLLABORATION

We have increased collaboration between employees and the employer by establishing new Health and Safety Committees in several locations.

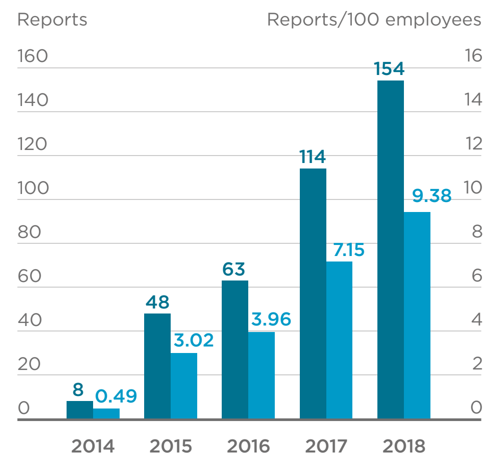
In Finland, Canada and Germany, as well as in Seattle in the United States, the employer and employees are required by law to meet on health and safety committees. We have also established voluntary committees in Birmingham in the United Kingdom and Boulder in the United States in 2017, and Beijing in China in 2018.

These committees meet at least four times a year. The representatives on the Health and Safety Committees currently make up 4.3% of all employees and represent 87% of the personnel. Our goal is to have at least one in three non-managerial employees on each committee.

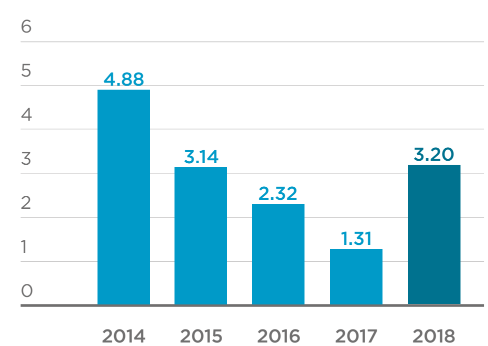
INJURIES

Unfortunately, our increasing proactivity and improved safety culture were not reflected in our injury rate in 2018, and we did not achieve our goal of zero injuries. A total of 10 injuries occurred in 2018 (4 in the United States and 6 in Finland), meaning that our accident frequency rate was 3.2 accidents per million hours worked. Our goal was to reduce our injury rate by a third from 2017 (to 1.0 accidents per million hours worked), but the rate more than doubled from the previous year. We continue to work toward our goal of zero injuries and occupational diseases, and we believe we can achieve this goal through continuous improvement.

PROACTIVE REPORTING



INJURIES PER MILLION WORKING HOURS (TRI)



Ethics and Compliance

VAISALA CODE OF CONDUCT

The Code of Conduct reflects Vaisala's values: Integrity, Strong Together, Innovation and Renewal, and Customer Focus. All of our employees, partners, distributors, and agents must comply with the Code of Conduct under all circumstances.

All Vaisala employees must complete training on the Code of Conduct at regular intervals and confirm their commitment to the Code and the International Anti-Corruption Policy. In late 2018, we asked all employees to refresh their knowledge of the Code of Conduct and the International Anti-Corruption Policy and confirm their compliance with them. Of all employees, 95% had provided such confirmation by January 22, 2019. All new employees commit to complying with the Code of Conduct and the International Anti-Corruption Policy as part of their employment contracts as well as participate in induction training on the company's operating principles and procedures. Violations of the Code of Conduct may lead to disciplinary action, including termination of employment.

PREVENTION OF CORRUPTION AND BRIBERY

Vaisala has a zero tolerance policy toward all forms of corruption. Our International Anti-Corruption Policy strictly forbids offering, giving, soliciting, arranging, demanding, or accepting bribes, whether directly or through third parties. The Policy includes detailed guidelines on acceptable hospitality and entertainment.

Periodical training for employees on the Code of Conduct also covers aspects related to the International Anti-Corruption Policy. Violations of the Policy may lead to disciplinary action, including termination of employment.

To serve its customers as efficiently as possible, Vaisala conducts business through a network of partners: with distributors, agents, and resellers in more than 100 countries. Our business operations cover a large geographical area, meaning that we also operate in countries with a demanding business environment. For this reason, we pay special attention to selecting our business partners. An initial study is usually followed by a more profound due diligence process carried out by Vaisala employees or external consultants. Our agreements with our partners typically include strict requirements concerning immediate termination if a partner violates any aspects of our Code of Conduct or International Anti-Corruption Policy, both of which are attached to the agreements we sign with partners.

SUPPLIER CODE OF CONDUCT

The Supplier Code of Conduct reflects Vaisala's values and operating principles and is based on principles created by the International Labor Organization (ILO), the United Nations Global Compact initiative and the Responsible Business Alliance (formerly EICC). In addition, the Supplier Code of Conduct includes requirements concerning standards and procedures in line with the Business Social Compliance Initiative (BSCI) and Social Accountability International (SAI).

COMPLIANCE MONITORING AND VIOLATIONS

Compliance with the Code of Conduct and other guidelines is continuously monitored by regional and business area managers and immediate supervisors as well as by means of internal audits. If any Vaisala employee knows or suspects that the Code of Conduct or the International Anti-Corruption Policy is being violated, they must report the incident. Vaisala provides a whistleblowing channel for its employees and external stakeholders for reporting violations. In addition to reporting suspected violations, they may communicate other concerns through the channel. The channel can be used via email or regular mail, and messages can be sent anonymously.

Vaisala has a Compliance Committee, which monitors compliance with the Code of Conduct and other guidelines as well as processes reports of suspected non-compliance. The Committee consists of members from the Legal Department, Finance & Control and Human Resources and is headed by the Senior Vice President for Compliance and Risk Management.

In 2018, the Committee became aware of two suspected violations of the Code of Conduct. Both cases were forwarded for investigation by Human Resources. One of the cases has already been investigated and the necessary measures have been taken, while the other case is still under investigation.

There were no confirmed complaints or sanctions by the authorities during 2018. No incidents of corruption, anti-competitive behavior, anti-trust or monopoly practices, or any other violations of laws or regulations were confirmed during 2018. Furthermore, there were no violations of human rights, labor rights, or environmental legislation or concerns related to these in the immediate supply chain.

RESPECT FOR HUMAN RIGHTS

Vaisala respects human rights as defined in the United Nations' Universal Declaration of Human Rights and endorses the International Labor Organization's Declaration of Fundamental Principles and Rights at Work.

Internal supply chain risk assessments suggest that the risk of human rights violations is the highest beyond the third tier of suppliers. Typical issues are the same as in other electronics manufacturing supply chains, including unpaid or excessive overtime, dangerous working conditions, bonded labor and, low wages. Risks in Vaisala's supply chain are mitigated by carefully choosing preferred suppliers and working closely with first-tier suppliers, insisting on policies that go beyond the requirements of local laws.

CONFLICT MINERALS

Vaisala does not condone violations of human rights or labor laws in any part of its supply chain. The company takes appropriate measures to ensure that the risk of violations of its Code of Conduct or Supplier Code of Conduct is minimized in its immediate supply chain. In addition, Vaisala's suppliers must take proper precautions to ensure that they do not source any minerals originating from conflict areas, in accordance with Section 1502 of the Dodd-Frank Wall Street Reform and Consumer Protection Act. Such minerals include tin, tungsten, tantalum, and gold mined in the Democratic Republic of Congo (DRC) or its neighboring countries, for example.

Read more
Read more about Vaisala's policies
www.vaisala.com/standards-and-policies
Vaisala Whistleblowing Channel can be reached at wbc@vaisala.com

Responsible Supply Chains

In its supply chain, Vaisala seeks to promote innovation and a competitive advantage responsibly through cooperation. Our business operations are based on a wide selection and low volumes, and this special expertise depends on the effective management of hundreds of suppliers and selected strategic partners. To deliver on our customer promise and meet stakeholder expectations, we must have a reliable and responsible supply chain. We set strict requirements for our suppliers, and we cooperate with them closely over the long term, which enables both parties to further develop their operations.

TYPICAL PRODUCT SUPPLY CHAIN

Vaisala's direct suppliers are generally located close to its product development operations and manufacturing sites. We purchase subassemblies, components, and mechanical parts mainly from Finland and other European countries as well as the United States. Our upstream supply chains resemble other typical supply chains of the global electronics manufacturing industry.

65% Finland (130 suppliers)
17% Other EU (74 suppliers)
13% North America (152 suppliers)
2% South-East Asia (5 suppliers)
2% Japan, South Korea and Australia (4 suppliers)
1% China (8 suppliers)

52% Strategic suppliers (11 suppliers)
19% Preferred suppliers (44 suppliers)
21% Approved suppliers (231 suppliers)
8% Other (87 suppliers)

Key figures of Vaisala's direct supply chain

373*	93%	32	91%
suppliers	of purchases (based on spend) were made from suppliers rated on ESG metrics; target 90% (2017: 87%)	suppliers audited during the year	of purchases (based on spend) were made from suppliers who had signed the Supplier Code of Conduct (2017: 89%)

* Excluding new suppliers gained through the acquisitions of Leosphere SAS and K-Patents Group.

SUPPLIER MANAGEMENT MODEL

Vaisala's supplier management model has four categories: potential, approved, preferred and strategic suppliers. In addition to these categories, suppliers may be in phase-out, when their contracts are being discontinued gradually, or on watch-list, when they are monitored closely because of serious problems experienced over the long term. The classification defines the relationship between Vaisala and the supplier and outlines the management model for each category. All suppliers are expected to meet certain requirements before they can be approved and categorized. The requirements for suppliers are based on the classification, risk assessment, and spend. Suppliers must also commit to the Supplier Code of Conduct.

We use a Supplier Sustainability Self-Assessment Questionnaire (SAQ) as part of supplier development in all categories in order to assess environmental, social and governance (ESG) risks. The questionnaire exposes risks related to environmental management, occupational safety, social responsibility, governance, and supply chain management. If a supplier's score in the assessment does not meet Vaisala's requirements, the supplier is expected to implement corrective measures to improve their sustainability as part of their comprehensive development plan. The self-assessment is conducted every two years, and any weaknesses are addressed in cooperation with the supplier.

At the end of 2018, Vaisala had 373 direct suppliers (excluding new suppliers gained through the acquisitions of Leosphere SAS and K-Patents Group). Our target for 2018 was that direct suppliers representing at least 90% of our total spend would be rated on ESG metrics. We exceeded this target at 93%. In 2018, we approved six new suppliers. However, their self-assessment scores were not yet available at the end of the year, and only half of them had signed the Supplier Code of Conduct. We will seek to further develop our approval process for new suppliers to ensure that they sign the Supplier Code of Conduct and complete the self-assessment process before they are approved.

As part of supplier management, we also audit our suppliers to check aspects related to quality and sustainability, such as their knowledge and application of our Supplier Code of Conduct, labor and human rights, occupational safety, environmental management, product safety (RoHS and REACH), and conflict mineral management. We audited 32 suppliers in 2018.

EARLY SUPPLIER INVOLVEMENT

Vaisala's suppliers are experts of their own technologies, which is essential for the quality of our products. We benefit most from this expertise when we involve suppliers in product development and design at an early stage. Manufacturability, consistent quality, total cost of ownership, and performance can be improved through early supplier involvement.

By including suppliers in product development projects, we can significantly reduce risks and accelerate the development of new products. This benefits both Vaisala and its suppliers through lower re-engineering costs, shorter production times, and mutual learning in the process. Vaisala values reliability and continuous improvement, and the early involvement of suppliers has proven to be an effective way to promote and maintain these values.

Read more
Read more about supplier management at Vaisala on our website at www.vaisala.com/suppliers

UN Global Compact

Vaisala joined the UN Global Compact in 2008 and has committed to follow the ten guiding principles of the initiative. Consequently, we report on our progress on an annual basis. Vaisala is an active member in its local UNGC network, the Global Compact Nordic Network. Involvement in the local network gives us the possibility to influence the network's activities and benchmark our efforts against other companies. Our sustainability reports have qualified for the Global Compact Advanced differentiation level since its introduction in 2010.

Human Rights

Principle 1: Businesses should support and respect the protection of internationally proclaimed human rights.	Embedded in Vaisala's Code of Conduct and Supplier Code of Conduct. Mandatory regular Code of Conduct training for the entire personnel.
Principle 2: Make sure that they are not complicit in human rights abuses.	Mandatory regular Code of Conduct training for the entire personnel.

Labor Standards

Principle 3: Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining.	Embedded in Code of Conduct and Supplier Code of Conduct. Employee representatives according to local legislation.
Principle 4: The elimination of all forms of forced and compulsory labor.	Covered in Code of Conduct and Supplier Code of Conduct.
Principle 5: The effective abolition of child labor.	Covered in Code of Conduct and Supplier Code of Conduct.
Principle 6: The elimination of discrimination in respect of employment and occupation.	Covered in Code of Conduct and Supplier Code of Conduct.

Environment

Principle 7: Businesses should support a precautionary approach to environmental challenges.	We systematically identify and evaluate our environmental impacts and hazards to mitigate any negative effects they might incur.
Principle 8: Undertake initiatives to promote greater environmental responsibility.	Participates in WWF Finland's Green Office program and refurbishes facilities to meet green standards. Committed to 100% renewable energy by 2020.
Principle 9: Encourage the development and diffusion of environmentally friendly technologies.	We constantly develop Best Available Technology (BAT) products to meet the increasing demand for highly accurate measuring instruments, e.g. for climate change research.

Anti-Corruption

Principle 10: Businesses should work against corruption in all its forms, including extortion and bribery.	Covered in Code of Conduct, Supplier Code of Conduct, and Vaisala's International Anti-Corruption Policy. Vaisala's management enforces a strict zero-tolerance policy on all forms of bribery and corruption.

Signing of Non-financial Information

Disclosure of non-financial information in accordance with Finnish Accounting Act is presented in the Sustainability section of the Annual Report as well as on pages Business Model and Dashboard, included in the Creating Value section.

Vantaa February 12, 2019

Petri Castrén	Petra Lundström	Yrjö Neuvo Vice Chairman of the Board
Mikko Niinivaara	Kaarina Ståhlberg	Pertti Torstila
Raimo Voipio Chairman of the Board	Ville Voipio	Kjell Forsén President and CEO

Independent limited assurance report

TO THE MANAGEMENT OF VAISALA OYJ

We have been engaged by Vaisala Oyj (hereafter Vaisala) to provide a limited assurance on Vaisala's corporate responsibility information and GRI indicators disclosed in the Vaisala Observations for a Better World report (hereafter: Responsibility Information) for the reporting period of January 1, 2018 to December 31, 2018. The scope of the assurance was the content of the Sustainability section and indicators on pages 47-62, indicator 201-1 on page 39 and the grants received from governments for research and development purposes disclosed on page 40.

MANAGEMENT'S RESPONSIBILITY

Management is responsible for the preparation of the Sustainability Information in accordance with the Reporting criteria as set out in Vaisala's reporting principles on page 47 of the Non-Financial Information report and the Sustainability Reporting Standards (Core) of the Global Reporting Initiative. This responsibility includes: designing, implementing and maintaining internal control relevant to the preparation and fair presentation of the Sustainability Information that are free from material misstatement, whether due to fraud or error, selecting and applying appropriate criteria and making estimates that are reasonable in the circumstances.

ASSURANCE PROVIDER'S RESPONSIBILITY

Our responsibility is to express a limited assurance conclusion on the Responsibility Information based on our engagement. We conducted our assurance engagement in accordance with International Standard on Assurance Engagements (ISAE) 3000 (Revised) to provide limited assurance on performance data and statements within the Responsibility Information.

This Standard requires that we comply with ethical requirements and plan and perform the assurance engagement to obtain limited assurance whether any matters come to our attention that cause us to believe that the Responsibility Information has not been prepared, in all material respects, in accordance with the Reporting criteria.

We did not perform any assurance procedures on the prospective information, such as targets, expectations and ambitions, disclosed in the Responsibility Information. Consequently, we draw no conclusion on the prospective information. Our assurance report is made in accordance with the terms of our engagement with Vaisala. We do not accept or assume responsibility to anyone other than Vaisala for our work, for this assurance report, or for the conclusions we have reached.

A limited assurance engagement with respect to responsibility related data involves performing procedures to obtain evidence about the Responsibility Information. The procedures performed depend on the practitioner's judgment, but their nature is different from, and their extent is less than, a reasonable assurance engagement. It does not include detailed testing of source data or the operating effectiveness of processes and internal controls and consequently they do not enable us to obtain the assurance necessary to become aware of all significant matters that might be identified in a reasonable assurance engagement.

Our procedures on this engagement included:

- Conducting interviews with senior management responsible for corporate responsibility at Vaisala to gain an understanding of Vaisala's targets for corporate responsibility as part of the business strategy and operations;
- Reviewing internal and external documentation to verify to what extent these documents and data support the information included in the Responsibility Information and evaluating whether the information presented in the Responsibility Information is in line with our overall knowledge of corporate responsibility at Vaisala;
- Conducting interviews with employees responsible for the collection and reporting of the Responsibility Information and reviewing of the processes and systems for data gathering, including the aggregation of the data for the Responsibility Information;
- Performing analytical review procedures and testing data on a sample basis to assess the reasonability of the presented responsibility information;
- Performing site visits to Vantaa in Finland and Boulder in the United States to review compliance to reporting policies, to assess the reliability of the responsibility data reporting process as well as to test the data collected for responsibility reporting purposes on a sample basis;
- Assessing that the Responsibility Information has been prepared in accordance with the Sustainability Reporting Standards (Core) of the Global Reporting Initiative.

We believe that the evidence we have obtained is sufficient and appropriate to provide a basis for our conclusion.

OUR INDEPENDENCE, QUALITY CONTROL AND COMPETENCES

We complied with Deloitte's independence policies which address and, in certain cases, exceed the requirements of the International Federation of Accountants Code of Ethics for Professional Accountants in their role as independent assurance providers and in particular preclude us from taking financial, commercial, governance and ownership positions which might affect, or be perceived to affect, our independence and impartiality and from any involvement in the preparation of the report. We have maintained our independence and objectivity throughout the year and there were no events or prohibited services provided which could impair our independence and objectivity.

Deloitte Oy applies International Standard on Quality Control 1 and accordingly maintains a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements. This engagement was conducted by a multidisciplinary team including assurance and sustainability expertise with professional qualifications. Our team is experienced in providing sustainability reporting assurance.

CONCLUSION

On the basis of the procedures we have performed, nothing has come to our attention that causes us to believe that the information subject to the assurance engagement is not prepared, in all material respects, in accordance with the Sustainability Reporting Standards (Core) of the Global Reporting Initiative or that the Responsibility Information is not reliable, in all material respects, with regard to the Reporting criteria.

Our assurance statement should be read in conjunction with the inherent limitations of accuracy and completeness for responsibility information.

Helsinki 12.2.2019
Deloitte Oy

Merja Itäniemi
Authorized Public Accountant

Lasse Ingström
Authorized Public Accountant

GRI Content Index

The Global Reporting Initiative (GRI) content index is provided to assist the reader in navigating through the annual report and to compare it to the GRI Standards Guidelines. For more information about the guidelines, please see **www.globalreporting.org**.

Content	Indicator #	References and Reasons for Omissions
GENERAL DISCLOSURES		
GRI 102: GENERAL DISCLOSURES 2016		
1. Organizational profile		
Name of the organization	102-1	3 Vaisala in Brief
Activities, brands, products, and services	102-2	3 Vaisala in Brief
Location of headquarters	102-3	26 Global Markets
Location of operations	102-4	3 Vaisala in Brief, 26 Global Markets, 52 Scope of Environmental Reporting, 153 Consolidated Financial Statements: Note 25. Subsidiaries
Ownership and legal form	102-5	84 Board of Directrors' Report: Ownership structure
Markets served	102-6	3 Vaisala in Brief (main markets), 12 Business Model
Scale of the organization	102-7	3 Vaisala in Brief (net sales, number of offices, number of employees), 27 Operations (number of products), 116 Consolidated Statement of Financial Position
Information on employees and other workers	102-8	54 Personnel (personnel by area and contract) Gender distribution of temporary and part-time employees is not reported separately due to the small amount of such employees. Work performed by workers who are not employees is not reported due to the small amount of such work.
Supply chain	102-9	60–61 Responsible Supply Chains
Significant changes to the organization and its supply chain	102-10	55 Major changes during the reporting period, 143 Consolidated Financial Statements: Capital Structure
Precautionary Principle or approach	102-11	86 Risk Management, 53 Products
External initiatives	102-12	40–41 Collaboration in the Scientific Community, 62 UN Global Compact
Membership of associations	102-13	55 Collective Agreements and Trade Unions

Content	Indicator #	References and Reasons for Omissions
2. Strategy		
Statement from senior decision-maker	102-14	8–9 CEO's Message
Key impacts, risks, and opportunities	102-15	15–16 Megatrends
3. Ethics and integrity		
Values, principles, standards, and norms of behavior	102-16	11 Strategy, 58–59 Ethics and Compliance
Mechanisms for advice and concerns about ethics	102-17	58–59 Ethics and Compliance
4. Governance		
Governance structure	102-18	74–85 Corporate Governance Statement
Nominating and selecting the highest governance body	102-24	75 Selection criteria, diversity, and the independence of the members
Highest governance body's role in sustainability reporting	102-32	The Board of Directors approves the sustainability information included in the Annual Report.
5. Stakeholder engagement		
List of stakeholder groups	102-40	30 Stakeholder Engagement
Collective bargaining agreements	102-41	65% of employees are covered by collective bargaining agreements.
Identifying and selecting stakeholders	102-42	30 Stakeholder Engagement
Approach to stakeholder engagement	102-43	30 Stakeholder Engagement
Key topics and concerns raised	102-44	30 Stakeholder Engagement
6. Reporting practice		
Entities included in the consolidated financial statements	102-45	153 Consolidated Financial Statements: Note 25. Subsidiaries
Defining report content and topic Boundaries	102-46	47 Reporting Principles
List of material topics	102-47	13 Value Creation Model, 48–53 Environment, 54–55 Personnel, 56–57 Occupational Health and Safety, 58–59 Ethics and Compliance, 60–61 Responsible Supply Chains

Content	Indicator #	References and Reasons for Omissions
Restatements of information	102-48	52 Emission Factors
Changes in reporting	102-49	No significant changes
Reporting period	102-50	Calendar year 2018
Date of most recent report	102-51	2.3.2018
Reporting cycle	102-52	Annually
Contact point for questions regarding the report	102-53	185 Contacts
Claims of reporting in accordance with the GRI Standards	102-54	This report has been prepared in accordance with the GRI Standards: Core option.
GRI content index	102-55	
External assurance	102-56	47 Independent Assurance, 64–65 Independent limited assurance report
ECONOMIC PERFORMANCE		
GRI 103: MANAGEMENT APPROACH 2016	103-1-3	39 Economic Value
GRI 201: ECONOMIC PERFORMANCE 2016		
Direct economic value generated and distributed	201-1	39 Economic Value Figures are reported on Group level. We consider the regional level reporting of these figures proprietary information.
Defined benefit plans and obligations and other retirement plans	201-3	128 Consolidated Financial Statements: Note 6. Pension obligations Percentage of salary contributed and participation level are not reported.
Financial assistance received from government	201-4	40 Collaboration in the Scientific Community Majority (97%) of Vaisala's grants received from governments are research and development grants that Vaisala Oyj has received in Finland. In addition to the reported grants, Vaisala receives tax credits in the USA, Canada, and France. However, information on these is not available at the time of reporting.

Content	Indicator #	References and Reasons for Omissions
ENVIRONMENT		
GRI 103: MANAGEMENT APPROACH 2016	103-1-3	48–53 Environment
GRI 302: ENERGY 2016		
Energy consumption within the organization	302-1	50 Energy and Emissions, 52 Scope of Environmental Reporting, 52 Methodology and assumptions Fuel consumption or sold energy are not considered material, as Vaisala does not consume process fuels or sell electricity in any significant quantities.
Energy intensity	302-3	50 Energy and Emissions
GRI 303: WATER 2016		
Water withdrawal by source	303-1	51 Water Consumption, 52 Scope of Environmental Reporting, 52 Methodology and assumptions
GRI 305: EMISSIONS 2016		
Direct (Scope 1) GHG emissions	305-1	50 Energy and Emissions, 52 Scope of Environmental Reporting, 52 Methodology and assumptions, 52 Emission factors
Energy indirect (Scope 2) GHG emissions	305-2	50 Energy and Emissions, 52 Scope of Environmental Reporting, 52 Methodology and assumptions, 52 Emission factors
Other indirect (Scope 3) GHG emissions	305-3	50 Energy and Emissions, 52 Scope of Environmental Reporting, 52 Methodology and assumptions, 52 Emission factors
GHG emissions intensity	305-4	50 Energy and Emissions
Reduction of GHG emissions	305-5	50 Energy and Emissions
GRI 306: EFFLUENTS AND WASTE 2016		
Waste by type and disposal methods	306-2	51 Waste, 52 Scope of Environmental Reporting, 52 Methodology and assumptions The disposal methods are not reported for dangerous waste due to its small amount.
PERSONNEL		
GRI 103: MANAGEMENT APPROACH 2016	103-1-3	34–36 Value to Employees, 54–55 Personnel
GRI 401: EMPLOYMENT 2016		
New employee hires and employee turnover	401-1	54 Turnover

Content	Indicator #	References and Reasons for Omissions
GRI 402: LABOR/MANAGEMENT RELATIONS 2016		
Minimum notice periods regarding operational changes	402-1	The personnel in Finland (64% of Vaisala's personnel) is covered by collective agreements of technology industries, which specify the minimum notice period. For other countries, the notice periods vary depending on legislation.
GRI 404: TRAINING AND EDUCATION 2016		
Percentage of employees receiving regular performance and career development reviews	404-3	36 Learning As most of the personnel (89% by the end of January 2019) has had the annual development discussions, regional and gender distribution are not considered relevant to report for this indicator. The figure excludes long-term absent and recently recruited employees.
GRI 405: DIVERSITY AND EQUAL OPPORTUNITY 2016		
Diversity of governance bodies and employees	405-1	55 Diversity, Equality, and Inclusiveness; 78 Composition of the Board of Directors Dec 31, 2018 (Board members' years of birth); 81 Members of the Management Group Dec 31, 2018 (Management Group members' years of birth)
GRI 406: NON-DISCRIMINATION 2016		
Incidents of discrimination and corrective actions taken	406-1	No incidents of discrimination
EMPLOYEE WELL-BEING		
Well-Being Index	Non-GRI	35 Well-Being
OCCUPATIONAL HEALTH AND SAFETY		
GRI 103: MANAGEMENT APPROACH 2016	103-1-3	56-57 Occupational Health and Safety
GRI 403: OCCUPATIONAL HEALTH AND SAFETY 2016		
Workers representation in formal joint management–worker health and safety committees	403-1	56 Collaboration
Types of injury and rates of injury, occupational diseases, lost days, and absenteeism, and number of work-related fatalities	403-2	57 Injuries Occupational disease rate, absentee rate, and lost day rate are not considered material in Vaisala. Data for contractors is too limited for reporting.

Content	Indicator #	References and Reasons for Omissions
ETHICS AND COMPLIANCE		
GRI 103: MANAGEMENT APPROACH 2016	103-1-3	58–59 Ethics and Compliance
GRI 205: ANTI-CORRUPTION 2016		
Communication and training about anti-corruption policies and procedures	205-2	58 Vaisala Code of Conduct, 58 Prevention of Corruption and Bribery
Confirmed incidents of corruption and actions take	205-3	58–59 Compliance Monitoring and Violations (no incidents)
GRI 206: ANTI-COMPETITIVE BEHAVIOR 2016		
Legal actions for anti-competitive behavior, anti-trust, and monopoly practices	206-1	58–59 Compliance Monitoring and Violations (no incidents)
GRI 307: ENVIRONMENTAL COMPLIANCE 2016		
Non-compliance with environmental laws and regulations	307-1	58–59 Compliance Monitoring and Violations (no incidents)
GRI 412: HUMAN RIGHTS ASSESSMENT 2016		
Employee training on human rights policies or procedures	412-1	Vaisala's Code of Conduct training that is normally organized annually includes also topics related to human rights. However, the training was not organized in 2018 due to a training system renewal. In 2019, the training will be organized again.
GRI 416: CUSTOMER HEALTH AND SAFETY 2016		
Incidents of non-compliance concerning the health and safety impacts of products and services	416-2	58–59 Compliance Monitoring and Violations (no incidents)
GRI 417: MARKETING AND LABELING 2016		
Incidents of non-compliance concerning product and service information and labeling	417-2	58–59 Compliance Monitoring and Violations (no incidents)
GRI 419: SOCIOECONOMIC COMPLIANCE 2016		
Non-compliance with laws and regulations in the social and economic area	419-1	58–59 Compliance Monitoring and Violations (no incidents)

Content	Indicator #	References and Reasons for Omissions
RESPONSIBLE SUPPLY CHAINS		
GRI 103: MANAGEMENT APPROACH 2016	103-1-3	60–61 Responsible Supply Chains
GRI 308: SUPPLIER ENVIRONMENTAL ASSESSMENT 2016		
New suppliers that were screened using environmental criteria	308-1	61 Supplier Management Model
GRI 414: SUPPLIER SOCIAL ASSESSMENT 2016		
New suppliers that were screened using social criteria	414-1	61 Supplier Management Model
GRI 407: FREEDOM OF ASSOCIATION AND COLLECTIVE BARGAINING 2016		
Operations and suppliers in which the right to freedom of association and collective bargaining may be at risk	407-1	59 Respect for Human Rights, 60–61 Responsible Supply Chains The topic is material only in some parts of the supply chain, not in Vaisala's own operations.
GRI 408: CHILD LABOR 2016		
Operations and suppliers at significant risk for incidents of child labor	408-1	60 Respect for Human Rights, 60–61 Responsible Supply Chains The topic is material only in some parts of the supply chain, not in Vaisala's own operations.
GRI 409: FORCED OR COMPULSORY LABOUR 2016		
Operations and suppliers at significant risk for incidents of forced or compulsory labor	409-1	61 Respect for Human Rights, 60–61 Responsible Supply Chains The topic is material only in some parts of the supply chain, not in Vaisala's own operations.

Governance

Corporate Governance Statement 2018

VAISALA'S GENERAL GOVERNANCE PRINCIPLES

Vaisala's corporate governance is based on, and complies with, the laws of Finland and Vaisala's Articles of Association. The company complies with the rules, regulations, and guidelines for listed companies issued by Nasdaq Helsinki Ltd and Finnish Supervisory Authority as well as Finnish Corporate Governance Code 2015 published by the Securities Market Association.

Vaisala Board of Directors has approved this Corporate Governance statement in its meeting on February 12, 2019. Deloitte Oy, Audit Firm, the company's auditor, has verified that the statement has been issued and that the general description of internal audit and risk management systems associated with the financial reporting process conforms to the same in financial statements.

More Information
This Corporate Governance Statement has been drawn up as a document independent of the Board of Director's Report and is available on the company's website at www.vaisala.com/investors. The Finnish Corporate Governance Code is available on website at www.cgfinland.fi/en.

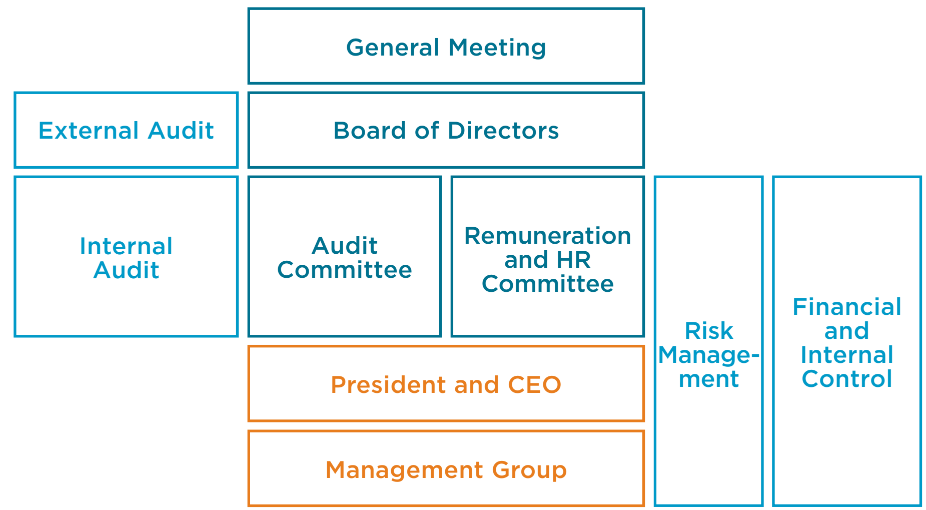
DEVIATION FROM THE RECOMMENDATIONS OF THE CORPORATE GOVERNANCE CODE AND THE EXPLANATION FOR THE DEVIATION

The term of the members of Vaisala's Board of Directors deviates from the Recommendation 6 of Corporate Governance Code, which recommends a term of one year. The term of Vaisala's member of the Board of Directors is determined in accordance with its Articles of Association. Under the Articles of Association, a member's term is three years, beginning at the close of the General Meeting in which the member is elected and ending at the close of the third subsequent Annual General Meeting.

A longer term of office of the Board members is justified by the long-term development of Vaisala's business as well as by the nature of the business. The practice has worked well and Vaisala's shareholders are committed to it.

GOVERNING BODIES

The General Meeting, the Board of Directors, and the President and CEO, assisted by the Management Group, are responsible for the governance of the Vaisala Corporation.



GENERAL MEETING

The General Meeting is the supreme decision-making body of Vaisala in which all the shareholders of the company can participate in the supervision and control of the company and exercise their right to vote, speak, and ask questions. The Annual General Meeting is held once a year before the end of June on a date determined by the Board of Directors. It decides on the matters stipulated in the Finnish Limited Liability Companies Act and the Articles of Association.

The Chairman of the Board of Directors, members of the Board of Directors, and the President and CEO are present at the Annual General Meeting. The auditor is present at the Annual General Meeting. Board member candidates are present at the Annual General Meeting where they are elected. If the above mentioned person or persons fail to attend the Annual General Meeting, Vaisala notifies the General Meeting of such non-attendance. The members of the Management Group participate in the Annual General Meeting, if possible.

Participation in the General Meeting requires that the shareholder is registered in Vaisala's shareholder register, maintained by Euroclear Finland Ltd, on the record date of the meeting, and that he/she registers for the meeting by the date mentioned in the meeting notice.

Shareholders are entitled to have an issue placed on the agenda of the Annual General Meeting, provided that the issue can be decided upon by the Annual General Meeting according to the Limited Liability Companies Act. The request must be submitted in writing to the Board of Directors early enough so that the issue can be included in the meeting notice. The company announces the date by which the shareholder must notify the Board of Directors of an issue to be added to the agenda of the Annual General Meeting on its website. The date is available by the end of the previous financial year.

Vaisala publishes a notice of the Annual General Meeting no more than two months before the record date and no less than three weeks before the meeting on the company's website, or in any other way that may be decided by the Board of Directors, or Vaisala may deliver it directly to shareholders when required by law. In addition, Vaisala publishes a meeting notice as a stock exchange release after the Board of Directors has decided on the convening of the Annual General Meeting. Agenda of the Annual General Meeting, proposals on decisions, and meeting documents are available on the company's website at least three weeks prior to the meeting. Documents of the Annual General Meeting will be held on company's website for at least five years from the time of the meeting. Minutes of a meeting will be published on the company's website within two weeks of the meeting.

More information
Minutes of the meetings and other documents related to the General Meetings can be found on the company's website at www.vaisala.com/investors.

BOARD OF DIRECTORS

Competence, composition, and election

The Board of Directors is responsible for the administration and the proper organization of the operations of the company. The Board acts in accordance with the Articles of Association and the applicable legislation as well as the instructions and recommendations of the Financial Supervisory Authority and Nasdaq Helsinki Ltd. In accordance with the Articles of Association, the company's Board of Directors comprises at least four and maximum eight members. The Annual General Meeting elects all Board members. The Board of Directors elects a Chairman and a Vice Chairman from among its members. Under the Articles of Association, the term of the Board members is three years. The term begins at the close of the General Meeting at which the member is elected, and ends at the close of the third subsequent Annual General Meeting following the member's election.

Selection criteria, diversity, and the independence of the members

The primary goal in Board member election is to gather to the Board of Directors capability, expertise, and experience from various technologies, international relations, global business, and strategically significant industries. The Board should be considered as a whole that is capable of managing its tasks and duties in the best possible way. The goal of the election of the members of the Board of Directors is to ensure that the Board supports the development of the company's current and future business. In addition, the Board should consist of members of both genders and the members should have the chance to allocate a sufficient amount of time to managing their tasks. The goal is that at least 25% of Board members are always men and women.

The majority of the Board members must be independent of the company and at least two members in this majority must be independent of the company's major shareholders. The Board of Directors evaluates the independence of the members annually based on overall evaluation. This evaluation of a member takes into account information and analysis provided by the member himself/herself.

The Board of Directors self-evaluates its operations, way of working as well as fulfilment of the diversity goals annually.

After election, new Board members will be familiarized with company's operations. This includes presentations by the top management and induction with the company's operations, in which the newly elected Board members are given information on the company's business, strategy, and long-term targets as well as on significant economic, accounting, and risk management topics.

Meetings, duties, and decision-making

The Board of Directors convenes at least eight times a year and if otherwise needed. The President and CEO and the Chief Financial Officer also attend Board meetings. The other members of the Management Group attend Board meetings as required on the invitation of the Board of Directors. The Board of Directors may, on the basis of the Chairman's decision, establish working groups from among its members in individual cases in order to prepare the matters allocated for it in order to ensure the effective organization of the Board of Directors' work.

The Board of Directors operates in accordance with an approved written charter. Meetings may, if necessary, be held as conference calls or e-mail meetings. Minutes of meetings are compiled in English, with annually running numbering. The General Counsel acts as the Secretary of the Board of Directors.

A member of the Board of Directors is not allowed to participate if he/she is biased in that issue between him/her and the company or between the company and a third party when there is possibility to achieve essential advantage to him/her, which may conflict with the company's interest.

The members of the Board of Directors are bound by obligations related to commercial and trade secrets as well as by the restrictions and requirements of the Market Abuse Regulation (EU) N:o 596/2014 (MAR), and the restrictions and obligations of Vaisala's Insider Policy. The Board and its members must in their decision-making and other activities act in accordance with the interest of the company and all its shareholders, and in accordance with the principles of due care and data protection.

Meeting materials are provided electronically to the members of the Board through an online Board portal that fulfils the information security requirements. All documents and other information pertaining to the work of the Board of Directors are confidential, unless otherwise explicitly stated. Confidentiality survives the termination or expiry of board membership.

As the members of the Board of Directors mainly handle confidential information on the company outside the company's business location, Board members are obligated to exercise great diligence in handling all information. Both technical means and accepted practices are used to ensure information security. Technical means include protecting the computers and devices Board members use with personal user names and passwords, virus protection software, and firewalls. Accepted practices ensure information security to comprise prohibiting unnecessary archiving, avoiding unnecessary printing, complying with a "clean desk" policy, avoidance of unnecessary handling of the material in public or open space (either in electronic or hard copy form), and deleting or disposing of information in a secure manner. Use of a screen privacy filter is mandatory when working in public spaces.

The Board will have a quorum when more than half of members are present. Decisions are made on a simple majority basis, and when the votes are even, the Chairman has the casting vote. When the votes for election of the Chairman are even, the Chairman is elected by drawing lots.

The President and CEO is responsible for the execution of the Board of Directors' decisions and reports to the Board on deficiencies or problems observed during the execution.

Regular meetings include

- Financial Statements meeting,
- meeting prior to an Annual General Meeting,
- Board's organizing meeting,
- Interim Report meetings (twice),
- Half Year Financial Report meeting,
- business review and strategy meeting, and
- action plan, budget, and incentive matters meetings.

Main responsibilities of the Board of Directors are

- to decide on the election and dismissal of the President and CEO,
- to decide on the employment terms of the President and CEO,
- to decide on the election and dismissal of the members of the Management Group and their job descriptions based on the President and CEO's proposition,
- to ensure that the company has organized internal control of accounting and financial management as well as to monitor the effectiveness of supervision,
- to determine the company's strategy and oversee its implementation, and to approve the strategic plans of the business areas,
- to determine the company's long-term targets and to monitor their implementation, and to accept business areas' long-term targets,
- to assess the company's and its business areas' annual action plans,
- to approve the company's and its business areas' financial targets,
- to make the most important business decisions such as approve acquisitions, divestitures, major contracts and liabilities, investments and financing arrangements,
- to set approval limits for investments and commitments, which cannot be exceeded without Board of Directors' approval,
- to review and approve a Financial Statement Release, non-financial reporting, Financial Statements, and the Board of Directors' Report as well as Corporate Governance Statement,
- to make a dividend proposal to General Meeting,

- to review and approve Interim Reports and Half Year Financial Report,
- to monitor evaluation and management of risks related to company's strategy and business operations, and
- to decide on management remuneration and incentive systems.

The responsibilities of the members of the Board of Directors when performing their duties is to always act with due care and in good faith while using their judgment, based on sufficient information, in a manner they reasonably believe to promote the interests of the company.

The President and CEO and the members of the management, as instructed by the President and CEO, represent the company in relation to shareholders, investors, media, and other stakeholders. The Board members usually direct third-party enquiries to the President and CEO. The Board of Directors is represented by the Chairman of the Board of Directors.

Duties of the Chairman

Duties of the Chairman of the Board of Directors include chairing the Board's meeting and managing the Board's work so that it can fulfil its duties.

Chairman of the Board of Directors shall

- ensure that the meetings are held according to schedule,
- ensure that the Board of Directors is convened for the extraordinary meetings, if necessary,
- ensure that the presentations and supporting materials are delivered to the Board members within the agreed time and early enough prior to the meeting,
- approve the agenda prepared by the President and CEO,
- ensure the documentation of the meetings and of the decisions made,
- keep in contact with the President and CEO and monitor the company's business performance, and
- be in charge of evaluating the work done by the Board of Directors.

Members of the Board of Directors in 2018

In January 1–April 10, 2018 the Board of Directors comprised eight members. The Chairman of the Board of Directors was Raimo Voipio, the Vice Chairman was Yrjö Neuvo, and the members were Petri Castrén, Petra Lundström, Mikko Niinivaara, Kaarina Ståhlberg, Pertti Torstila, and Ville Voipio. The Board of Directors' secretary was General Counsel Katriina Vainio.

The Annual General Meeting held on April 10, 2018 confirmed that the number of Board members is eight. Petri Castrén, Petra Lundström, Yrjö Neuvo, Mikko Niinivaara, Kaarina Ståhlberg, Pertti Torstila, Raimo Voipio, and Ville Voipio continued as members of the Board of Directors. The Chairman of the Board of Directors is Raimo Voipio, and the Vice Chairman is Yrjö Neuvo. The Board of Directors' secretary is General Counsel Katriina Vainio.

Composition of the Board of Directors Dec 31, 2018

Member	Member since	End of term	Born	Education	Nationality	Main occupation	Shareholding Dec 31, 2018
Raimo Voipio Chairman	1989 Chairman since 1994	2020	1955	M.Sc. (Eng.)	Finnish	Board professional	569,076 (A share) 454,296 (K share)
Yrjö Neuvo Vice Chairman	1989 Vice Chairman since 1994	2019	1943	Ph.D. (Cornell University)	Finnish	Board professional	1,000 (A share) 2 (K share)
Petri Castrén	2017	2019	1962	LL.M., MBA (University of Connecticut)	Finnish	CFO, Kemira Oyj	1,681 (A share)
Petra Lundström	2014	2021	1966	M.Sc. (Tech. Physics)	Finnish	Vice President, Nuclear Services, Fortum Power and Heat Oy	5,081 (A share)
Mikko Niinivaara	2002	2020	1950	M.Sc. (Eng.), Dr. Tech. (h.c.)	Finnish	Board professional	5,081 (A share)
Kaarina Ståhlberg	2016	2019	1966	LL.M. (Helsinki and Columbia Universities)	Finnish	General Counsel and M&A, Posti Group Oyj	4,481 (A share)
Pertti Torstila	2014	2020	1946	M.Sc. (Pol.)	Finnish	Board professional	5,081 (A share)
Ville Voipio	2015	2021	1974	D.Sc. (Tech.)	Finnish	CTO, R&D and strategy management, Si-Tecno Oy	395,367 (A share) 96,712 (K share)
Total							**986,848 (A share)** **551,010 (K shares)**

Shareholdings include also shares held by the Board of Directors' controlled organizations.

In accordance with the recommendation 10, all Board members are independent of the company and of significant shareholders of the company.

Attendance in Board meetings 2018

Member	Attendance/ Number of meetings	Attendance %
Raimo Voipio (Chairman)	17/17	100
Yrjö Neuvo (Vice Chairman)	17/17	100
Petri Castrén	17/17	100
Petra Lundström	17/17	100
Mikko Niinivaara	15/17	88
Kaarina Ståhlberg	16/17	94
Pertti Torstila	17/17	100
Ville Voipio	17/17	100

BOARD COMMITTEES

The Board of Directors has two permanent committees: Audit Committee and Remuneration and HR Committee. The members and the chairs of the Committees are appointed annually from among the members of the Board of Directors in accordance with the charter of the respective committee. The Board of Directors may establish committees for duties assigned by the Board. The Board of Directors confirm the charter for the committees. The committees assist the Board of Directors by preparing matters that are within the scope of responsibilities of the Board. The committees are not decision-making or executive organs; instead, the Board of Directors is responsible for the tasks it has assigned to the committees, unless it has been stated otherwise in the committees' charters. The committees keep minutes of their meetings in English; minutes are available to the members of the Board of Directors. The secretary of the Board of Directors acts as the secretary of the committees.

Audit Committee and its charter

The Audit Committee assists the Board of Directors in supervising the company's accounting and asset management, risk management as well as in organizing external and internal audit. The Audit Committee manages its tasks in accordance with the charter approved by the Board of Directors, the Securities Market Association's Finnish Corporate Governance Code as well as the applicable laws and regulations.

The Audit Committee comprises at least three members, appointed annually by the Board of Directors among its members. The members of the committee must be independent of the company and at least one member must also be independent of significant shareholders of the company. A member of the Audit Committee may not participate in the company's or its group company's daily management. The committee convenes at least five times a year. The President and CEO and the Chief Financial Officer also attend the committee meetings. Other responsible Vaisala employees attend the committee meetings as required on the invitation of the committee. The committee reports of its actions to the Board of Directors in the following Board of Directors' meeting.

Main responsibilities of the Audit Committee are

- to review Interim Reports, Half Year Financial Report, Financial Statement Release, and Financial Statements as well as Board of Directors' Report,
- to approve goodwill testing,
- to approve management's essential estimates included in Financial Statements, Financial Statement Review, Half Year Financial Report, and Interim Reports,
- to prepare a dividend proposal,
- to accept accounting and calculation principles, as well as their changes,
- to monitor non-financial reporting and integrated reporting,
- to monitor internal audit,
- to approve internal audit plan and cost estimate,
- to monitor and evaluate financial reporting and forecast processes,
- to monitor and evaluate efficiency of the company's internal control and audit, risk management and quality audit, and approve related plans,
- to assess compliance with laws and regulations,
- to monitor compliance with company's Code of Conduct,
- to monitor audit and Key Audit Matters,
- to prepare a decision proposal on the election of the auditor,
- to monitor and evaluate independence of the statutory auditor or audit firm, and particularly in relation to provision of non-audit services to the company,
- to monitor provision of non-audit services by auditor,
- to approve plan and cost estimate of non-audit services by auditor,
- to review Corporate Governance Statement,
- to approve company's Treasury Policy and to monitor its financing position,
- to monitor company's tax situation,
- to monitor compliance of data protection and privacy regulation and policies, and
- to approve Audit Committee's annual plan and evaluate committee's performance.

Remuneration and HR Committee and its charter

The Remuneration and HR Committee is responsible for preparing human resources matters pertaining to the compensation of the President and CEO as well as top management, evaluation of the performance of the President and CEO and the Management Group, and to bonus and incentive plans.

The Remuneration and HR Committee comprises at least three members, appointed annually by the Board of Directors among its members. The majority of the members of the committee must be independent of the company. The committee convenes at least twice a year. The President and CEO, the Executive Vice President, Human resources as well as the Chief Financial Officer also attend the committee meetings, except when the agenda includes items relating to them. Other responsible Vaisala employees attend the committee meetings as required on the invitation of the committee. The committee reports of its actions to the Board of Directors in the following Board of Directors' meeting.

Main responsibilities of the Remuneration and HR Committee are

- to prepare remuneration and other financial benefits of the President and CEO,
- to prepare remuneration and other financial benefits of the management,
- to prepare the matters relating to the company's bonus plans,
- to evaluate the remuneration of the President and CEO and other management, and to ensure the appropriateness of the bonus plans,
- to monitor development of the employees, and
- to monitor employee well-being, health, and development of security.

Committee Members and their attendance in committee meetings 2018

Committee	Members	Attendance/ Number of meetings	Attendance %
Audit Committee	Kaarina Ståhlberg (Chairman)	5/5	100
	Petri Castrén	5/5	100
	Mikko Niinivaara	4/5	80
Remuneration and HR Committee	Raimo Voipio (Chairman)	5/5	100
	Petri Castrén (since April 10, 2018)	3/3	100
	Yrjö Neuvo (until April 10, 2018)	2/2	100
	Mikko Niinivaara	5/5	100
	Pertti Torstila (until April 10, 2018)	2/2	100

All members of the Audit Committee as well as the Remuneration and HR Committee are independent both of the company and of significant shareholders.

PRESIDENT AND CEO

The Board of Directors appoints the President and CEO. The President and CEO is responsible for the everyday management of the company in accordance with the guidelines and instructions given by the Board of Directors, and informs the Board of Directors of the development of the company's business and financial situation. The President and CEO is responsible for ensuring that the company's accounting is legally compliant and that its financial affairs have been arranged in a reliable manner. Kjell Forsén has been the President and CEO of Vaisala as well as Chairman of Vaisala Management Group since 2006. He was born in 1958 and holds a licentiate's degree in technology.

MANAGEMENT GROUP

The President and CEO is the Chairman of the Management Group. The Management Group comprises seven members. The Management Group meets at least once a month to assist the President and CEO in developing the strategy, implementing the strategy, managing operational business, as well as preparing matters handled by the Board. The Management Group draws up annual operational and financial plans as well as targets related to these plans, monitors the implementation of the plans and prepares major investments and acquisitions. The President and CEO is responsible for the decisions taken by the Management Group. Members of the Management Group are responsible for implementing the decisions in their own areas of responsibility.

Members of the Management Group are Executive Vice Presidents of both business areas, the Chief Financial Officer, the Executive Vice President of Operations, the Executive Vice President of Human Resources as well as the Group General Counsel. The General Counsel acts as a secretary to the Management Group.

Members of the Management Group Dec 31, 2018

Director	Member since	Born	Education	Nationality	Position at Vaisala	Shareholding Dec 31, 2018
Kjell Forsén	2006	1958	Lic.Sc. (Tech.)	Finnish	President and CEO	34,552 (A share)
Marja Happonen	1994	1957	M.Sc. (Econ.)	Finnish	EVP, Human Resources	15,850 (A share)
Sampsa Lahtinen	2013	1963	M.Sc. (El. Eng.)	Finnish	EVP, Industrial Measurements Business Area	7,430 (A share)
Kaarina Muurinen	2011	1958	M.Sc. (Econ.)	Finnish	CFO	21,320 (A share)
Vesa Pylvänäinen	2011	1970	M.Sc. (Econ.)	Finnish	EVP, Operations	11,324 (A share)
Jarkko Sairanen	2016	1963	M.Sc. (Ind. Eng.), MBA (INSEAD)	Finnish	EVP, Weather and Environment Business Area	7,000 (A share)
Katriina Vainio	2017	1967	LL.M.	Finnish	EVP, Group General Counsel	4,972 (A share)
Total						**102,448 (A share)**

Shareholdings include also shares held by the Management Group's controlled organizations.

Mari Heusala, M.Sc. (Economics), (b. 1966), was appointed Executive Vice President, Human Resources. She started in her position January 7, 2019. She is a member of the Vaisala Management Group and reports to the President and CEO Kjell Forsén. Marja Happonen will retire during spring 2019.

REMUNERATION

The Annual General Meeting decides on the remuneration of the Chairman, Vice Chairman and Board members as well as on the remuneration of the auditor.

The objective of remuneration is to encourage employees as individuals and as team members to achieve the financial and operational targets set. In determining the remuneration, Vaisala takes into account its financial performance, remuneration levels for similar positions among peer companies, and external references. All employees are included in a bonus plan that promotes the development of net sales, and operating result.

Remuneration for key executives includes a competitive salary and employee benefits according to local market practices as well as bonuses based on predefined annual performance indicators. Bonus plans promote development of net sales and operating result. The key executives also belong to long-term share-based incentive plans, which are based on the development of the company's profitability.

The Board of Directors approves the company's incentive plans and their target groups annually. The Board of Directors also decides on the compensation of the President and CEO and approves the compensation of the direct reports of the President and CEO.

REMUNERATION OF THE BOARD OF DIRECTORS

The Annual General Meeting held on April 10, 2018 decided that the annual fee payable to the Board members for the term until the close of the Annual General Meeting in 2019 is: the Chairman of the Board of Directors EUR 45,000 and each Board member EUR 35,000. Approximately 40 percent of the annual remuneration will be paid in Vaisala Corporation's series A shares acquired from the market and the rest in cash.

In addition, the Annual General Meeting decided that the compensation per attended meeting for the Chairman of the Audit Committee is EUR 1,500 and EUR 1,000 for each member of the Audit Committee for the term until the close of the Annual General Meeting in 2019. The compensation per attended meeting for the Chairman and each member of the Remuneration and HR Committee and any other committee established by the Board of Directors is EUR 1,000 for the term until the close of the Annual General Meeting in 2019.

Remuneration of the Board of Directors (payment basis)

EUR 1,000	2018	2017
Petri Castrén (since March 28, 2017)	43	30
Petra Lundström	35	36
Yrjö Neuvo	35	39
Mikko Niinivaara	43	44
Kaarina Ståhlberg	43	43
Pertti Torstila	35	39
Raimo Voipio	48	49
Ville Voipio	35	35
Total	**317**	**315**

REMUNERATION OF THE MANAGEMENT

President and CEO

The Board of Directors decides on the remuneration of the President and CEO. The overall compensation consists of a monthly salary, fringe benefits, a pension plan, and a performance bonus as well as the payment of Share-Based Incentive Plan 2015. The maximum annual bonus is limited to 72 percent of the President and CEO's annual salary. The President and CEO belongs to a voluntary pension plan, which defines the retirement age as 62 years.

The notice period is 6 months for the President and CEO and 12 months for the employer. Severance pay and conditions of other severance compensations are equal to the respective salary.

Management Group

The Board of Directors approves the compensation of the direct reports of the President and CEO. Overall compensation of the Management Group members consists of a monthly salary, fringe benefits, pension plan and a performance bonus as well as the payment of Share-Based Incentive Plan 2015. The maximum annual bonus is limited to 60 percent of the annual salary. The Management Group members belong to a voluntary pension plan, which defines the optional retirement age as 62 years.

Remuneration of the President and CEO (payment basis)

EUR 1,000	2018	2017
Salary	515	512
Bonuses	302	191
Share-based payment	502	205
Obligatory pension	146	126
Voluntary pension	120	120
Total	**1,586**	**1,154**

2017 figures converted to payment basis

Remuneration of the members of the Management Group, excl. the President and CEO (payment basis)

EUR 1,000	2018	2017
Salary	1,393	1,363
Bonuses	622	423
Share-based payment	1,319	580
Obligatory pension	360	320
Voluntary pension	235	228
Total	**3,929**	**2,915**

2017 figures converted to payment basis

SHARE-BASED INCENTIVE PLANS

The share issue without payment approved by Vaisala's Annual General Meeting on April 10, 2018 doubled the total number of series K and A shares. All share related figures have been adjusted to reflect the increased number of shares. Until the end of 2017, the cost of the equity-settled (share) part of the share-based payments corresponded to the value of Vaisala's series A share closing price on the grant date of the incentive plan, and the cash-settled part of the share-based payments was valued at the closing price of the share. As of January 1, 2018, the cost of the share part of the share-based payments as well as the cash-settled (cash) part of the share-based payments correspond to the value of Vaisala's series A share closing price on the grant date of the incentive plan.

On December 18, 2014, the Board of Directors resolved for the Group key employees a share-based incentive plan that was based on the development of Group's profitability in calendar year 2015. The reward payment corresponded to 74% of the maximum target. On March 12, 2018, a total of 95,092 company's series A shares were conveyed without consideration to the 27 key employees participating in this incentive plan. The rest of the reward was paid in cash. Closing price of Vaisala's series A share was EUR 12.08 on the effective date of the incentive plan. A total expense of EUR 3.2 million was recognized of this plan in 2015–2018.

On December 16, 2015, the Board of Directors resolved for the Group key employees a share-based incentive plan that was based on the development of Group's profitability in calendar year 2016. The reward will be paid partly in Vaisala's series A shares and partly in cash in spring 2019. The cash proportion will cover taxes and tax-related costs arising from the reward to a key employee. The maximum amount of this plan originally corresponded to 400,000 shares and the reward payment will correspond to 49% of the maximum target. No reward will be paid if a key employee's employment or service ends before the reward payment date. The expenses of this share-based incentive plan are accrued over the term of the plan from May 2016 to March 2019. Closing price of Vaisala's series A share was EUR 11.57 on the effective date of the incentive plan. On December 31, 2018, this share-based incentive plan was directed to approximately 30 persons and the maximum reward payable totals to 176,904 Vaisala's series A shares, including the cash portion.

On February 10, 2016, the Board of Directors resolved for a share-based incentive plan, in which the earning criteria was uninterrupted employment of certain Group employees for a defined number of years. This share-based incentive plan ended in March 2018, and the remaining reward, corresponding to 3,000 Vaisala's series A shares including the cash portion, was conveyed without consideration to the key employees participating in this incentive plan. A total expense of EUR 0.3 million was recognized of this plan in 2016–2018.

On December 15, 2016, the Board of Directors resolved for the Group key employees a share-based incentive plan that was based on the development of Group's profitability in calendar year 2017. The reward will be paid partly in Vaisala's series A shares and partly in cash in spring 2020. The cash proportion will cover taxes and tax-related costs arising from the reward to a key employee. The maximum amount of this plan originally corresponded to 400,000 shares and the reward payment will correspond to 65% of the maximum target. No reward will be paid if a key employee's employment or service ends before the reward payment date. The expenses of this share-based incentive plan are accrued over the term of the plan from April 2017 to March 2020. Closing price of Vaisala's series A share was EUR 17.90 on the effective date of the incentive plan. On December 31, 2018, this share-based incentive plan was directed to approximately 35 persons and the maximum reward payable totals to 248,300 Vaisala's series A shares, including the cash portion.

On February 7, 2018, the Board of Directors resolved for the Group key employees a share-based incentive plan that is based on the development of Group's profitability in calendar year 2018. The reward will be paid partly in Vaisala's series A shares and partly in cash in spring 2021. The cash proportion will cover taxes and tax-related costs arising from the reward to a key employee. The maximum amount of this plan originally corresponded to 320,000 shares and the reward payment will correspond to 55% of the maximum target. No reward will be paid if a key employee's employment or service ends before the reward payment date. The expenses of this share-based incentive plan are accrued over the term of the plan from April 2018 to March 2021. Closing price of Vaisala's series A share was EUR 20.89 on the effective date of the incentive plan. On December 31, 2018, this share-based incentive plan was directed to approximately 30 persons and the maximum reward payable totals to 174,510 Vaisala's series A shares, including the cash portion.

Expenses for the share-based incentive plans

MEUR	2015	2016	2017	2018
Share-based incentive plan 2015	0.5	1.1	1.6	-0.1
Share-based incentive plans 2016		0.7	1.2	0.7
Share-based incentive plan 2017			1.1	1.3
Share-based incentive plan 2018				0.6

CONTROLS

Main features of the internal control and risk management systems pertaining to the financial reporting process

Internal control seeks to ensure the company's compliance with applicable laws, regulations, Code of Conduct, and with other recommendations, as well as the reliability of financial and operational reporting. Furthermore, internal control seeks to safeguard the company's assets and to ensure overall effectiveness and efficiency of operations to meet strategic, operational, and financial targets. Internal control practices are aligned with the risk management process. The goal of the risk management is to support strategy and achievement of targets by anticipating and managing potential business threats and opportunities.

Vaisala's operating model of internal control and risk management related to financial reporting aims to provide sufficient assurance regarding the reliability of financial reporting and that the financial statements have been prepared in accordance with the applicable laws and regulations, accepted accounting principles (IFRS) and other requirements for listed companies. The principal components of internal control are control environment, risk assessment, control activities, communications, and monitoring.

Control environment

The Board of Directors has the overall responsibility for the internal control of financial reporting. The Board of Directors has established a written charter that clarifies its responsibilities and regulates the internal distribution of work of the Board of Directors and its committees. The Board of Directors has appointed the Audit Committee whose task is to ensure that established principles for financial reporting, risk management, and internal control are followed by, and to enable appropriate external audit. The President and CEO is responsible for organizing an effective control environment and ongoing work on internal control as regards financial reporting. The internal audit reports all relevant issues to the Audit Committee and the President and CEO.

Internal audit focuses on developing and enhancing controls related to financial reporting by proactively assessing on internal control environment and by monitoring effectiveness of the control design. Most important internal steering instruments for financial reporting comprise the Code of Conduct, Approval Policy, Treasury Policy, Credit Policy, Disclosure Policy, accounting policies, and other reporting instructions.

Risk assessment

Risk assessment as regards financial reporting aims to identify and evaluate most significant threats at the levels of Vaisala, reporting segments, functions, and processes. As a result of risk assessment, the company defines control targets through which it seeks to ensure that the fundamental requirements placed on financial reporting are fulfilled. Information on the development of essential risk areas as well as plans and measures to mitigate the risks are communicated regularly to the Audit Committee.

Control activities

The President and CEO is operationally responsible for internal controls. Internal control related to financial activities as well as to control of the business and the management has been integrated into Vaisala's business processes. The company has defined and documented significant internal control activities related to its financial statements reporting process as part of business processes. Approval mechanisms, access rights, segregation of duties, authorizations, verifications, reconciliations, and follow-up of financial reporting are essential internal activities. All business units have their own defined controller function whose representatives participate in planning and evaluating the unit's performance. They ensure that monthly and quarterly financial reporting follows the company's policies and instructions and that all financial reporting is delivered on time. The management follows up achievement of targets through monthly management reporting routines. The Chief Financial Officer regularly reports the results of the internal control work and efficiency of the control activities to the Audit Committee.

Communications

Vaisala seeks to ensure that the company's internal and external communication is open, transparent, accurate, and timely. The Disclosure Policy defines how and when information should be given and by whom it is given. It also defines the accuracy and comprehensiveness of the information in order to fulfil the communication obligations. Code of Conduct, Approval Policy, Treasury Policy, Credit Policy, accounting policies, and reporting instructions as well as Disclosure Policy and Insider Policy are available on the company's intranet.

Monitoring

The Board of Directors, the Audit Committee, the President and CEO, the Management Group and internal audit monitor the effectiveness of internal control related to financial reporting. The monitoring includes follow up of monthly financial reports, review of the rolling estimates and plans, as well as reports from internal audit and auditors. Internal audit assesses the effectiveness of operations and adequacy of risk management and reports the risks and weaknesses related to the internal control processes. Internal audit compiles an annual audit plan and reports the status of the plan and findings regularly to the Audit Committee and the Management Group. Furthermore, the Chief Financial Officer, the General Counsel, internal audit, and auditor coordinate audit planning and monitoring at least twice a year.

General development measures in internal control and risk management in 2018

In 2018, internal audit focused on sales process, EU's General Data Protection Regulation (GDPR), demand-supply balancing as well as information security management system. The audit of GDRP confirmed that adoption was comprehensive and adequate. Other audits generated development measures in order to harmonize and enhance processes as well as improve internal controls. Development of internal controls focused on enhancement of control environment in end-to-end processes by analyzing of control points. This development as well as harmonization of control environment in the acquired companies will continue during 2019.

RELATED PARTY TRANSACTIONS

Vaisala reports related party transactions in a note to financial statements. In addition, the company evaluates and monitors transactions between the company and its related parties in order to ensure that possible conflicts of interest are taken into account in decision making. Vaisala has currently no related party transactions which would be material and in conflict with ordinary business or ordinary market terms.

AUDITING AND AUDITOR'S FEES

The company has one auditor, who must be a public accountant or an audit firm authorized by the Finland Chamber of Commerce. If an audit firm is not chosen to perform the auditing, a deputy auditor must be elected as well. Auditor's term of office covers the current fiscal year and expires at the close of the following Annual General Meeting. Annual General Meeting elects the auditor and decides on the compensation paid to them.

The Annual General Meeting held on April 10, 2018 re-elected Deloitte Oy, Audit Firm, as the Auditor for a term of one year. APA Merja Itäniemi has acted as an auditor with the principal responsibility of the company since March 26, 2014.

Auditor's Fees

EUR 1,000	2018	2017
Audit	423	293
Tax advice	22	25
Statements	1	6
Other fees	141	164
Total	**587**	**488**

INSIDERS

Vaisala maintains project or event specific insider lists when needed. 30-day closed window applies to the managers defined by the company before publishing Interim Reports, Half Year Financial Report, Financial Statement Release and Financial Statements. Closed window ends on the day following the publication day. Closed window also applies to the persons engaged in preparation of those reports. The managers subject to transaction notification obligations comprise the Board of Directors, the President and CEO as well as members of the Management Group. The company's legal department is responsible for insider management, training, creation and maintenance of project and event specific insider lists, and monitoring of the same.

The President and CEO, Chief Financial Officer and/or the General Counsel, two together, can decide, based on an evaluation of the conditions set out in the Market Abuse Regulation being met, to delay publication of insider information. When the company makes a decision on delay of disclosure, a project or event based insider list regarding the inside information will be established. Persons, to whom project or event specific inside information is disclosed, are entered into the project or event specific insider list.

Risk Management

The objective of Vaisala's risk management is to identify and manage material risks related to strategy implementation and business operations. Vaisala has a risk management policy, which has been approved by the Board of Directors and which covers the company's strategic, operational, hazard, and financial risks. The policy aims at ensuring the safety of the company's personnel, operations, and products, as well as the continuity and compliance of business operations.

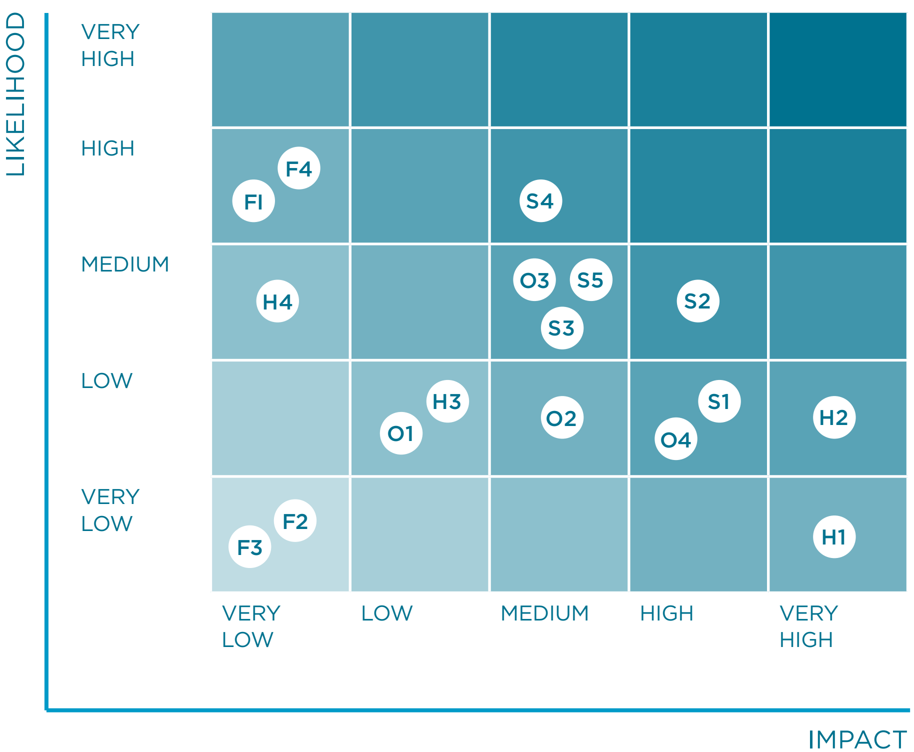
The Board of Directors defines and approves risk management principles and policies and assesses the effectiveness of risk management. The Audit Committee reviews compliance with risk management policy and processes.

Vaisala's Risk Management Steering Group comprises key internal stakeholders. The Steering Group is responsible for the operational oversight of the risk management process and for assuring that all significant risks are identified and reported and risks are acted upon on all necessary organizational levels and in all geographical locations.

Risk management is integrated into key business processes and operations. This is accomplished by incorporating applicable risk identification, assessment, management, and risk reporting actions into the core processes. The most significant risks are reported to the Vaisala Management Group quarterly and to the Audit Committee annually.

Vaisala's strategy and business operations are subject to various risks, which may have an adverse effect on the company. The list on the next page explains some of the risks with their potential impacts and how Vaisala manages those risks today. Risk likelihoods and impacts provided here are estimates, typically provided by a small group of subject area experts. No quantitative methods have been applied to assess either likelihoods or impacts.

RISK MAP



Key Risks 2018		Impact/Likelihood
Strategic risks		
S1	Increased competition, loss of market leader and price premium position	high/low
S2	Lack of success in winning large projects in weather business	high/medium
S3	Failing to grow new business	medium/medium
S4	Slow growth in wind remote sensing markets	medium/high
S5	Political, legislative or regulatory changes	medium/medium
Hazard risks		
H1	Long disruption in the cleanroom's operation	very high/very low
H2	Field service personnel accident caused by working conditions	very high/low
H3	Critical failure of infrastructure supporting Digital Solutions	low/low
H4	Natural disaster, epidemic, civil unrest, terrorism	very low/medium
Operational risks		
O1	Long unavailability of IT systems	low/low
O2	Business continuity risks related to suppliers	medium/low
O3	Challenges in the availability of electronics components	medium/medium
O4	Cyber risk	high/low
Financial risks		
F1	Credit risk	very low/high
F2	Liquidity and refinancing risk	very low/very low
F3	Financial credit and interest rate risk	very low/very low
F4	Currency risk	very low/high

STRATEGIC RISKS

S1 Increased competition, loss of market leader and price premium position
Vaisala is a market leader in many businesses. Loss of that position would lead to significant reduction in profitability.

Managing risk
- Continued focus on product leadership
- Striving for outstanding customer experience and superior product quality
- Improving value sales capabilities
- Strategic M&A
- Active product portfolio management

S2 Lack of success in winning large projects in weather business
Large infrastructure projects have a significant impact on net sales.

Managing risk
- Growing the number of projects in the sales funnel
- Frequent customer contact
- Early recognition of large opportunities

S3 Failing to grow new business
Slow growth of Digital Solutions and Air Quality within Weather and Environment Business Area, and Power within Industrial Measurements Business Area.

Managing risk
- Fast learning cycles and validation of new businesses with customers
- Sales channel and sales skills development
- Industry knowledge acquisition and transfer
- Adequate resourcing

S4 Slow growth in wind remote sensing markets
Uncertainty in wind LiDAR market growth and competition dynamics.

Managing risk
- Intensive sales efforts
- Business-driven integration of Leosphere
- Lowering the unit cost

S5 Political, legislative or regulatory changes
Changes in market environment and growing protectionism can lead to loss of market potential, or increased cost of accessing the market.

Managing risk
- Geographic and market diversity of business
- Market and regulatory foresight
- Partnering
- Following the economic and political developments in the United States, China and Russia

HAZARD RISKS

H1 Long disruption in the cleanroom's operation
Long disruption of cleanroom operations would have a major impact on the delivery capability of both business areas. Potential causes could include fire, contamination, or breakdown of key equipment.

Managing risk
- Emergency stock of sensor components, risk-based management of manufacturing equipment and spare parts, safety of facilities
- Business continuity planning
- Collaboration with manufacturing partners

H2 Field service personnel accident caused by working conditions
A serious accident caused by hazardous working conditions, for example, when working at roadsides, in tall towers, in extreme temperatures, or working alone.

Managing risk
- Continuous development of occupational health and safety system, emergency procedures, job hazard analysis
- Tracking system for employees working in hazardous conditions

H3 Critical failure of infrastructure supporting Digital Solutions

Service unavailability due to, for example, a communications failure or power outage, causing significant harm to customers.

Managing risk

- Geographic system redundancy across multiple server sites
- Transition to cloud computing

H4 Natural disaster, epidemic, civil unrest, terrorism

Impaired business environment caused by external events.

Managing risk

- Geographic diversity of business
- Business Interruption Insurance
- Monitoring of the business environment
- Risk assessment of business opportunities
- Crisis management team

OPERATIONAL RISKS

O1 Long unavailability of IT systems

Unavailability of systems leads quickly to interruptions in operations, especially in manufacturing.

Managing risk

- IT Disaster Recovery Plan as part of Information Security Management System
- Shortening the resolution time of critical incidents
- Cyber insurance

O2 Business continuity risks related to suppliers

Long disruption in strategic supplier's operations e.g. due to a natural disaster, an accident, or bankruptcy.

Managing risk

- Active supplier risk assessment
- Long term supplier development plans
- Strategic supplier business continuity audits
- Parts stock at Vaisala

O3 Challenges in the availability of electronics components

Increased global demand for components causes longer lead-times, which can lead to delays in customer deliveries.

Managing risk

- Buffer stocks for the most important components
- Alternate component sources
- Collaboration with manufacturing partners

O4 Cyber risk

Interruptions to operations or information services, financial loss, loss of trade secrets or personal data.

Managing risk

- ISO27001 compliant Information Security Management System (ISMS) creation and deployment
- Cyber insurance
- GDPR controls

FINANCIAL RISKS

F1 Credit risk

Managing risk

- Secured terms of payment
- Business credit checks
- Diversification of customer pool

F2 Liquidity and refinancing risk

Managing risk

- Sustainable capital structure

F3 Financial credit and interest rate risk

Managing risk

- High credit rating of financial counter parties
- Low risk cash investment

F4 Currency risk

Managing risk

- Currency hedging

Board of Directors

RAIMO VOIPIO Chairman of the Board of Directors, Chairman of the Remuneration and HR Committee	YRJÖ NEUVO Vice Chairman of the Board of Directors	PETRI CASTRÉN Member of the Audit Committee, Member of the Remuneration and HR Committee	PETRA LUNDSTRÖM Member of the Board of Directors
b. 1955, Finnish citizen, M.Sc. (Engineering)	b. 1943, Finnish citizen, Ph.D. Cornell University	b. 1962, Finnish citizen, LL.M, MBA (University of Connecticut, USA)	b. 1966, Finnish Citizen, M.Sc (Technical Physics)
Independent member of the Vaisala Board of Directors since 1989 and Chairman since 1994 End of term 2020 Main occupation: Board professional	Independent member of the Vaisala Board of Directors since 1989 and Vice Chairman since 1994 End of term 2019 Main occupation: Board professional	Independent member of the Vaisala Board of Directors since 2017 End of term 2019 Main occupation: Chief Financial Officer, Kemira Oyj 2013–	Independent member of the Vaisala Board of Directors since 2014 End of term 2021 Main occupation: Vice President, Nuclear Services, Fortum Power and Heat Oy, 2016–
Vaisala shares held Dec 31, 2018: 569,076 A shares and 454,296 K shares Dec 31, 2017: 568,200 A shares and 454,296 K shares	Vaisala shares held Dec 31, 2018: 1,000 A shares and 2 K shares Dec 31, 2017: 69,280 A shares and 37,328 K shares	Vaisala shares held Dec 31, 2018: 1,681 A shares Dec 31, 2017: 1,000 A shares	Vaisala shares held Dec 31, 2018: 5,081 A shares Dec 31, 2017: 4,400 A shares

MIKKO NIINIVAARA Member of the Audit Committee, Member of the Remuneration and HR Committee	KAARINA STÅHLBERG Chairman of the Audit Committee	PERTTI TORSTILA Member of the Board of Directors	VILLE VOIPIO Member of the Board of Directors
b. 1950, Finnish citizen, M.Sc. (Engineering.), Dr. Tech. (h.c.)	b. 1966, Finnish citizen, LL.M. (Helsinki University and Columbia University, NY)	b. 1946, Finnish citizen, M.Sc. (Political Sciences)	b. 1974, Finnish citizen, Doctor of Science in Measurement Technology
Independent member of the Vaisala Board of Directors since 2002 End of term 2020 Main occupation: Board professional	Independent member of the Vaisala Board of Directors since 2016 End of term 2019 Main occupation: General Counsel and M&A, Member of the Executive Board, Posti Group Oyj	Independent member of the Vaisala Board of Directors since 2014 End of term 2020 Main occupation: Board professional	Independent member of the Vaisala Board of Directors since 2015 End of term 2021 Main occupation: CTO, Si-Tecno Oy, R&D and strategy management 2014–
Vaisala shares held Dec 31, 2018: 5,081 A shares Dec 31, 2017: 4,400 A shares	Vaisala shares held Dec 31, 2018: 4,481 A shares Dec 31, 2017: 3,800 A shares	Vaisala shares held Dec 31, 2018: 5,081 A shares Dec 31, 2017: 4,400 A shares	Vaisala shares held Dec 31, 2018: 395,367 A shares and 96,712 K shares Dec 31, 2017: 394,686 A shares and 96,712 K shares

Shareholdings include direct holdings and shares held by interest parties and controlled organizations.
Shareholdings on Dec 31, 2017 have been adjusted to reflect the increased number of shares following the share issue without payment approved by Vaisala's Annual General Meeting on April 10, 2018.
Read full CV information on the company's website at www.vaisala.com.

Management Group

KJELL FORSÉN
President and Chief Executive Officer, Chairman of Management Group since 2006

b. 1958, Finnish citizen, Lic.Sc. (Tech.)

Vaisala shares held
Dec 31, 2018: 34,552 A shares
Dec 31, 2017: 22,664 A shares

MARJA HAPPONEN
Executive Vice President, Human Resources since 1994

b. 1957, Finnish citizen, M.Sc. (Econ.)

Vaisala shares held
Dec 31, 2018: 15,850 A shares
Dec 31, 2017: 10,650 A shares

SAMPSA LAHTINEN
Executive Vice President, Industrial Measurements since 2013

b. 1963, Finnish citizen, M.Sc. (El. Eng.)

Vaisala shares held
Dec 31, 2018: 7,430 A shares
Dec 31, 2017: -

KAARINA MUURINEN
Chief Financial Officer since 2011

b. 1958, Finnish Citizen, M.Sc. (Econ.)

Vaisala shares held
Dec 31, 2018: 21,320 A shares
Dec 31, 2017: 13,890 A shares

VESA PYLVÄNÄINEN
Executive Vice President, Operations since 2011

b. 1970, Finnish citizen, M.Sc. (Econ.)

Vaisala shares held
Dec 31, 2018: 11,324 A shares
Dec 31, 2017: 6,124 A shares

JARKKO SAIRANEN
Executive Vice President, Weather and Environment since 2016

b. 1963, Finnish citizen, M.Sc. (Ind. Eng.), MBA (INSEAD)

Vaisala shares held
Dec 31, 2018: 7,000 A shares
Dec 31, 2017: 4,000 A shares

KATRIINA VAINIO
Executive Vice President, Group General Counsel since 2017

b. 1967, Finnish citizen, LL.M.

Vaisala shares held
Dec 31, 2018: 4,972 A shares
Dec 31, 2017: 2,000 A shares

Shareholdings include also shares held by the Management Groups' controlled organizations. Shareholdings on Dec 31, 2017 have been adjusted to reflect the increased number of shares following the share issue without payment approved by Vaisala's Annual General Meeting on April 10, 2018.
Read full CV information on the company's website at www.vaisala.com.

Information for Shareholders

ANNUAL GENERAL MEETING

Vaisala Corporation's Annual General Meeting will be held on Tuesday, March 26, 2019 at 6:00 p.m. Finnish time at Vaisala Corporation's head office, Vanha Nurmijärventie 21, 01670 Vantaa, Finland. The reception of persons who have registered for the meeting will commence at 5:00 p.m.

A shareholder, who wishes to participate in the Annual General Meeting, may register for the Meeting by giving a prior notice of participation no later than on March 21, 2019 at 4:00 p.m.

A prior notice of participation can be given:

- through Vaisala's website at www.vaisala.com/investors
- by email to paivi.aaltonen@vaisala.com.

Possible proxy documents should be delivered in originals to Vaisala Oyj, Päivi Aaltonen, PL 26, 00421 Helsinki, Finland or by email to paivi.aaltonen@vaisala.com before the end of the registration time.

PAYMENT OF DIVIDENDS

The Board of Directors proposes to the Annual General Meeting a dividend of EUR 0.58 per share for the fiscal year 2018 to be paid. The dividend would be paid to shareholders registered in the Register of Shareholders held by Euroclear Finland Ltd on the record date of the dividend distribution, March 28, 2019. The Board of Directors proposes that the dividend will be paid on April 4, 2019.

CHANGE OF ADDRESS

Vaisala's shareholders are kindly requested to report written changes of address to the bank where they have their book entry account.

LISTING OF VAISALA SHARES

Vaisala Corporation has two classes of shares: the listed series A shares and the non-listed series K shares. The Vaisala series A shares are listed on the Nasdaq Helsinki and are registered at Euroclear Finland Ltd.

PUBLICATION OF FINANCIAL INFORMATION

Vaisala Corporation publishes financial information in Finnish and English. All materials are available on Vaisala's website at www.vaisala.com.

The printed Annual Report will only be mailed to those on the company's mailing list. Requests for printed financial reports can be submitted on Vaisala's website at www.vaisala.com.

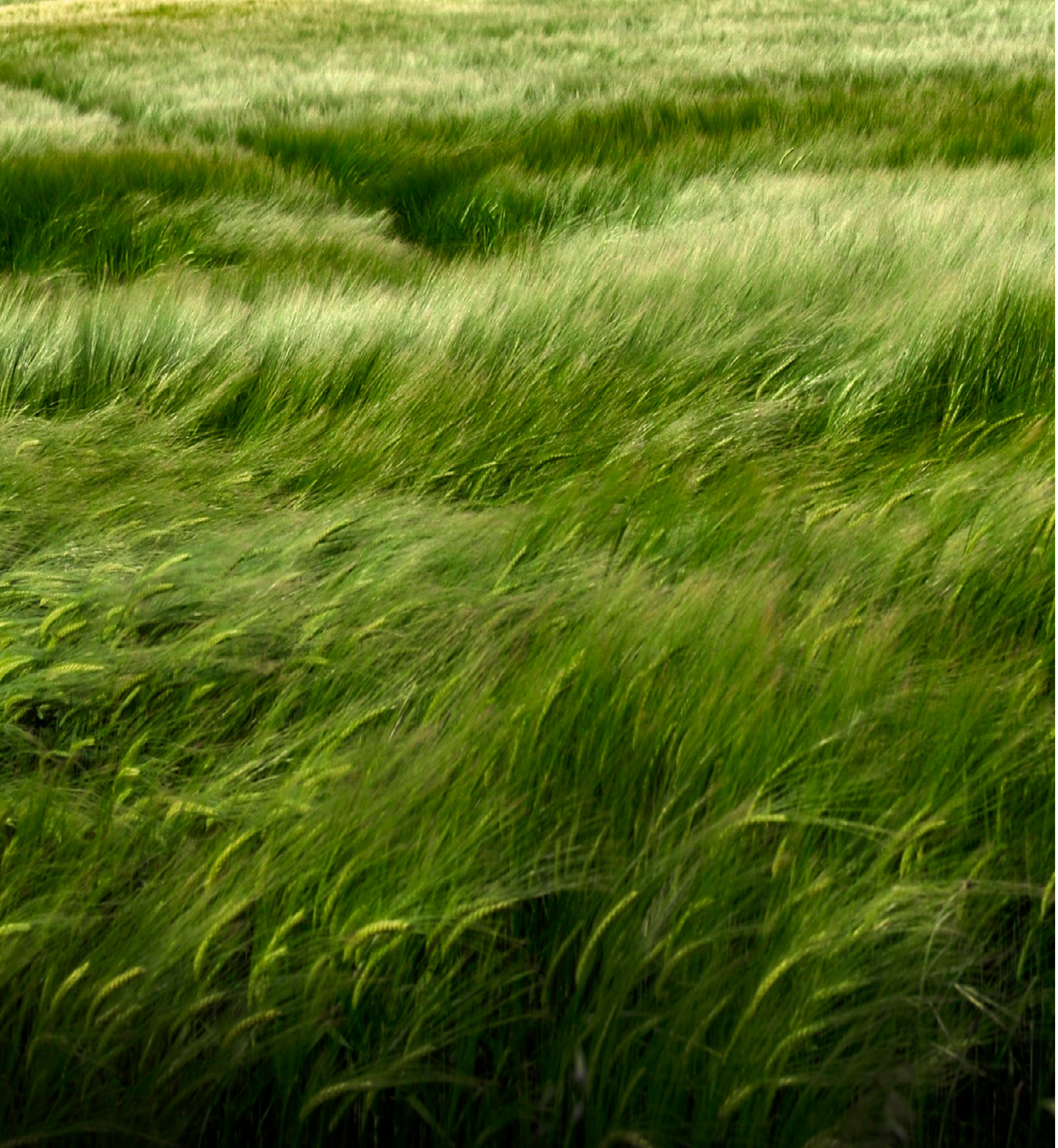
INTERIM REPORTS AND HALF YEAR REPORT

- April 24, 2019: Interim Report for January–March 2019
- July 19, 2019: Half Year Financial Report 2019
- October 24, 2019: Interim Report for January–September 2019

SILENT PERIOD

Silent period begins 30 calendar days before the publishing of the Interim Reports, Half Year Financial Report and Financial Statement Release, and lasts until the publishing of the Interim Reports, Half Year Financial Report and Financial Statement Release. Exceptions to this rule are the Annual General Meeting (if held during the silent period) and the publishing of a stock exchange release regarding a significant business event and the related communication. During silent periods, Vaisala's spokespersons refrain from discussing and commenting on issues related to the company's financial performance or meeting with capital market representatives.

Comprehensive investor relations pages and investor relations contact information can be found at www.vaisala.com/investors.

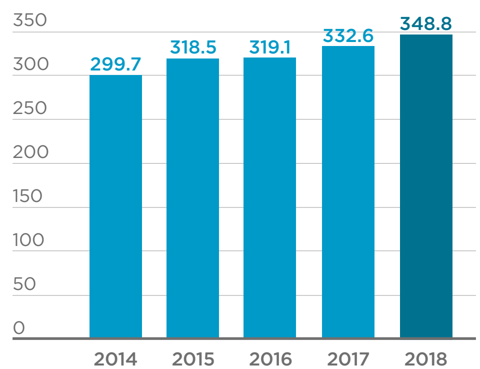


Financials

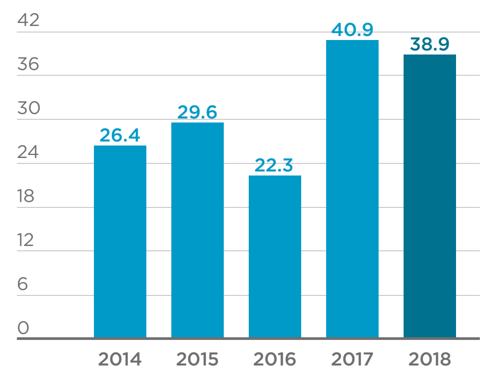
Key Figures

33% Industrial Measurements 116.4 MEUR
67% Weather and Environment 232.3 MEUR

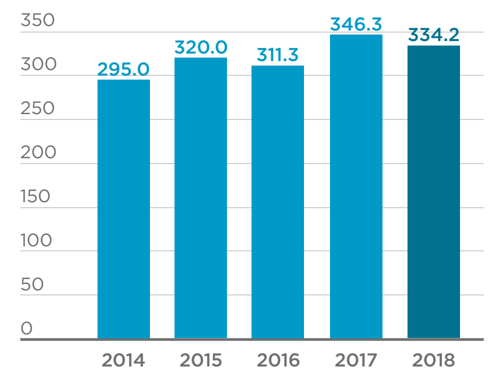
NET SALES, MEUR



OPERATING RESULT (EBIT), MEUR



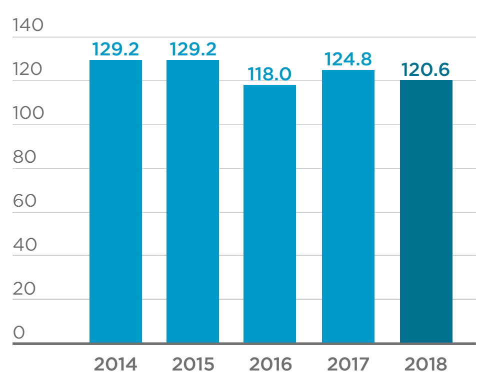
ORDERS RECEIVED, MEUR



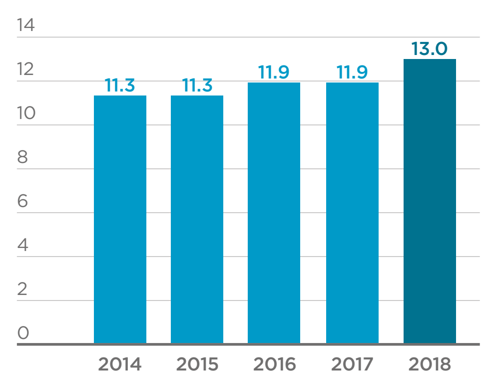
39% Americas 136.8 MEUR
31% APAC 109.6 MEUR
29% EMEA 102.3 MEUR

Americas: North and South America, APAC: Asia Pacific region, EMEA: Europe, Middle-East and Africa

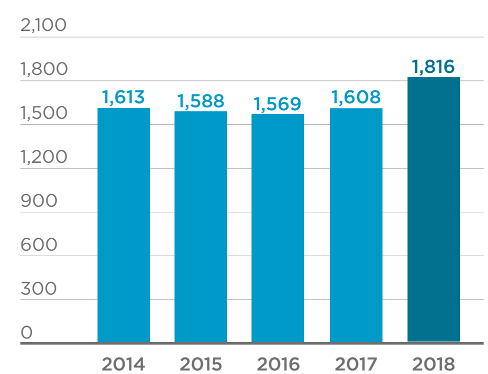
ORDER BOOK, MEUR



RESEARCH & DEVELOPMENT COSTS % OF NET SALES



PERSONNEL, AT YEAR-END



Board of Directors' Report 2018

KEY FIGURES

Financial key figures	2018	2017	2016	2015	2014
Net sales, MEUR	348.8	332.6	319.1	318.5	299.7
Exports and international operations, %	98.0	97.0	98.0	98.0	97.0
Gross profit, %	53.1	52.3	51.6	51.1	51.1
Operating result, MEUR	38.9	40.9	22.3	29.6	26.4
% of net sales	11.1	12.3	7.0	9.3	8.8
Result before taxes, MEUR	37.5	38.1	22.1	33.0	29.1
% of net sales	10.8	11.5	6.9	10.4	9.7
Result, MEUR	29.5	27.2	18.8	27.5	23.4
% of net sales	8.5	8.2	5.9	8.6	7.8
Research and development costs, MEUR	45.4	39.6	38.0	36.1	34.0
% of net sales	13.0	11.9	11.9	11.3	11.3
Depreciation, amortization and impairment, MEUR	12.1	9.7	24.1	15.1	15.2

Financial key figures	2018	2017	2016	2015	2014
Cash and cash equivalents, MEUR	72.7	91.3	72.4	59.2	47.6
Equity, MEUR	182.9	185.4	178.5	181.3	170.0
Statement of financial position total, MEUR	334.3	273.8	255.0	264.0	244.6
Return on equity, %	16.0	15.0	10.5	15.7	14.3
Solvency ratio, %	55.6	68.9	71.1	69.7	70.6
Interest-bearing liabilities, MEUR	40.5	-	0.0	0.0	0.0
Gearing, %	-17.6	-49.2	-40.6	-32.6	-28.0
Capital expenditure, MEUR	14.5	8.5	7.7	8.3	7.9
% of net sales	4.2	2.5	2.4	2.6	2.6
Cash flow from operating activities, MEUR	48.3	49.2	41.8	38.8	23.8
Orders received, MEUR	334.2	346.3	311.3	320.0	295.0
Order book Dec 31, MEUR	120.6	124.8	118.0	129.2	129.2
Personnel expenses, MEUR	133.6	129.9	128.4	130.0	116.3
Employees, average	1,678	1,592	1,590	1,611	1,617
Employees Dec 31	1,816	1,608	1,569	1,588	1,613

Share key figures	2018	2017	2016	2015	2014
Earnings/share (EPS), EUR	0.82	0.76	0.53	0.76	0.65
Earning/share (EPS), diluted, EUR	0.81	0.75	0.52	0.76	0.65
Cash flow from business operations/share, EUR	1.35	1.38	1.17	1.08	0.66
Shareholders equity/share, EUR	5.11	5.20	5.00	5.03	4.71
Dividend/share, EUR	*0.58	1.05	0.50	0.48	0.45
Dividend/earnings, %	**70.7	69.08	47.60	31.25	34.50
Effective dividend yield, %	**3.51	4.72	2.97	4.01	4.11
Price/earnings (P/E)	20.12	29.28	32.10	15.75	16.84
A share trading					
highest price, EUR	23.90	24.45	18.48	13.51	12.49
lowest price, EUR	15.85	15.94	10.91	10.71	9.70
volume weighted average price, EUR	20.14	20.13	14.14	12.17	11.30
closing price, EUR	16.50	22.25	16.85	11.97	10.95
Market capitalization on Dec 31***, MEUR	590.5	794.1	601.6	431.6	395.3
A shares traded					
pieces	3,710,610	4,298,504	4,062,272	5,015,344	2,220,674
% of total series	12.5	14.5	13.7	16.9	7.5
Number of shares, pieces	36,436,728	36,436,728	36,436,728	34,436,728	36,436,728
A shares, pieces	29,658,066	29,658,066	29,658,026	29,658,026	29,658,026
K shares, pieces	6,778,662	6,778,662	6,778,702	6,778,702	6,778,702
Outstanding shares Dec 31***, pieces	35,790,092	35,692,000	35,702,974	36,053,628	36,118,428

* Proposal by the Board of Directors
** Calculated according to the proposal by the Board of Directors
*** Including series A and K shares, excluding treasury shares. Series K shares are valued using the closing price for the series A share on the last trading day of December.

The share issue without payment approved by Vaisala's Annual General Meeting on April 10, 2018 doubled the number of series K and A shares. All share related figures in this Board of Directors' Report have been adjusted to reflect the increased number of shares.

Trading information is based on Nasdaq Helsinki Ltd. statistics.

CALCULATION OF KEY FIGURES

Earnings/share, EUR	=	Result for the period +/- non-controlling interest / Average number of shares outstanding	
Cash flow from business operations/share, EUR	=	Cash flow from business operations / Number of shares outstanding at the end of the period	
Equity/share, EUR	=	Shareholders' equity / Number of shares outstanding at the end of the period	
Dividend/share, EUR	=	Dividend / Number of shares outstanding at the end of the period	
Dividend/earnings, %	=	Dividend / Result for the period +/- non-controlling interest	x 100
Effective dividend yield, %	=	Dividend / share / Closing price for the series A share at the end of the period	x 100
Price/earnings (P/E)	=	Closing price for the series A share at the end of the period / Earnings / share	
Market capitalization, MEUR	=	Closing price for the series A share x number of shares outstanding	

ALTERNATIVE PERFORMANCE MEASURES

Vaisala presents in its financial reporting alternative performance measures, which describe businesses' financial performance and its development as well as investments and return on equity. In addition to accounting measures, which are defined or specified in IFRS, alternative performance measures complement and explain presented information. Vaisala presents in its financial reporting the following alternative performance measures:

Net sales with comparable exchange Rates = Net sales converted to euros with exchange rates used during the comparison period

$$\text{Gross margin, \%} = \frac{\text{Net sales - Cost of sales}}{\text{Net sales}} \times 100$$

Operating result = Result before income taxes, financial income and expenses, and share of result in associated company as presented in Consolidated Statement of Income. Operating result describes profitability and development of business areas' performance.

Result before taxes = Result before taxes as presented in Consolidated Statement of Income.

$$\text{Return on equity (ROE), \%} = \frac{\text{Result for the period}}{\text{Shareholders' equity + non-controlling interest (average)}} \times 100$$

$$\text{Solvency ratio, \%} = \frac{\text{Shareholders' equity + non-controlling interest}}{\text{Statement of financial position total - advance payments}} \times 100$$

Investments = Gross investments in non-current intangible assets as well as property, plant and equipment

Order book = Undelivered customer orders at the end of the period

$$\text{Gearing, \%} = \frac{\text{Interest-bearing liabilities – cash and cash equivalents}}{\text{Shareholders' equity}} \times 100$$

FINANCIAL PERFORMANCE IN 2018

Orders received

EUR million	2018	2017	Change, %	Change, % comparable rate
Weather and Environment	215.2	233.0	-8	-6
Industrial Measurements	119.0	113.3	5	9
Total	**334.2**	**346.3**	**-4**	**-1**

In January–December 2018, Vaisala's orders received decreased by 4% compared to previous year and were EUR 334.2 (346.3) million. Orders received increased in all regions in Industrial Measurements Business Area. In Weather and Environment Business Area, orders received decreased due to lack of large orders throughout the year. At comparable exchange rates, orders received would have decreased by 1% compared to previous year. The negative exchange rate effect was mainly caused by USD exchange rate depreciation against EUR, particularly during the first half of the year. Excluding Leosphere acquisition, orders received would have decreased by 6%.

In January–December 2018, Weather and Environment Business Area's orders received decreased by 8% compared to previous year and were EUR 215.2 (233.0) million. Orders received decreased mainly due to lack of large project orders throughout the year. At comparable exchange rates, orders received would have decreased by 6% compared to previous year. The negative exchange rate effect was mainly caused by USD exchange rate depreciation against EUR, particularly during the first half of the year. Excluding Leosphere, orders received would have decreased by 11%, and the decrease came from all regions.

In January–December 2018, Industrial Measurements Business Area's orders received increased by 5% compared to previous year and were EUR 119.0 (113.3) million. Increase came from all regions and mainly from instrument orders from APAC. At comparable exchange rates, orders received would have increased by 9% compared to previous year. The negative exchange rate effect was mainly caused by USD exchange rate depreciation against EUR, particularly during the first half of the year.

Order book

EUR million	Dec 31, 2018	Dec 31, 2017	Change, %
Weather and Environment	104.9	114.1	-8
Industrial Measurements	15.7	10.7	46
Total	**120.6**	**124.8**	**-3**

At the end of 2018, Vaisala's order book was EUR 120.6 (124.8) million and decreased by 3% compared to previous year. Order book decreased mainly due to low order intake during the first three quarters and high deliveries in Weather and Environment Business Area. Excluding acquired Leosphere and K-Patents, order book would have decreased by 9%. EUR 91.0 (99.5) million of the order book is scheduled to be delivered in 2019. If the current revenue recognition standard had been used in previous year, the December 31, 2017 order book would have been EUR 1.4 million lower than reported. Hence, Vaisala's December 31, 2018 order book would have decreased by 2% compared to previous year.

At the end of 2018, Weather and Environment Business Area's order book was EUR 104.9 (114.1) million and decreased by 8% compared to previous year. Order book decreased mainly due to low order intake during the first three quarters and high deliveries and the decrease was most significant in Americas. Excluding Leosphere, order book would have decreased by 12%. EUR 76.8 (89.8) million of the order book is scheduled to be delivered in 2019. If the current revenue recognition standard had been used in previous year, the December 31, 2017 order book would have been EUR 1.4 million lower than reported. Hence, December 31, 2018 order book would have decreased by 7% compared to previous year.

At the end of December 2018, Industrial Measurements Business Area's order book was EUR 15.7 (10.7) million and increased by 46% compared to previous year. Order book increased in all regions and mainly in industrial instruments. Excluding K-Patents, order book would have increased by 28%. EUR 14.3 (9.7) million of the order book is scheduled to be delivered in 2019.

Net sales by business area

EUR million	2018	2017	Change, %	Change, % comparable rates
Weather and Environment	232.3	222.2	5	6
Products	125.4	112.0	12	
Projects	70.0	76.4	-8	
Services	36.9	33.8	9	
Industrial Measurements	116.4	110.3	6	9
Products	105.1	98.7	6	
Services	11.4	11.6	-2	
Total	**348.8**	**332.6**	**5**	**7**

Net sales by geographical area

EUR million	2018	2017	Change, %
EMEA	102.3	107.7	-5
Americas	136.8	127.3	7
APAC	109.6	97.5	12
Total	**348.8**	**332.6**	**5**

In January–December 2018, Vaisala's net sales increased by 5% compared to previous year and totaled EUR 348.8 (332.6) million. Operations outside Finland accounted for 98 (97) % of net sales. Net sales increased in Americas and APAC and in both business areas. At comparable exchange rates, net sales would have increased by 7% compared to previous year. The negative exchange rate effect was mainly caused by USD exchange rate depreciation against EUR. Excluding Leosphere, net sales would have increased by 2%. If the current revenue recognition standard had been used in previous year, the January–December 2017 net sales would have been EUR 4.3 million lower than reported. Hence, Vaisala's January–December 2018 net sales would have increased by 6% compared to previous year.

Net sales in EMEA were EUR 102.3 (107.7) million and decreased by 5%. Net sales decreased in Weather and Environment Business Area's project business. In the Americas, net sales increased by 7% to EUR 136.8 (127.3) million following growth in meteorology business. In APAC, net sales increased by 12% to EUR 109.6 (97.5) million. Increase came mainly from Weather and Environment Business Area's project business and wind lidar deliveries, as well as instrument deliveries of Industrial Measurements Business Area.

In January–December 2018, Weather and Environment Business Area's net sales increased by 5% compared to previous year and were EUR 232.3 (222.2) million. Strong order book at the beginning of the year and wind lidar deliveries increased net sales. China net sales decreased significantly. At comparable exchange rates, net sales would have increased by 6% compared to previous year. The negative exchange rate effect was mainly caused by USD depreciation against EUR. Excluding Leosphere, net sales would have been at previous year's level. If the current revenue recognition standard had been used in previous year, January–December 2017 net sales would have been EUR 4.3 million lower than reported. Hence, January–December 2018 net sales would have increased by 7% compared to previous year.

In January–December 2018, Industrial Measurements Business Area's net sales increased by 6% compared to previous year and totaled EUR 116.4 (110.3) million. Net sales increased in all regions and mainly in instrument deliveries in APAC. At comparable exchange rates, net sales would have increased by 9% compared to previous year. The negative exchange rate effect was mainly caused by USD depreciation against EUR.

Gross margin and operating result

	2018	2017
Gross margin, %	53.1	52.3
Weather and Environment	48.6	47.3
Industrial Measurements	62.1	62.4
Operating result, EUR million	38.9	40.9
Weather and Environment	17.7	18.2
Industrial Measurements	23.9	22.8
Other	-2.7	-0.2
Operating result, %	11.1	12.3
Weather and Environment	7.6	8.2
Industrial Measurements	20.5	20.7

In January–December 2018, Vaisala's operating result decreased and was EUR 38.9 (40.9) million, 11.1 (12.3) % of net sales. Gross margin was 53.1 (52.3) %. Operating expenses increased by 11% compared to previous year and totaled EUR 148.3 (133.3) million. Increase in operating expenses came from R&D expenses according to plan and Leosphere's operating expenses. Operating expenses included EUR 3.1 million of amortization of intangible assets related to Leosphere acquisition. In addition, operating result was decreased by EUR 2.7 million including EUR 1.6 million of transaction costs related to Leosphere acquisition and restructuring costs. Operating result was increased by EUR 1.5 million reversal of earn-outs related to Envitems and Vionice acquisitions and renegotiation of Leosphere's contractual liabilities.

In January–December 2018, Weather and Environment Business Area's operating result decreased and was EUR 17.7 (18.2) million, 7.6 (8.2) % of net sales. Gross margin improved both in service and project businesses and was 48.6 (47.3) %. Operating expenses increased by 11% compared to previous year and totaled EUR 96.7 (87.3) million. Excluding Leosphere, increase in operating expenses came from R&D as well as sales and marketing expenses according to plan. Leosphere's operating expenses were EUR 5.5 million of which EUR 3.1 million was amortization of intangible assets related to acquisition. In addition, operating result was increased by EUR 1.5 million reversal of earn-outs related to Envitems and Vionice acquisitions and renegotiation of Leosphere's contractual liabilities.

In January–December 2018, Industrial Measurements Business Area's operating result increased and totaled EUR 23.9 (22.8) million, 20.5 (20.7) % of net sales. Increase came mainly from higher net sales. Gross margin was 62.1 (62.4) %. Operating expenses increased by 5% compared to previous year and totaled EUR 48.5 (46.0) million. Increase came mainly from R&D expenses according to plan.

In January–December 2018, financial income and expenses were EUR -1.5 (-2.8) million. This was mainly a result of USD currency hedging.

In January–December 2018, result before taxes was EUR 37.5 (38.1) million. Income taxes were EUR 8.0 (10.9) million and effective tax rate 21 (29) %. High tax rate in comparison period was partly caused by the decrease in deferred tax asset as a result of the decrease in the US corporate tax rate from the beginning of 2018. Result for the period was EUR 29.5 (27.2) million and earnings per share EUR 0.82 (0.76).

STATEMENT OF FINANCIAL POSITION, CASH FLOW, AND FINANCING

Vaisala's financial position remained strong in 2018. Cash and cash equivalents decreased to EUR 72.7 (91.3) million mainly due to payment of EUR 17.8 million additional dividend and payments related to acquisitions. Statement of financial position totaled to EUR 334.3 (273.8) million. As a result of Leosphere and K-Patents acquisitions, total assets increased by EUR 98.8 million. Total liabilities increased by EUR 28.0 million as a result of Leosphere and K-Patents acquisitions and by EUR 40.0 million as a result of utilization of revolving credit facility.

In January–December 2018, Vaisala's cash flow from operating activities decreased to EUR 48.3 (49.2) million. Dividend payment amounted to EUR 37.6 (17.8) million.

On October 5, 2018 Vaisala signed a EUR 50 million unsecured revolving credit facility with one of its core banks. The committed credit facility agreement matures 5 years from the signing date and it has no financial covenants. The facility will be used for working capital needs, for financing of acquisitions and for general corporate purposes. On December 31, 2018, Vaisala had interest bearing liabilities totaling EUR 40.5 million, of which EUR 40.0 million related to utilized revolving credit facility.

CAPITAL EXPENDITURE AND ACQUISITIONS

In January–December 2018, capital expenditure in intangible and tangible assets totaled EUR 14.5 (8.5) million. Capital expenditure was mainly related to investments in machinery and equipment to develop and maintain Vaisala's production and service operations as well as to building projects in Vantaa, Finland and Louisville, Colorado US.

Depreciation, amortization and impairment were EUR 12.1 (9.7) million. This included EUR 3.1 million of amortization related to identified intangible assets from Leosphere acquisition.

In October, Vaisala announced that it acquires all the shares in Leosphere SAS, a French company specialized in developing, manufacturing and servicing turnkey wind lidar (light detection and ranging) instruments for wind energy, aviation, meteorology, and air quality customer segments for a purchase price (cash and debt free) of EUR 38 million. Leosphere's share of Vaisala's 2018 net sales was EUR 9.9 million. Vaisala has reported Leosphere's financial results as part of Weather and Environment Business Area as from October 11, 2018.

In December, Vaisala announced acquisition of Finnish K-Patents Group, a pioneer in in-line liquid measurements for industrial applications. This acquisition was closed on December 31, 2018. It broadened Vaisala's product offering to liquid measurements and strengthened its position in the industrial measurement market. The transaction included K-Patents Oy and its subsidiaries in the US and China as well as Janesko Oy, K-Patents' research and development organization. Purchase price (cash and debt free) was EUR 12.5 million. K-Patents Group's net sales in 2017 amounted to EUR 11.4 million and it employs 62 people in Finland, the US and China. Vaisala reports K-Patents' financial results as a part of Industrial Measurements Business Area as from January 1, 2019.

In April, Vaisala announced plans to invest in an office building close to 3,000 m² in Louisville, Colorado US during the next two years. Following this project, Vaisala will exit the leased office building in the area. This building and refurbishing project is estimated to cost around EUR 12 million.

RESEARCH AND DEVELOPMENT

R&D expenditure by business area

EUR million	2018	2017	Change, %
Weather and Environment	30.5	27.0	13
Industrial Measurements	14.9	12.6	19
Total	**45.4**	**39.6**	**15**

R&D expenditure continued to increase according to plan in both business areas as well as due to R&D expenditure in Leosphere.

R&D expenditure % of net sales

	2018	2017
Weather and Environment	13.1	12.1
Industrial Measurements	12.8	11.4
Total	**13.0**	**11.9**

KEY PRODUCT AND SOFTWARE LAUNCHES

In 2018, Vaisala launched several new advanced products and software to enhance growth as well as to replace existing products.

Weather and Environment Business Area introduced the seventh generation of visibility and present weather sensors. Vaisala Forward Scatter utilizes innovative technology setting a new standard in precipitation identification, quantification and visibility determination accuracy. Forward Scatter can function stand-alone, inter-operate as an integral part of Vaisala systems, and additionally work with different third-party systems. The main customers for these new products are meteorological institutes and airports.

In addition, Weather and Environment Business Area launched a new automatic sounding system. This new system is designed to work reliably even in the harshest of conditions also in the remotest of locations. The system allows fully automated sounding operations with low operating costs, remote flexible operation as well as easy installation. It is designed for one-month automation at a time, more than doubling the automation time compared to previous systems.

Weather and Environment Business Area continued to enhance Network Manager, a scalable and automated system for remote monitoring and managing multiple weather observation sites. This latest version provides device and maintenance data management capabilities to inform maintenance personnel about observation site infrastructure, configurations, maintenance history, and planned maintenance activities.

Weather and Environment Business Area also introduced new version of IRIS Focus, weather radar software. This new version has a number of significant enhancements to the radar display product such as easy browsing of historical data, on-demand composite images from multiple radars, image export, and configurable weather alerts.

Industrial Measurements Business Area launched new viewLinc monitoring system, which is often used for monitoring high-value assets and processes in applications such as museums, semi-conductor manufacturing, warehouses, bio-pharmaceutical storage and distribution, and data centers. This monitoring system consists of software and wireless data loggers, which are connected by Vaisala's proprietary long-range wireless technology VaiNet. Unlike most Wi-Fi data loggers, the VaiNet data loggers' wireless signal is unimpeded by concrete walls and metal structures and can communicate well over 100 meters indoors. In late 2018, this viewLinc monitoring system won the Quality Innovation Award by Laatukeskus Excellence Finland.

Industrial Measurements Business Area also launched two enhanced transmitter models. These new transmitters are designed for demanding ventilation applications in building automation systems and for light industrial applications, where accurate and stable control of relative humidity and temperature are required.

In addition, Industrial Measurements Business Area introduced an upgraded probe for vaporized hydrogen peroxide measurement with even better performance, and a new measurement probe for environmentally friendly hydrogen peroxide bio-decontamination processes. Both probe models use Vaisala's proprietary PEROX-CAP® sensor for measuring hydrogen peroxide bringing all the benefits of its world leading accuracy, repeatability, and stability into play.

More details concerning the new products and software can be found at www.vaisala.com.

GROUP STRUCTURE

Vaisala's headquarters are located in Vantaa, Finland. On December 31, 2018, Vaisala had subsidiaries in Australia, Brazil, Canada, China, Finland, France, Germany, India, Japan, Kenya, Malaysia, Mexico, United Kingdom and United States. The parent company has branches in Argentina and Colombia. In addition, Vaisala has permanent establishments and offices in South Korea, Sweden and United Arab Emirates. Vionice Oy was merged into Vaisala Oyj on September 28, 2018.

BOARD OF DIRECTORS

The Annual General Meeting held on April 10, 2018 confirmed that the number of the Board members is eight.

Members of the Board of Directors on December 31, 2018

- Raimo Voipio, Chairman
- Yrjö Neuvo, Vice Chairman
- Petri Castrén
- Petra Lundström
- Mikko Niinivaara
- Kaarina Ståhlberg
- Pertti Torstila
- Ville Voipio

PERSONNEL

The average number of personnel employed in Vaisala during January–December 2018 was 1,678 (1,592). At the end of 2018, the number of employees was 1,816 (1,608). Acquisitions of Leosphere and K-Patents increased the number of employees by 188 people. 73 (70) % of employees were located in EMEA, 19 (22) % in Americas and 8 (9) % in APAC. 61 (63) % of employees were based in Finland.

Number of employees by geographical area

	Dec 31, 2018	Dec 31, 2017	Change
Finland	1,102	1,018	84
EMEA (excluding Finland)	225	102	123
Americas	339	348	-9
APAC	150	140	10
Total	**1,816**	**1,608**	**208**

Number of employees by function

	Dec 31, 2018	Dec 31, 2017	Change
Sales and marketing	459	392	67
R&D	399	321	78
Operations	423	410	13
Services	347	322	25
Administration	188	163	25
Total	**1,816**	**1,608**	**208**

In addition to the headcount increase following the acquisitions, number of employees increased in R&D in particular.

In January–December 2018, personnel expenses totaled EUR 133.6 (129.9) million. The Employee Experience project started in Vaisala in 2018. The purpose of this project was to explore and understand what factors impact most employee experience and to plan development actions. In addition to several project workshops, input was collected from all employees through Pulse Survey. Response rate was 70%. Colleagues and team sprit at work as well as meaningfulness of work in particular were regarded as strengths in Vaisala. More focus was wished for opportunity for learning and career development.

In Vaisala's annual Employee Survey, response rate was 78%. Leadership index was on very high level. Learning possibilities index increased compared to previous survey.

In Operations, wide Lean training was accomplished as a part of the development of Vaisala Production System. Over 100 employees participated in the training. Sales training programs continued. The first module of the development program for product management was conducted during the year. Vaisala's 10th Business Learning Program ended during the spring and participants for the next program were selected during the autumn.

SHARE-BASED INCENTIVE PLANS

The share issue without payment approved by Vaisala's Annual General Meeting on April 10, 2018 doubled the total number of series K and A shares. All share related figures have been adjusted to reflect the increased number of shares. Until the end of 2017, the cost of the equity-settled part of the share-based payments corresponded to the value of Vaisala's series A share closing price on the grant date of the incentive plan, and the cash-settled part of the share-based payments was valued at the closing price of the share. As of January 1, 2018, the cost of the equity-settled part of the share-based payments as well as the cash-settled part of the share-based payments correspond to the value of Vaisala's series A share closing price on the grant date of the incentive plan.

On December 18, 2014, the Board of Directors resolved for the Group key employees a share-based incentive plan that was based on the development of Group's profitability in calendar year 2015. The reward payment corresponded to 74% of the maximum target. On March 12, 2018, a total of 95,092 company's series A shares were conveyed without consideration to the 27 key employees participating in this incentive plan. The rest of the reward was paid in cash. Closing price of Vaisala's series A share was EUR 12.08 on the effective date of the incentive plan. A total expense of EUR 3.2 million was recognized of this plan in 2015–2018.

On December 16, 2015, the Board of Directors resolved for the Group key employees a share-based incentive plan that was based on the development of Group's profitability in calendar year 2016. The reward will be paid partly in Vaisala's series A shares and partly in cash in spring 2019. The cash proportion will cover taxes and tax-related costs arising from the reward to a key employee. The maximum amount of this plan originally corresponded to 400,000 shares and the reward payment will correspond to 49% of the maximum target. No reward will be paid if a key employee's employment or service ends before the reward payment date. The expenses of this share-based incentive plan are accrued over the term of the plan from May 2016 to March 2019. Closing price of Vaisala's series A share was EUR 11.57 on the effective date of the incentive plan. On December 31, 2018, this share-based incentive plan was directed to approximately 30 persons and the maximum reward payable totals to 176,904 Vaisala's series A shares, including the cash portion.

On February 10, 2016, the Board of Directors resolved for a share-based incentive plan, in which the earning criteria was uninterrupted employment of certain Group employees for a defined number of years. This share-based incentive plan ended in March 2018, and the remaining reward, corresponding to 3,000 Vaisala's series A shares including the cash portion, was conveyed without consideration to the key employees participating in this incentive plan. The rest of the reward was paid in cash. A total expense of EUR 0.3 million was recognized of this plan in 2016–2018.

On December 15, 2016, the Board of Directors resolved for the Group key employees a share-based incentive plan that was based on the development of Group's profitability in calendar year 2017. The reward will be paid partly in Vaisala's series A shares and partly in cash in spring 2020. The cash proportion will cover taxes and tax-related costs arising from the reward to a key employee. The maximum amount of this plan originally corresponded to 400,000 shares and the reward payment will correspond to 65% of the maximum target. No reward will be paid if a key employee's employment or service ends before the reward payment date. The expenses of this share-based incentive plan are accrued over the term of the plan from April 2017 to March 2020. Closing price of Vaisala's series A share was EUR 17.90 on the effective date of the incentive plan. On December 31, 2018, this share-based incentive plan was directed to approximately 35 persons and the maximum reward payable totals to 248,300 Vaisala's series A shares, including the cash portion.

On February 7, 2018, the Board of Directors resolved for the Group key employees a share-based incentive plan that is based on the development of Group's profitability in calendar year 2018. The reward will be paid partly in Vaisala's series A shares and partly in cash in spring 2021. The cash proportion will cover taxes and tax-related costs arising from the reward to a key employee. The maximum amount of this plan originally corresponded to 320,000 shares and the reward payment will correspond to 55% of the maximum target. No reward will be paid if a key employee's employment or service ends before the reward payment date. The expenses of this share-based incentive plan are accrued over the term of the plan from April 2018 to March 2021. Closing price of Vaisala's series A share was EUR 20.89 on the effective date of the incentive plan. On December 31, 2018, this share-based incentive plan was directed to approximately 30 persons and the maximum reward payable totals to 174,510 Vaisala's series A shares, including the cash portion.

Expenses for the share-based incentive plans

EUR million	2015	2016	2017	2018
Share-based incentive plan 2015	0.5	1.1	1.6	-0.1
Share-based incentive plans 2016		0.7	1.2	0.6
Share-based incentive plan 2017			1.1	1.3
Share-based incentive plan 2018				0.6

STRATEGY AND ITS IMPLEMENTATION IN 2018

Vaisala continued to drive profitable growth through implementation of strategic priorities for 2017–2021.

WEATHER AND ENVIRONMENT BUSINESS AREA

Weather and Environment Business Area drives profitability and growth through industry-leading products and digital solutions. Strategic priorities are: to systematically improve competitiveness by renewal of product offering; to grow through meteorological infrastructure improvement projects in developing countries; to expand digital solutions, which support decision-making in weather critical operations; as well as to build new business in environmental measurements with air quality as the spearhead.

In 2018, automation of sounding operations was taken to the next level by new autosonde solution. Vaisala has already signed several contracts with meteorological customers in various countries. Vaisala won air quality network contracts e.g. in Sydney, Helsinki, Prague, Ukraine and Marseille. Large capacity building project in Vietnam progressed according to plan while Bahamas project was running somewhat behind the schedule. Project business' performance improved as a result of improved project management capabilities and enhanced project planning. Growth of digital solutions did not realize as expected and, thus focus was moved to profitability improvement. Achieved improvement in gross margin was significant. During the fourth quarter, Weather and Environment Business Area strengthened its position in wind remote sensing by acquiring Leosphere. In addition to renewable energy sector, Leosphere's wind lidar technology has opportunities in aviation industry as well as in meteorology and air quality application areas. Leosphere's net sales and profitability met expectations during the fourth quarter.

INDUSTRIAL MEASUREMENTS BUSINESS AREA

Industrial Measurements Business Area's strategy is to grow through product leadership. Strategic priorities are to achieve strong foothold in power transmission and life science markets, to continuously create new winning products by discovering customers' needs, and to seek new business opportunities in industrial applications.

In 2018, the growth target was realized with net sales growth of 6% and volume growth of 9%. Investments in R&D continued and new continuous monitoring system, viewLinc, was launched during the second quarter. This new system was well received at the market and its sales proceeded well during the second half of the year. First year sales of hydrogen peroxide measurement product met expectations and product got positive feedback from customers. Entry to power transmission market has proceeded slowly. At the end of the year, Industrial Measurements Business Area expanded to liquid measurement markets by acquiring K-Patents whose product portfolio is a good fit with Industrial Measurements Business Area portfolio and operational model. In addition, K-Patents brings a ready built global distribution network, which complements Vaisala's network.

LONG-TERM FINANCIAL TARGETS

Vaisala's objective is profitable growth with an average annual growth of 5%, and to achieve 15% operating profit margin (EBIT). In selected growth businesses, such as digital solutions, life science and power transmission, the target is to exceed 10% annual growth.

Vaisala does not consider the long-term financial targets as market guidance for any given year.

MANAGEMENT GROUP

On December 31, 2018, Vaisala's Management Group members were

- Kjell Forsén, President and CEO, Chairman of the Management Group
- Marja Happonen, EVP, Human Resources
- Sampsa Lahtinen, EVP, Industrial Measurements Business Area
- Kaarina Muurinen, CFO
- Vesa Pylvänäinen, EVP, Operations
- Jarkko Sairanen, EVP, Weather and Environment Business Area
- Katriina Vainio, EVP, Group General Counsel

Mari Heusala, M.Sc. (Economy), (b. 1966), was appointed Executive Vice President, Human Resources. She started in her position January 7, 2019. She is a member of the Vaisala Management Group and reports to the President and CEO Kjell Forsén. Marja Happonen will retire during spring 2019.

RISK MANAGEMENT

The objective of Vaisala's risk management is to identify and manage material risks related to strategy implementation and business operations. Vaisala has a risk management policy, which has been approved by the Board of Directors and which covers the company's strategic, operational, hazard, and financial risks. The policy aims at ensuring the safety of the company's personnel, operations, and products, as well as the continuity and compliance of business operations.The Board of Directors defines and approves risk management principles and policies and assesses the effectiveness of risk management. The Audit Committee reviews compliance with risk management policy and processes.

Vaisala's Risk Management Steering Group comprises key internal stakeholders. The Steering Group is responsible for the operational oversight of the risk management process and for assuring that all significant risks are identified and reported and risks are acted upon on all necessary organizational levels and in all geographical locations.

Risk management is integrated into key business processes and operations. This is accomplished by incorporating applicable risk identification, assessment, management, and risk reporting actions into the core processes. The most significant risks are reported to the Vaisala Management Group quarterly and to the Audit Committee annually.

Vaisala is exposed to various financial risks the core of which are interest rate risk, foreign exchange rate risk, refinancing and liquidity risks as well as financial and customer credit risks. Vaisala aims to limit the effect of these risks to statement of income, financial position and cash flow. Vaisala's financial risk management is based on the treasury and credit policies approved by the Board of Directors.

Interest rate risk

Interest rate risk refers to uncertainty in statement of income, financial position and cash flow arising from interest rate fluctuation. The Group is mainly exposed to cash flow risk, which arises from liabilities at variable interest rates. At the end of reporting period all interest-bearing liabilities and loans had fixed interest rates and those totaled to EUR 40.5 million. As the Group has no liabilities with variable interest rates, the Group is not currently exposed to interest rate risk due to fluctuations in interest rates.

Foreign exchange risk

Foreign exchange risk refers to uncertainty in statement of income, financial position and cash flow arising from exchange rate fluctuation. Vaisala operates globally and is exposed to transaction and translation risk in many currencies. Transaction risk refers to income and expense flows in foreign currencies. Translation risk refers to translation of statement of income and statement of financial position of foreign subsidiaries into euros.

Vaisala's sales are denominated in various currencies. In 2018, 45% of the Group's sales were in EUR, 35% in USD, 6% in CNY, 5% in JPY and 4% in GBP. Costs and purchases occured mostly in EUR and USD. The Group policy is to hedge with foreign exchange forward positions that consists of order book, purchase orders and net receivables. Vaisala does not hedge forecasted cash flows other than order book. Additionally, Vaisala does apply hedge accounting in accordance with IFRS and gains and losses arising from changes in fair value of the derivatives are recognized in the statement of income.

Intercompany loans and deposits are initiated in subsidiaries' local currencies. Vaisala does not hedge intercompany loans, deposits or equities of foreign subsidiaries. Translation of subsidiaries' equities into euros caused translation adjustment of EUR 1.0 (-3.1) million. The most significant translation risk exposures are in USD.

Foreign exchange sensitivity analysis in accordance with IFRS 7 is based on the foreign currency nominated receivables, cash and liabilities of Group companies. Calculation does not include internal loans, order book or forecasted cash flows but includes foreign exchange forwards in their nominal value. 10% strengthening of currencies against EUR would have had an effect on Vaisala's result after taxes and equity amounting to EUR -0.1 (-1.0) million. Foreign exchange net exposures more than EUR 1 million and their sensitivity based on a change of 10% are presented in the following table (before taxes):

Foreign exchange net exposures against EUR

	2018	2017
USD	-8.8	-17.1
INR	1.8	1.1
CAD	0.9	0.6

Refinancing and liquidity risks

Refinancing and liquidity risks refer to uncertainty in maintaining liquidity. In order to ensure liquidity the amount of cash and availability of credit facilities is maintained at sufficient level. Vaisala's cash at hand amounted to EUR 72.7 (91.3) million.

On October 5, 2018, Vaisala signed a EUR 50 million unsecured revolving credit facility. The committed credit facility agreement matures in 5 years from the signing and it has no financial covenants. On December 31, 2018, Vaisala had interest bearing liabilities totaling EUR 40.5 million, of which EUR 40 million related to utilized revolving credit facility. Vaisala has no loans that would mature after five years or a longer period of time. Additionally, Vaisala had commercial paper program amounting to EUR 150 million, which was not utilized as of December 31, 2018.

Financial credit risk

Financial credit risk refers to uncertainty in counterparty's capability to meet financial liabilities against Vaisala. Financial credit risk exposure relates to cash and financial derivatives.

Vaisala's cash and cash equivalents amounted to EUR 72.7 (91.3) million and the nominal value of financial derivatives to EUR 26.9 (38.8) million. Vaisala invests cash and executes derivative contracts only with counterparties who are accepted by the Board of Directors and who have good credit worthiness. Counterparty creditworthiness is evaluated constantly.

Trade receivables credit risk

Trade receivables credit risk refers to uncertainty of collectability of customer receivables. Credit risk is managed by using the following payment terms; letters of credit, advance payments and bank guarantees. Additionally, credit risk is managed by utilizing credit risk insurances and following creditworthiness of customers. Management estimates that the group does not have material credit risk concentrations as due to global customer base no individual customer or a customer group constitute a significant risk. Credit losses and related reversals arising from trade receivables recognized for the financial year amounted to EUR -0.6 (0.5) million. Credit loss is recognized when official announcement of liquidation or bankruptcy is received confirming that the receivable will not be collected.

Further information about risk management is available in the Annual Report's sections Governance/Risk Management and on the company's website at **www.vaisala.com**.

DECISIONS BY VAISALA CORPORATION'S ANNUAL GENERAL MEETING

Vaisala Corporation's Annual General Meeting was held on April 10, 2018. The meeting approved the financial statements and discharged the members of the Board of Directors and the President and CEO from liability for the financial period January 1–December 31, 2017.

DIVIDEND

The Annual General Meeting decided a dividend of EUR 1.10 per share and an additional dividend of EUR 1.00 per share. The record date for the dividend payments was April 12, 2018 and the payment date was April 19, 2018.

After the share issue without payment on April 13, 2018, which doubled the number of series K and A shares, the dividend equals EUR 0.55 and the additional dividend equals EUR 0.50 per share.

BOARD OF DIRECTORS

The Annual General Meeting confirmed that the number of Board members is eight. Petri Castrén, Petra Lundström, Yrjö Neuvo, Mikko Niinivaara, Kaarina Ståhlberg, Pertti Torstila, Raimo Voipio and Ville Voipio will continue as members of the Board of Directors.

The Annual General Meeting confirmed that that the annual remuneration payable to the Chairman of the Board of Directors is EUR 45,000 and each Board member EUR 35,000 per year. Approximately 40% of the annual remuneration will be paid in Vaisala Corporation's series A shares acquired from the market and the rest in cash. In addition, the Annual General Meeting confirmed that the meeting fee for the Chairman of the Audit Committee will be EUR 1,500 per attended meeting and EUR 1,000 for each member of the Audit Committee and Chairman and each member of the Remuneration and HR Committee and any other committee established by the Board of Directors for a term until the close of the Annual General Meeting in 2019. The meeting fees are paid in cash.

AUDITOR

The Annual General Meeting re-elected Deloitte Oy as the auditor of the company and APA Merja Itäniemi will act as the auditor with the principal responsibility. The Auditors are reimbursed according to invoice presented to the company.

SHARE ISSUE WITHOUT PAYMENT (SHARE SPLIT) AND AMENDMENT OF ARTICLES OF ASSOCIATION

The Annual General Meeting resolved to issue new shares to the shareholders without payment in proportion to their holdings so that one (1) new share was issued for each share (split). The record date for share split was April 12, 2018. The new shares generated shareholder rights as of April 12, 2018. The new shares did not entitle their holders to the dividend payments as defined above.

The Annual General Meeting resolved to amend the § 3 of Articles of Association so that stipulations on minimum and maximum share capital were deleted.

AUTHORIZATION FOR THE DIRECTED REPURCHASE OF OWN A SHARES

The Annual General Meeting authorized the Board of Directors to resolve on the directed repurchase of a maximum of 400,000 of the company's own series A shares in one or more instalments by using company's unrestricted equity. This authorization is valid until the closing of the next Annual General Meeting, however, no longer than October 10, 2019, and it replaced the previous authorization for directed repurchase of own series A shares.

AUTHORIZATION ON THE ISSUANCE OF THE COMPANY'S OWN A SHARES

The Annual General Meeting authorized the Board of Directors to resolve on the issuance of a maximum of 1,046,636 company's own series A shares. The issuance of own shares may be carried out in deviation from the shareholders' pre-emptive rights (directed issue). The subscription price of the shares can instead of cash also be paid in full or in part as contribution in kind. This authorization is valid until April 10, 2023, and it replaced the previous authorization for issuance of own series A shares.

THE ORGANIZING MEETING OF THE BOARD OF DIRECTORS

At its organizing meeting held after the Annual General Meeting the Board elected Raimo Voipio to continue as the Chairman of the Board of Directors and Yrjö Neuvo to continue as the Vice Chairman.

THE COMPOSITION OF THE BOARD COMMITTEES WAS DECIDED TO BE AS FOLLOWS:

Kaarina Ståhlberg was elected as the Chairman and Petri Castrén and Mikko Niinivaara as members of the Audit Committee. The Chairman and all members of the Audit Committee are independent both of the company and of significant shareholders.

Raimo Voipio was elected as the Chairman and Petri Castrén and Mikko Niinivaara as members of the Remuneration and HR Committee. The Chairman and all members of the Remuneration and HR Committee are independent both of the company and of significant shareholders.

VAISALA'S SHARES AND SHAREHOLDERS

SHARE CAPITAL AND SHARES

Vaisala's share capital totaled EUR 7,660,808 on December 31, 2018. The 2018 Annual General meeting resolved to issue new shares to the shareholders without payment in proportion to their holding so that one (1) new share was issued for each share (split). The record date for the share split was April 12, 2018 and the share split was registered into the trade register on April 12, 2018. New shares were issued on April 13, 2018. Following this share split, Vaisala has 36,436,728 shares, of which 6,778,662 are series K shares and 29,658,066 series A shares. The series K shares and series A shares are differentiated by the fact that each series K share entitles its owner to 20 votes at a General Meeting of Shareholders while each series A share entitles its owner to 1 vote. The series A shares represented 81.4% of the total number of shares and 17.9% of the total votes. The series K shares represented 18.6% of the total number of shares and 82.1% of the total votes.

TRADING AND SHARE PRICE DEVELOPMENT

In January–December 2018, a total of 3,710,610 series A shares with a value totaling EUR 74.4 million were traded on the Nasdaq Helsinki Ltd. During the year, the share price decreased by 26% while OMX Helsinki Cap index decreased by 8%. The closing price of the series A share on the Nasdaq Helsinki stock exchange was EUR 16.50. Shares registered a high of EUR 23.90 and a low of EUR 15.85. Volume-weighted average share price was EUR 20.14.

The market value of series A shares on December 31, 2018 was EUR 478.7 million, excluding company's treasury shares. Valuing the series K shares – which are not traded on the stock market – at the rate of the series A share's closing price on the last trading day of December, the total market value of all the series A and series K shares together was EUR 590.5 million, excluding company's treasury shares.

TREASURY SHARES AND THEIR AUTHORIZATIONS

The Annual General Meeting held on March 28, 2017, authorized the Board of Directors to decide on the issuance of a maximum of 568,344 company's own series A shares. This authorization was valid until the closing of the Annual General Meeting held on April 10, 2018.

In February 2018, the Board of Directors decided to transfer shares under this authorization. In March, a total of 49,046 company's series A shares were transferred to the 28 key employees participating on the Share-based incentive plan 2015 and Restricted share-based incentive plan 2016 under the terms and conditions of the plans.

At the end of 2018, Vaisala held a total of 646,636 company's series A shares, which represented 2.2% of all series A shares and 1.8% of all shares.

Major shareholders December 31, 2018

	A shares	K shares	Total	% of shares	% of votes
Novametor Oy	2,778,000	997,892	3,775,892	10.36	13.76
Finnish Academy of Science and Letters	373,072	1,757,760	2,130,832	5.85	21.50
Nordea Nordic Small Cap Fund	1,679,040	0	1,679,040	4.61	1.02
Ilmarinen Mutual Pension Insurance Company	1,585,687	0	1,585,687	4.35	0.96
Mandatum Life Insurance Company Ltd.	1,258,500	274,800	1,533,300	4.21	4.09
Weisell-säätiö	1,440,000	0	1,440,000	3.95	0.87
Voipio Mikko	666,000	602,312	1,268,312	3.48	7.69
Caspers Anja	406,560	562,936	969,496	2.66	7.06
Voipio Raimo*	513,076	454,296	967,372	2.65	5.81
Voipio Tauno	591,520	315,304	906,824	2.49	4.17
Vaisala Oyj	646,636	0	646,636	1.77	0.39
Voipio Lauri	561,692	83,376	645,068	1.77	1.35
Voipio Riitta	561,692	83,376	645,068	1.77	1.35
Voipio Ville	395,367	96,712	492,079	1.35	1.41
Voipio Mari	391,486	96,712	488,198	1.34	1.41
Total	**13,848,328**	**5,325,476**	**19,173,804**	**52.62**	**72.84**
Nominee registered shares**	5,385,298	0	5,385,298	14.78	3.26

* In addition to direct share ownership, Raimo Voipio's controlled organization IMAR Oy owned 56,000 series A shares.
** Includes 1,282,781 series A shares owned by Lannebo Fonder, which represented 3.52% of all shares and 0.78% of all votes (according to Lannebo's notification).

Ownership structure (series A and K shares) December 31, 2018

	Shares	% of shares
Households	14,858,751	40.78
Nominee registered and outside Finland	5,718,980	15.70
Private companies	5,003,227	13.73
Financial and insurance institutions	5,238,941	14.38
Non-profit organizations	4,031,142	11.06
Public sector organizations	1,585,687	4.35
Total	**36,436,728**	**100.00**

Ownership distribution (series A and K shares) December 31, 2018

	Shareholders	% of shareholders	Shares	% of shares
1–100	3,201	36.24	171,582	0.47
101–500	3,541	40.09	983,503	2.70
501–1,000	999	11.31	754,318	2.07
1,001–5,000	853	9.66	1,812,682	4.98
5,001–10,000	101	1.14	702,890	1.93
10,001–50,000	79	0.89	1,613,382	4.43
50,001–100,000	23	0.26	1,593,648	4.37
100,001–500,000	20	0.23	5,397,696	14.81
500,001–	15	0.17	23,407,027	64.24
Total	**8,832**	**100.00**	**36,436,728**	**100.00**
Nominee registered	9		5,385,298	14.78

SHAREHOLDERS' AGREEMENTS

The Board of Directors is not aware of any agreements concerning the ownership of the company's shares and the use of their voting rights.

SHAREHOLDING BY THE BOARD OF DIRECTORS AND THE MANAGEMENT GROUP

On December 31, 2018, the Board of Directors held and controlled 986,848 (1,050,166) series A shares. These shares accounted for 3.3 (3.5) % of series A shares and 2.7 (2.9) % of total shares. The number of series K shares held and controlled by the Board was 551,010 (588,336). Total votes attached to the series A and K shares held and controlled by the Board were 12,007,048 (12,816,886), which accounted for 7.3 (7.8) % of the total votes of all shares.

On December 31, 2018 the President and CEO held and controlled 34,552 (22,664) series A shares. The President and CEO did not hold nor control any series K shares. Other Management Group members held and controlled 67,896 (36,664) series A shares but none series K shares.

Corporate Governance Statement includes more details on the shareholdings of the Board of Directors and the Management Group.

More information about Vaisala's shares and shareholders are presented on the company's website at www.vaisala.com/investors.

DONATIONS

In 2018, Vaisala donated a total of EUR 101,000. The most significant donations were to Metropolia and Arcada Universities for Applied Sciences, Academician Markku Kulmala Fund, The Finnish Science Centre Heureka, Ähtäri Zoo and Colorado University.

NON-FINANCIAL INFORMATION

Disclosure of non-financial information in accordance with Finnish Accounting Act chapter 3 a is presented in the Sustainability section of the Annual Report as well as on pages Business Model and Dashboard, included in the Creating Value section.

CORPORATE GOVERNANCE STATEMENT

Corporate Governance Statement is published as a part of the Annual Report as well as a separate report on the company's website at www.vaisala.com/investors.

NEAR-TERM RISKS AND UNCERTAINTIES

Uncertainties in international trade policies, political situation and governmental customers' budgetary constraints or changes in their sourcing criteria may reduce or delay demand for Vaisala's products and services.

Delay in developing applications for digital solutions as well as acquiring and in building related competences for sales and business operations may slow down growth in Weather and Environment Business Area. Closing of infrastructure contracts in Weather and Environment Business Area may be postponed by budgetary constraints, complex customer decision making processes, changes in scope, and financing. Disturbance in project delivery performance may reduce or postpone associated profit. Thus, Vaisala's financial performance may vary significantly over time.

Prolonged new product ramp-ups, market acceptances and regulatory certifications of new offering, such as power transformer monitoring products, supplementary air quality sensors and networks, and digital solutions, may postpone realization of Vaisala's growth plans.

Long interruption in production or test equipment or disruption in suppliers' and subcontractors' delivery capability or product quality may impact significantly Vaisala's net sales and profitability. Cyber risk and downtime of IT systems may impact operations, and delivery of digital solutions.

Vaisala's capability to successfully complete investments, acquisitions, divestments and restructurings on a timely basis and to achieve related financial and operational targets includes uncertainties and risks, which may negatively impact net sales and profitability.

Further information about risk management and risks are available on Annual Report and on the company website at www.vaisala.com/investors.

MARKET OUTLOOK FOR 2019

Market for traditional weather observation solutions is expected to be flat. Demand for weather observation solutions is expected to improve in Europe and moderately in China and in Americas. In Asia-Pacific, Middle East and Africa region demand is expected to decline moderately. Demand for digital solutions is expected to improve moderately compared to previous year.

Market for industrial measurement solutions is expected to continue to grow in all regions. Demand for continuous monitoring systems is expected to develop positively. Vaisala continues channel development and market entry with power transmission products, which has turned out to be challenging even though market is expected to develop positively.

BUSINESS OUTLOOK FOR 2019

Vaisala estimates its full-year 2019 net sales to be in the range of EUR 380–400 million and its operating result (EBIT) to be in the range of EUR 25–35 million including EUR 10–12 million acquisition related amortization and one-off expenses related to a lease contract.

BOARD OF DIRECTORS' PROPOSAL FOR DISTRIBUTION OF EARNINGS

The parent company's distributable earnings amount to EUR 159,556,810.95, of which the result for the period is EUR 28,738,865.09.

The Board of Directors proposes to the Annual General Meeting that dividend of EUR 0.58 per share be paid out of distributable earnings totaling approximately EUR 20.8 million and the rest to be carried forward in the shareholders' equity. No dividend will be paid for treasury shares held by the company.

There have been no significant changes in the company's financial position since the close of the financial period. According to the Board of Directors, the proposed dividend distribution does not endanger the company's financial standing.

ANNUAL GENERAL MEETING 2019

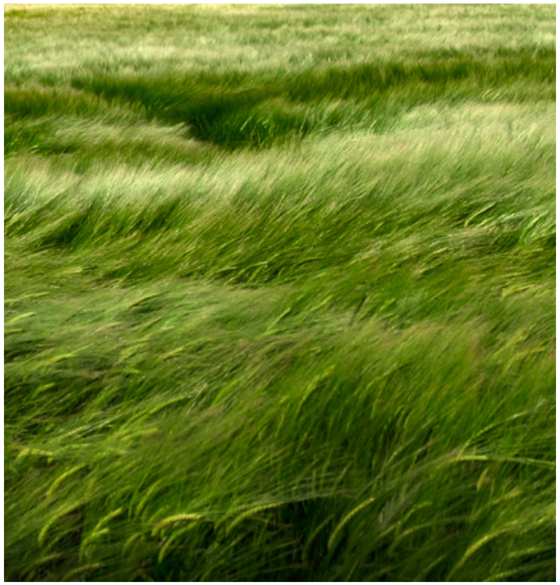
Vaisala's Annual General Meeting will be held on Tuesday, March 26, 2019 at 6:00 p.m. at Vaisala Corporation's head office, Vanha Nurmijärventie 21, 01670 Vantaa.

Vantaa, February 12, 2019

Vaisala Corporation
Board of Directors

The forward-looking statements in this release are based on the current expectations, known factors, decisions and plans of Vaisala's management. Although the management believes that the expectations reflected in these forward-looking statements are reasonable, there is no assurance that these expectations would prove to be correct. Therefore, the results could differ materially from those implied in the forward-looking statements, due to for example changes in the economic, market and competitive environments, regulatory or other government-related changes, or shifts in exchange rates.

Financial Statements 2018



The audited financial statements comprise the group income statement, statement of comprehensive income, consolidated statement of financial position, statement of changes in equity, statement of cash flows and notes, as well as the parent company's income statement, balance sheet, cash flow statement and notes to the financial statements.

CONSOLIDATED FINANCIAL STATEMENTS, IFRS

CONSOLIDATED STATEMENT OF INCOME

EUR million	Note	Jan 1-Dec 31, 2018	Jan 1-Dec 31, 2017
Net sales	1, 2, 3	348.8	332.6
Cost of sales	5, 16	-163.7	-158.5
Gross profit		**185.0**	**174.0**
Sales, marketing and administrative costs	5, 7, 16	-102.8	-93.7
Research and development costs	5, 7, 8, 16	-45.4	-39.6
Other operating income and expenses	4	2.1	0.1
Operating result		**38.9**	**40.9**
Share of result in associated company	26	0.1	0.1
Financial income and expenses, net	9	-1.5	-2.8
Result before taxes		**37.5**	**38.1**
Income taxes	10	-8.0	-10.9
Result for the period		**29.5**	**27.2**
Earnings per share for profit attributable to the equity holders of the parent company			
Earnings per share, EUR	11	0.82	0.76
Diluted earnings per share, EUR		0.81	0.75

CONSOLIDATED STATEMENT OF COMPREHENSIVE INCOME

EUR million	Note	Jan 1-Dec 31, 2018	Jan 1-Dec 31, 2017
Items that will not be reclassified to result			
Actuarial loss on post-employment benefits*	6	0.2	0.0
Total		**0.2**	**0.0**
Items that may be reclassified subsequently to result			
Currency translation differences		1.0	-3.2
Total		**1.0**	**-3.2**
Total other comprehensive income		**1.2**	**-3.2**
Total comprehensive income		**30.7**	**24.1**

* The figures are presented net of taxes.

The notes are an essential part of the financial statements.

CONSOLIDATED STATEMENT OF FINANCIAL POSITION

EUR million	Note	Dec 31, 2018	Dec 31, 2017
Assets			
Non-current assets			
Intangible assets	16	74.1	20.6
Property, plant and equipment	16	46.3	40.4
Investments		0.1	0.1
Investment in associated company	26	1.0	0.9
Long-term receivables	18	2.1	0.7
Deferred tax assets	10	9.8	7.6
Non-current assets, total		**133.2**	**70.3**
Current assets			
Inventories	13	32.0	28.6
Trade and other receivables	12	92.4	83.1
Income tax receivables		0.9	0.5
Cash and cash equivalents	21	72.7	91.3
Current assets, total		**198.0**	**203.5**
Assets classified as held for sale	24	**3.1**	**-**
Total assets		**334.4**	**273.8**

EUR million	Note	Dec 31, 2018	Dec 31, 2017
Shareholders' equity and liabilities			
Shareholders' equity	17		
Share capital		7.7	7.7
Other reserves		6.1	3.0
Cumulative translation adjustment		0.8	-0.2
Treasury shares		-9.0	-10.1
Retained earnings		177.3	185.1
Total equity		**182.9**	**185.4**
Non-current liabilities			
Interest-bearing liabilities	19	0.2	-
Post-employment benefit obligations	6	2.7	2.5
Deferred tax liabilities	10	9.4	0.5
Provisions for other liabilities and charges	15	0.2	0.2
Other non-current liabilities	19	5.6	2.7
Non-current liabilities, total		**18.0**	**5.8**
Current liabilities			
Interest-bearing liabilities	19	40.3	-
Unbilled advances received	3	5.7	4.6
Income tax liabilities		1.4	1.4
Provisions for other liabilities and charges	15	3.2	1.3
Trade and other payables	14	81.8	75.3
Current liabilities, total		**132.3**	**82.5**
Liabilities directly associated with assets classified as held for sale	24	**1.1**	**-**
Total liabilities		**151.5**	**88.4**
Total shareholders´ equity and liabilities		**334.4**	**273.8**

The notes are an essential part of the financial statements.

CONSOLIDATED STATEMENT OF CHANGES IN SHAREHOLDERS´ EQUITY

EUR million	Note	Share capital	Other reserves	Treasury shares	Translation differences	Retained earnings	Total equity
Shareholders' equity Jan 1, 2017		**7.7**	**2.0**	**-9.6**	**2.9**	**175.6**	**178.5**
Result for the period	17					27.2	27.2
Other comprehensive income	17		-0.0		-3.1	0.0	-3.2
Dividend paid	17					-17.8	-17.8
Return of unpaid dividends to shareholders' equity	17					0.1	0.1
Reclassification	17		0.0			-0.0	-
Purchase of treasury shares	17			-0.8			-0.8
Share-based payments	7, 17		1.0	0.3			1.4
Shareholders' equity Dec 31, 2017		**7.7**	**3.0**	**-10.1**	**-0.2**	**185.1**	**185.4**
Effect of IFRS 2 amendment			3.9				3.9
Effect of IFRS 15 transition, net of taxes						0.3	0.3
Effect of IFRS 9 transition, net of taxes						-0.2	-0.2
Shareholders' equity Jan 1, 2018		**7.7**	**6.8**	**-10.1**	**-0.2**	**185.2**	**189.3**
Result for the period	17					29.5	29.5
Other comprehensive income	17		0.0		1.0	0.2	1.2
Dividend paid	17					-37.6	-37.6
Share-based payments	7, 17		-0.7	1.1			0.4
Shareholders' equity Dec 31, 2018		**7.7**	**6.1**	**-9.0**	**0.8**	**177.3**	**182.9**

CONSOLIDATED CASH FLOW STATEMENT

EUR million	Note	Jan 1-Dec 31, 2018	Jan 1-Dec 31, 2017
Cash flow from operating activities			
Cash receipts from customers	1, 2	346.7	330.6
Cash paid to suppliers and employees		-289.3	-272.6
Financials paid, net	9	-0.4	-1.8
Income taxes paid, net	10	-8.7	-7.1
Total cash flow from operating activities		**48.3**	**49.2**
Cash flow from investing activities			
Acquisitions	23	-51.7	-2.0
Capital expenditure	16	-14.5	-8.5
Divestments		0.1	0.3
Total cash flow from investing activities		**-66.1**	**-10.2**
Cash flow from financing activities			
Dividend paid	17	-37.6	-17.9
Purchase of treasury shares	17	-	-0.8
Change in loan receivables		0.0	0.0
Proceeds from borrowings	19	40.0	-
Repayment of borrowings	19	-2.6	0.0
Total cash flow from financing activities		**-0.1**	**-18.6**
Change in cash and cash equivalents, increase (+) / decrease (-)		**-17.9**	**20.4**
Cash and cash equivalents at the beginning of the period		91.3	72.4
Net increase (+) / decrease (-) in cash and cash equivalents		-17.9	20.4
Cash classifed as assets held for sale		-1.1	-
Effect from changes in exchange rates		0.4	-1.5
Cash and cash equivalents at the end of the period	21	**72.7**	**91.3**

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

BASIC INFORMATION

Vaisala is a global leader in weather, environmental and industrial measurement. With more than 80 years of experience, Vaisala provides a comprehensive range of innovative observation and measurement products and services for chosen weather-related and industrial markets.

The parent company, Vaisala Corporation, is a Finnish public limited company, domiciled in Vantaa, Finland. The registered address is Vanha Nurmijärventie 21, FI-01670 Vantaa, Finland (P.O. Box 26, FI-00421 Helsinki). The company's Business ID is 0124416-2.

These financial statements have been approved for publication by the Board of Directors of Vaisala Corporation on February 12, 2019. Under the Finnish Companies Act, shareholders have the right to approve, reject or make changes to the financial statements in the Annual General Meeting to be held after the publication. A copy of the consolidated financial statements is available on the company's website at **www.vaisala.com/investors** or at the parent company head office at the address Vanha Nurmijärventie 21, FI-01670 Vantaa, Finland (P.O. Box 26, FI-00421 Helsinki).

ACCOUNTING PRINCIPLES FOR THE CONSOLIDATED FINANCIAL STATEMENTS

The consolidated financial statements of Vaisala have been prepared in accordance with International Financial Reporting Standards (IFRS) approved for adoption by the European Union, including International Accounting Standards (IAS) and the SIC and IFRIC Interpretations valid on December 31, 2018. In the Finnish Accounting Act and ordinances based on the provisions of the Act, IFRS refer to the standards and their interpretations adopted in accordance with the procedures laid down in regulation (EC) No. 1606/2002 of the European Parliament and of the Council. The notes to the consolidated financial statements are also in accordance with the Finnish accounting and corporate law.

The consolidated financial statements are presented in millions of euros, if not otherwise stated. All presented figures have been rounded and consequently the sum of individual figures may deviate from the presented sum. Financial statements are based on original acquisition costs, if not otherwise stated in the accounting principles. In the text section figures from previous years are presented in parenthesis.

CONSOLIDATION PRINCIPLES

The consolidated financial statements include the parent company Vaisala Corporation and those subsidiaries in which the Group has control. The Group has control of an entity when it is exposed, or has rights, to variable returns from its involvement with the investee and has the ability to affect those returns through its power over the investee. Subsidiaries, acquired or founded during the financial period, are consolidated from the date on which control is transferred to the Group and are no longer consolidated from the date that control ceases. The Group has 100 percent control over all its subsidiaries.

Business combinations are accounted for using the acquisition method. The consideration transferred is the fair value of transferred assets, issued equity interests and liabilities incurred to former owners. Any contingent consideration is recognized at fair value at the acquisition date and classified as a liability or equity. Contingent considerations classified as a liability are measured at fair value on each reporting date with changes recognized in consolidated statement of income. Identifiable assets acquired as well as assumed liabilities and contingent liabilities are measured initially at their fair values on the date of acquisition without deducting non-controlling interest. The amount by which the consideration transferred, the amount of any non-controlling interest in the acquiree and the acquisition date fair value of any previous equity interest exceeds the fair value of identifiable net assets is recognized as goodwill. If the consideration transferred is lower than the acquired net assets, the gain is recognized in consolidated statement of income on the acquisition date. All acquisition-related costs, except for the costs to issue debt or equity securities, are expensed in the periods in which the costs are incurred and the services are received.

Group's intercompany transactions, unrealized margins on internal deliveries, receivables and liabilities as well as dividends are eliminated. Unrealized losses on internal transactions are also eliminated unless costs are not recoverable or the loss results from an impairment. The consolidated financial statements are prepared applying consistent accounting principles to similar transactions and other events under equal conditions.

The share of profits or losses of associated companies, i.e. companies of which Vaisala owns 20–50% or over which it otherwise has significant influence, are included in the consolidated financial statements using the equity method. If Vaisala's share of an associated company's losses exceeds the carrying amount of the investment, the investment is recognized in the consolidated statement of financial position at zero value and further losses are not recognized unless the Group has incurred obligations on behalf of the associated company. Unrealized gains on transactions between the Group and its associated companies have been eliminated to the extent of the Group's interest in the associated companies.

The Group's share of associated companies' results is presented in the consolidated statement of income as a separate item before 'financial income and expenses'. Investments in associated companies are initially recognized at cost and the carrying amount is increased or decreased by the share of post-acquisition profits or losses. Distribution of profit received from an investment reduces the carrying amount of the investment.

FOREIGN CURRENCY TRANSLATION

Items relating to the consolidated result and financial position are measured using the currency of the primary economic environment in which the entity operates ("the functional currency"). The consolidated financial statements have been presented in euros, which is the parent company's functional and presentation currency.

Transactions in foreign currencies are recorded in the functional currency using the rate of exchange on the date of transaction. Receivables and payables in foreign currency have been valued at the rates quoted by the European Central Bank on the last trading date of the reporting period. Exchange rate differences resulting from the settlement of monetary items or from the presentation of items in the financial statements at different exchange rates from which they were originally recognized during the financial period or presented in the previous financial statements, are recognized as financial income or expenses in the financial period in which they arise.

Balance sheets of subsidiaries in other functional currency than euro have been translated into euros using the rates quoted by the European Central Bank on the last trading date of the reporting period. In translating statements of income monthly average exchange rates have been used. Translating the net income for the period using different exchange rates in the consolidated statements of income and in the consolidated statement of financial position, results in a translation difference, which is recognized in other comprehensive income. Translation differences arising from the elimination of the acquisition cost of foreign subsidiaries and the translation of the accumulated equity items after the acquisition are recognized in other comprehensive income. When a foreign subsidiary or associated company is disposed or partly disposed, the accumulated translation difference is recognized in the consolidated statement of income as part of the gain or loss on the sale.

Goodwill or fair value adjustments arising on the acquisition of a foreign entity are treated as assets and liabilities of the foreign entity in their functional currency and are translated at the rate of the last trading date of the reporting period.

NEW AND AMENDED IFRS STANDARDS THAT ARE EFFECTIVE FOR THE YEAR 2018

The following new or revised IFRSs have been adopted from January 1, 2018 in these consolidated financial statements:

IMPACT OF APPLICATION OF IFRS 15 REVENUE FROM CONTRACTS WITH CUSTOMERS

In 2018, Vaisala has applied IFRS 15 Revenue from Contracts with Customers (as amended in April 2016) which is effective for an annual period that begins on or after January 1, 2018. IFRS 15 Revenue from contracts with customers establishes a single comprehensive model for entities to use in accounting for revenue arising from contracts with customers. IFRS 15 superseded IAS 18 Revenue, IAS 11 Construction Contracts and the related interpretations. The core principle of IFRS 15 is that an entity should recognize revenue to depict the transfer of promised goods or services to customers with an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services. Under IFRS 15, an entity recognizes revenue when (or as) a performance obligation is satisfied, i.e. when control of the good or service underlying the particular performance obligation is transferred to the customer. These principles are applied using the following five steps:

1. Identify the contract(s) with a customer
2. Identify the performance obligations in the contract
3. Determine the transaction price
4. Allocate the transaction price to the performance obligations in the contract
5. Recognize revenue

Furthermore, IFRS 15 requires extensive disclosures.

IFRS 15 affects mainly Weather and Environment Business Area's project business, while effects on product and services businesses in Weather and Environment as well as Industrial Measurements Business Areas are limited.

Project business

Net sales of Weather and Environment Business Area's project business totaled EUR 76 million during financial year 2017 and EUR 65 million during financial year 2016. The major changes in project revenue recognition take place in the above mentioned steps two, four and five, whereas changes are limited in step one and step three.

As of January 1, 2018 Vaisala has recognized the revenue from projects based on percentage of completion method. Prior to 2018, Vaisala has rarely used percentage of completion method, and only in projects with very long delivery times. Generally, Vaisala has recognized project revenue separately for hardware and field service in accordance with their pro rata selling prices. Adoption of over-time revenue recognition will have an impact on timing of revenue recognition in Vaisala's project business since control over assets transfers to customers over time. Consequently, recognition of project revenue and profit will be advanced in most cases.

Product and service businesses

As previously, Vaisala has continued to recognize revenue of product deliveries based on delivery terms, and revenue of services when benefits are rendered to customers. Vaisala continues to recognize revenue of such fixed-time service contracts, which are negotiated in connection with delivery projects and commence after completion of the delivery projects, as separate performance obligations with over time revenue recognition method.

Detailed information on revenue streams is presented in the notes 1, Operating segments and 2, Geographical segments. The Group's accounting policies for its revenue streams are disclosed in detail in note 3, Revenue from Contracts with Customers.

Vaisala's financial reporting and transition

Under IFRS 15, January–December 2017 net sales would have been EUR 4 million lower and order book would have cumulatively been EUR 1 million lower compared to accounting principles applied in financial year 2017. This was due to earlier timing of revenue recognition. Revenue recognition principles applied in financial year 2017 also resulted in seasonality where revenue in third and especially in fourth quarter of a year were typically high. Adopting IFRS 15 results flatter revenue between quarters as the concrete project completion takes place more evenly throughout a year.

Vaisala has applied IFRS 15 in accordance with the modified retrospective transitional approach with the cumulative effect of initially applying the standard recognized at the date of initial application, i.e. January 1, 2018, as an adjustment to the opening balance of retained earnings. IFRS 15 is applied retrospectively only to contracts that are not completed contracts as of January 1, 2018. Following this, Vaisala has made an adjustment of EUR 0.3 million in retained earnings as at January 1, 2018. In addition, in the statement of financial position trade and other receivables EUR 2.8 million, inventories EUR -2.6 million, trade and other payables EUR -0.2 million and income tax liabilities EUR 0.1 million were adjusted following the IFRS 15 adoption. Figures in the comparison periods have not been restated retrospectively.

IFRS 15 uses the terms 'contract asset' and 'contract liability' to describe what is more commonly known as 'accrued revenue' and 'deferred revenue'. Vaisala has adopted the terminology used in IFRS 15 to describe such balances. In the notes 3, 12 and 14 IFRS 15 definitions are applied also for comparative information.

IFRS 2 (AMENDMENTS) CLASSIFICATION AND MEASUREMENT OF SHARE-BASED PAYMENT TRANSACTIONS

The Group has adopted the amendments to IFRS 2 for the first time in 2018.

The amendments clarify the following:

1. In estimating the fair value of a cash-settled share-based payment, the accounting for the effects of vesting and non-vesting conditions should follow the same approach as for equity-settled share-based payments.
2. Where tax law or regulation requires an entity to withhold a specified number of equity instruments equal to the monetary value of the employee's tax obligation to meet the employee's tax liability which is then remitted to the tax authority (typically in cash), i.e. the share-based payment arrangement has a 'net settlement feature', such an arrangement should be classified as equity-settled in its entirety, provided that the share-based payment would have been classified as equity-settled had it not included the net settlement feature
3. A modification of a share-based payment that changes the transaction from cash-settled to equity-settled should be accounted for as follows:
   (a) the original liability is derecognized;
   (b) the equity-settled share-based payment is recognized at the modification date fair value of the equity instrument granted to the extent that services have been rendered up to the modification date; and
   (c) any difference between the carrying amount of the liability at the modification date and the amount recognized in equity should be recognized in profit or loss immediately

Vaisala has adjusted other reserves in equity by EUR 3.9 million and trade and other payables by EUR -3.9 million as of January 1, 2018. Figures in the comparison period have not been restated retrospectively.

IMPACT OF INITIAL APPLICATION OF IFRS 9 FINANCIAL INSTRUMENTS

In 2018, Vaisala has applied IFRS 9 Financial Instruments (as revised in July 2014) and the related consequential amendments to other IFRS Standards that are effective for an annual period that begins on or after January 1, 2018. The transition provisions of IFRS 9 allow an entity not to restate comparatives. Vaisala has elected not to restate comparative information. As a result, the comparative information provided continues to be presented and accounted for in accordance with the Group's previous accounting policy. Additionally, Vaisala adopted consequential amendments to IFRS 7 Financial Instruments: Disclosures that were applied to the disclosures for 2018. Vaisala has applied IFRS 9 in accordance with the transition provisions set out in IFRS 9.

IFRS 9 introduced new requirements for:

1. the original liability is derecognized;
2. the equity-settled share-based payment is recognized at the modification date fair value of the equity instrument granted to the extent that services have been rendered up to the modification date; and
3. any difference between the carrying amount of the liability at the modification date and the amount recognized in equity should be recognized in profit or loss immediately

Details of these new requirements as well as their impact on the Group's consolidated financial statements are described below.

Classification and measurement of financial assets

The date of initial application (i.e. the date on which the Group has assessed its existing financial assets and financial liabilities in terms of the requirements of IFRS 9) is January 1, 2018. Accordingly, the Group has applied the requirements of IFRS 9 to instruments that continue to be recognized as at January 1, 2018 and has not applied the requirements to instruments that have already been derecognized as at January 1, 2018. Comparative amounts have not been restated in relation to any of the instruments.

All recognized financial assets that are within the scope of IFRS 9 are required to be measured subsequently at amortized cost or fair value on the basis of the entity's business model for managing the financial assets and the contractual cash flow characteristics of the financial assets.

Specifically:

- debt instruments that are held within a business model whose objective is to collect the contractual cash flows, and that have contractual cash flows that are solely payments of principal and interest on the principal amount outstanding, are measured subsequently at amortised cost;
- all other debt investments and equity investments are measured subsequently at fair value through profit or loss (FVTPL).

In 2018, the Group has not designated any debt investments that meet the amortized cost or FVTOCI (fair value through other comprehensive income) criteria as measured at FVTPL.

The directors of the company reviewed and assessed the Group's existing financial assets as at January 1, 2018, based on the facts and circumstances that existed at that date and concluded that the initial application of IFRS 9 has had the following impact on the Group's financial assets as regards their classification and measurement:

- there is no change in the measurement of the Group's investments in equity instruments that are held for trading (including derivative contracts); those instruments were and continue to be measured at FVTPL;
- financial assets classified as loans and receivables under IAS 39 (including trade and other receivables, non-current receivables as well as cash and cash equivalents) that were measured at amortized cost continue to be measured at amortized cost under IFRS 9 as they are held within a business model to collect contractual cash flows and these cash flows consist solely of payments of principal and interest on the principal amount outstanding.

As a result of standard change, trade and other receivables, long term receivables as well as cash and cash equivalents previously classified as loans and receivables are classified as amortized cost. None of the reclassifications of financial assets has had any impact on the Group's financial position, profit or loss, other comprehensive income or total comprehensive income in 2018.

There were no financial assets, which Vaisala had previously designated as at FVTPL under IAS 39 that were subject to reclassification, or which Vaisala has elected to reclassify upon the application of IFRS 9. There were no financial assets, which Vaisala has elected to designate as at FVTPL at the date of initial application of IFRS 9.

Impairment of financial assets

In relation to the impairment of financial assets, IFRS 9 requires an expected credit loss model as opposed to an incurred credit loss model under IAS 39. The expected credit loss model requires the Group to account for expected credit losses and changes in those expected credit losses at each reporting date to reflect changes in credit risk since initial recognition of the financial assets. In other words, it is no longer necessary for a credit event to have occurred before credit losses are recognized.

Specifically, IFRS 9 requires the Group to recognize a loss allowance for expected credit losses on:

1. Debt investments measured subsequently at amortized cost or at FVTOCI;
2. Lease receivables;
3. Trade receivables and contract assets; and
4. Financial guarantee contracts to which the impairment requirements of IFRS 9 apply.

In particular, IFRS 9 requires the Group to measure the loss allowance for a financial instrument at an amount equal to the lifetime expected credit losses (ECL) if the credit risk on that financial instrument has increased significantly since initial recognition, or if the financial instrument is a purchased or originated credit-impaired financial asset. However, if the credit risk on a financial instrument has not increased significantly since initial recognition (except for a purchased or originated credit-impaired financial asset), the Group is required to measure the loss allowance for that financial instrument at an amount equal to 12-months ECL. IFRS 9 also requires a simplified approach for measuring the loss allowance at an amount equal to lifetime ECL for trade receivables, contract assets and lease receivables in certain circumstances.

See impact of initial application of IFRS 9 on financial performance for financial details of the adjustments made as part of the initial application of the standard.

The consequential amendments to IFRS 7 have also resulted in more extensive disclosures about the Group's exposure to credit risk in the consolidated financial statements.

Classification and measurement of financial liabilities

A significant change introduced by IFRS 9 in the classification and measurement of financial liabilities relates to the accounting for changes in the fair value of a financial liability designated as at FVTPL attributable to changes in the credit risk of the issuer.

Specifically, IFRS 9 requires that the changes in the fair value of the financial liability that is attributable to changes in the credit risk of that liability be presented in other comprehensive income, unless the recognition of the effects of changes in the liability's credit risk in other comprehensive income would create or enlarge an accounting mismatch in profit or loss. Changes in fair value attributable to a financial liability's credit risk are not subsequently reclassified to profit or loss, but are instead transferred to retained earnings when the financial liability is derecognized. Previously, under IAS 39, the entire amount of the change in the fair value of the financial liability designated as at FVTPL was presented in profit or loss.

Including the above mentioned change, the application of IFRS 9 has had no impact on the classification and measurement of the Group's financial liabilities.

Detailed description of Vaisala's financial risk management is presented in the note 29.

There were no financial liabilities, which Vaisala had previously designated as at FVTPL under IAS 39 that were subject to reclassification or which Vaisala has elected to reclassify upon the application of IFRS 9. There were no financial assets or financial liabilities, which Vaisala has elected to designate as at FVTPL at the date of initial application of IFRS 9.

General hedge accounting

Vaisala does not apply hedge accounting and thus the IFRS 9 hedge accounting requirements have had no impact on the results and financial position of the Group for the current year.

Impact of initial application of IFRS 9 on financial performance

The application of IFRS 9 resulted in the following adjustment:

- Vaisala applies the simplified approach to recognize lifetime expected credit losses for its trade receivables as IFRS 9 requires or allows. Management estimates that the application of the expected credit loss model of IFRS 9 results in earlier recognition of credit losses for the respective items and will increase the amount of loss allowance recognized for these items. Following this, Vaisala has made an adjustment of EUR -0.2 million in retained earnings and trade and other receivables as at January 1, 2018.

The application of IFRS 9 has had no impact on the consolidated cash flows of the Group.

In 2018, the Group has applied a number of amendments to IFRS Standards and Interpretations issued by the International Accounting Standards Board (IASB) that are effective for an annual period that begins on or after January 1, 2018. Their adoption has not had any material impact on the disclosures or on the amounts reported in these financial statements.

ACCOUNTING PRINCIPLES REQUIRING MANAGEMENT JUDGMENT AND THE MAIN UNCERTAINTY FACTORS RELATING TO ESTIMATES

The preparation of financial statements in accordance with IFRS requires management to make estimates and exercise judgment in the application of the accounting policies. Preparing financial statements estimates and assumptions are made relating to the future and the actual outcomes may differ from the estimates and assumptions made. Estimates made and judgment exercised are based on previous experience and other factors, such as assumptions about future events that are believed to be reasonable under the circumstances. Estimates and assumptions are evaluated regularly.

Estimates have been made and judgment exercised especially in the following areas of the financial statements. Significant accounting principles and accounting estimates and judgments are described in each of the following notes.

- Revenue recognition (note 3)
- Allowances for excess and obsolete inventory (note 13)
- Fair value allocation of purchase price in business combinations (notes 16 and 23)
- Impairment testing (note 16)

Other estimates are related mainly to environmental, litigation, warranty, credit and tax risks, the determination of pension obligations as well as the utilization of deferred tax assets against future taxable income.

FINANCIAL DEVELOPMENT

1. Operating Segments

ACCOUNTING PRINCIPLES

Vaisala has a market segment based reporting model. Operating segments are reported in a manner consistent with the internal reporting provided to the chief operating decision-maker. The chief operating decision-maker, who is responsible for allocating resources and assessing performance of the operating segments, is the company's Management Group.

The operating segments consist of businesses for which the allocated resources and results are assessed by Vaisala's Management Group based on the operating result. Discontinued operations and items not included in operating segments are excluded. Pricing between segments is based on commercial terms. Vaisala has two operating segments; Weather and Environment Business Area and Industrial Measurements Business Area.

Weather and Environment Business Area serves weather dependent markets and customers. Customers consist of national meteorological institutes, airport operators, road and rail operators and defense forces, among others. In the private sector, Weather and Environment Business Area serves customers in the energy and maritime industry. The products of the Business Area serve and support the customers' decision making in all weather conditions.

Industrial Measurements Business Area serves customers who operate in industries in which the monitoring of conditions is crucial to optimize operational efficiency, product quality and energy consumption.

Revenue recognition principles are presented in note 3, Revenue from Contracts with Customers.

2018 EUR million	Weather and Environment	Industrial Measurements	Other operations	Vaisala total
Products	125.4	105.1		230.5
Projects	70.0			70.0
Services	36.9	11.4		48.3
Net sales	**232.3**	**116.4**	**0.0**	**348.8**
Revenue recognition at a point in time	144.1	107.5		251.7
Revenue recognition over time	88.2	8.9		97.1
Net sales	**232.3**	**116.4**	**0.0**	**348.8**
Operating result	**17.7**	**23.9**	**-2.7**	**38.9**
Share of result in associated company				0.1
Financial income and expenses				-1.5
Result before taxes				**37.5**
Income taxes				-8.0
Result for the financial year				**29.5**

2017 EUR million	Weather and Environment	Industrial Measurements	Other operations	Vaisala total
Products	112.0	98.7		210.7
Projects	76.4			76.4
Services	33.8	11.6		45.4
Net sales	**222.2**	**110.3**	**0.0**	**332.6**
Revenue recognition at a point in time	197.6	101.9		299.5
Revenue recognition over time	24.7	8.4		33.1
Net sales	**222.2**	**110.3**	**0.0**	**332.6**
Operating result	**18.2**	**22.8**	**-0.2**	**40.9**
Share of result in associated company				0.1
Financial income and expenses				-2.8
Result before taxes				**38.1**
Income taxes				-10.9
Result for the financial year				**27.2**

2. Geographical Segments

Vaisala's operating segments operate in geographical areas which are EMEA, Americas and APAC.[1]

2018 EUR million	Net sales, by destination country[2]	Net sales, by location country[3]	Non-current assets[3]
EMEA	102.3	283.9	98.8
of which Finland	7.8	241.5	95.2
Americas	136.8	124.0	23.0
of which United States	103.7	117.0	22.8
APAC	109.6	50.4	1.7
Eliminations		-109.5	
Total	**348.8**	**348.8**	**123.5**

2017 EUR million	Net sales, by destination country[2]	Net sales, by location country[3]	Non-current assets[3]
EMEA	107.7	267.2	38.9
of which Finland	9.3	236.0	38.5
Americas	127.3	120.2	22.1
of which United States	97.3	113.4	22.0
APAC	97.5	50.3	1.6
Eliminations		-105.2	
Total	**332.6**	**332.6**	**62.7**

[1] EMEA = Europe, Middle East and Africa, Americas = Americas, APAC = Asia and Pacific
[2] Sales to external customers have been presented as net sales by destination country
[3] Net sales and non-current assets have been presented according to the Group's and associated companies' countries

3. Revenue from Contracts with Customers

ACCOUNTING PRINCIPLES

Vaisala's net sales consist of revenue recognized from contracts with customers. Net sales are divided into products, projects and services. Indirect taxes and discounts have been deducted from sales revenue. Possible exchange rate differences are recognized in the financial income and expenses.

Product net sales include revenue from products, spare parts and system deliveries. System delivery contains standard product delivery with limited amount of configuration. Each distinct product delivery is a performance obligation. Revenue from the sale of product is recognized at a point in time when the control is transferred to the customer according to the delivery terms used.

Projects are integrated projects, in which observation solutions, consisting of products, services and software, are delivered. Solutions are integrated to customer systems according to customer specifications. Therefore, one project is one performance obligation under IFRS 15. As of the beginning of the financial year 2018, revenue for all projects is recognized over time using percentage of completion method. Progress is measured by cost-to-cost method, comparing incurred costs and forecasted costs, as it best describes the satisfaction of a performance obligation by transferring the promised asset to a customer. Projects meet the over-time revenue recognition criteria, either by creating an asset without an alternative use and Vaisala having an enforceable right to payment for performance completed to date and/or by creating an asset under customer control.

Services are divided into service contracts and one off service deliverables. Services may include maintenance, calibration and repair, modernization, extended warranties and data based solutions supporting decisions in weather critical operations. Service contracts are continuous services including for example extended warranty, availability of customer support and availability of spare part delivery. One service contract or one service deliverable is one performance obligation. Service contracts are recognized over time or point of time depending on the nature of the service and content of a contract. In case of one off request services, the revenue is recognized at a point in time when the service has been rendered.

Standard warranty period for products is one year and 2, 5 or 10 years for selected products. Standard warranty period for services is 6 or 12 months. Extended warranty is a separately sold and priced service over a separately agreed period. Revenue for extended warranty is recognized over time starting at the time of standard warranty expiration. Provision for warranty costs is recognized as described in Note 15, Provisions.

Accounting principles requiring management judgment and the main uncertainty factors relating to estimates

Revenue recognition under IFRS 15 requires management judgments related to cost, margin, stage of completion and forecasts throughout the project delivery. When the outcome of a project cannot be estimated reliably, project costs are recognized as expenses in the same period when they arise and project revenues only to the extent of project costs incurred where it is probable that those costs will be recoverable. When it is probable that total costs necessary to complete the project will exceed total project revenue, the expected loss is recognized as an expense immediately.

Disaggregation of revenue

Disaggregation of revenue is presented in Note 1, Operating Segments and Note 2, Geographical Segments.

Payment terms

Payment terms vary based on geographical areas. In product and service business, the standard payment term is 30 days net, but in some areas prepayments are commonly used. Project invoicing is based on milestones and typically follows the general project delivery terms where 30% is advance payment, 60% against delivery documents and 10% after site acceptance test. In project business the most common payment terms are letter of credit or as per contract.

Vaisala takes advantage of IFRS 15 practical expedient related to the significant financing component. In those cases, in which Vaisala expects, at contract inception, that the period between when Vaisala transfers a promised good or service to a customer and when the customer pays for that good or service will be one year or less, Vaisala does not adjust the promised amount of consideration for the effects of a significant financing component. Additionally, financing component is considered only if significant prepayment is received over one year in advance before related delivery.

Contract balances

The following table provides information about receivables, contract assets and contract liabilities from contracts with customers included in the statement of financial position.

EUR million	Dec 31, 2018	Dec 31, 2017	Jan 1, 2018
Trade receivables	62.6	60.4	60.2
Contract assets	17.8	12.0	14.8
Unbilled advances received	5.7	4.6	4.6
Contract liabilities	24.5	24.9	26.4

January 1, 2018 amounts have been adjusted to correspond accounting principles according to IFRS 15. Definitions for comparative information (December 31, 2017) are according to IFRS 15, even though Vaisala has not restated amounts for comparative periods retrospectively as part of the initial application of IFRS 15.

Contract assets include the balance of project and service revenue recognized but not yet invoiced.

In general, most of project revenue is recognized after the product manufacturing as percentage of completion increases and most of the performance obligation is satisfied. According to general project delivery terms, majority of project is invoiced at the time of delivery. Therefore, amount of contract assets is typically at its highest between product manufacturing phase of the project and delivery of the product to the customer. For services, which are satisfied over time, the customer is mainly invoiced in advance and only in some cases in arrears after the customer has received or consumed the service. Arrears invoicing generates contract asset balance as revenue is recognized before invoicing.

Unbilled advances received are customer payments related to contracts not yet invoiced.

Contract liabilities include the balance of projects, services and products invoiced but revenue not yet recognized. For projects, contract liability is often generated in the early phase of project lifecycle, when customer is invoiced in advance, but as the project is in early stage none or a minor part of the performance obligation has been satisfied and revenue recognized. Services, which are recognized over time, are often invoiced in advance and therefore contract liability is generated in the beginning of service period. For products and services, which are recognized at a point in time, contract liability is generated when customer has been invoiced, but performance obligation has not been satisfied and consequently revenue has not been recognized.

In 2018, Vaisala recognized EUR 20 million revenue that was included in the contract liability balance at the beginning of the period.

At the end of 2018, the performance obligations that are unsatisfied or partially unsatisfied, that is the order book, amounted to EUR 120.6 million. Of the order book EUR 91.0 million is scheduled to be recognized as revenue in 2019 and EUR 29.6 million is scheduled to be recognized later.

4. Other Operating Income and Expenses

ACCOUNTING PRINCIPLES

Other operating income consists mainly of gains on disposal of assets as well as income other than revenue from contracts with customers, such as gains on items related to business combinations and indemnities. Other operating expenses consist mainly of losses on disposal of assets and expenses relating to restructuring.

Other operating income

EUR million	2018	2017
Gain on the disposal of tangible assets	0.1	0.1
Gain on items related to business combinations	1.5	-
Indemnities	0.1	0.5
Other	0.4	0.2
Total	**2.1**	**0.8**

Other operating expenses

EUR million	2018	2017
Loss on the disposal of tangible assets	0.0	0.0
Restructuring expenses	0.0	0.6
Total	**0.0**	**0.7**
Other operating income and expenses, net	**2.1**	**0.1**

5. Personnel Expenses and Number of Personnel

Personnel expenses

EUR million	2018	2017
Salaries	108.2	103.8
Share-based payments	2.4	3.9
Social costs	9.4	9.5
Pensions		
Defined benefit plans	0.0	0.0
Defined contribution plans	13.6	12.7
Total	**133.6**	**129.9**

Personnel expenses by function

EUR million	2018	2017
Procurement and production	44.0	43.2
Sales, marketing and administration	55.0	55.1
Research and development	34.6	31.5
Total	**133.6**	**129.9**

Personnel, average by business area

Persons	2018	2017
Weather and Environment	719	659
Industrial Measurements	329	316
Other operations	630	617
Total	**1,678**	**1,592**

Personnel, average by geographical area

Persons	2018	2017
Finland	1,058	1,001
EMEA (excluding Finland)	131	107
Americas	345	348
APAC	144	136
Total	**1,678**	**1,592**

Information on share-based payments is disclosed in Note 7, Share-Based Payments.

Information on key management compensation is disclosed in Note 27, Related Party Transactions.

6. Pension Obligations

ACCOUNTING PRINCIPLES

Vaisala has in different countries a number of pension schemes, which are based on local practices. These pension schemes are classified either as defined contribution and/or as defined benefit plans. In defined contribution plans expenses are recognized in the statement of income on an accrual basis. TyEL pensions managed in insurance companies are defined contribution plans.

In defined benefit pension plans, liability to be recognized is the net amount of the present value of the defined benefit obligation in the end of the reporting period and the fair value of the plan assets adjusted by the unamortized portion of unrecognized past service cost. Actuaries, independent from Vaisala, calculate the defined benefit obligation by applying the projected unit credit method in which the estimated future cash flows are discounted to their present value using the interest rates approximating high quality corporate bonds. Pension cost is recognized in the statement of income concurrently with the service rendered by the personnel. Actuarial gains and losses are recognized in comprehensive statement of income.

Defined benefit plans

The defined benefit plans are in the parent company. Vaisala Pension Fund was closed on January 1, 1983. The pension fund liability was transferred to a pension insurance company on December 31, 2005, and the fund was dissolved in 2006. The company retains, however, an obligation under IAS 19 for future index and salary increases in terms of individuals covered by the Pension Fund who are employed by the company.

Defined benefit pension liability

EUR million	2018	2017
Fair value of funded obligations	5.0	5.7
Fair value of assets	-4.3	-4.9
Net liability in the statement of financial position at Dec 31	**0.7**	**0.8**

Amounts recognized in the statement of income and the statement of other comprehensive income

EUR million	2018	2017
Current service cost	0.0	0.0
Interest	0.0	0.0
Expense recognized in the statement of income	**0.0**	**0.0**
Net actuarial gain and loss	-0.3	-0.0
Total recognized in the statement of income and the statement of other comprehensive income	**-0.3**	**0.0**

Pension costs in the statement of income have been recognized in sales, marketing and administrative costs.

Present value of the obligation

EUR million	2018	2017
Changes in the present value of obligation		
Present value of obligation Jan 1	5.7	5.7
Current service cost	0.0	0.0
Interest cost	0.1	0.1
Remeasurements		
Actuarial gain (-) / loss (+) arising from changes in financial assumptions	-0.3	0.3
Experience adjustment	-0.2	0.0
Benefits paid	-0.3	-0.4
Present value of obligation Dec 31	**5.0**	**5.7**

Changes in the fair value of plan assets

EUR million	2018	2017
Fair value of plan assets Jan 1	4.9	4.9
Interest income on assets	0.1	0.1
Net return on plan assets	-0.2	0.3
Benefits paid	-0.3	-0.4
Contributions	-0.1	-0.0
Fair value of plan assets Dec 31	**4.3**	**4.9**

Changes of liabilities presented in the statement of financial position

EUR million	2018	2017
Liabilities Jan 1	0.8	0.7
Expense (+) / income (-) recognized in statement of income	0.0	0.0
Total recognized in other comprehensive income	-0.3	-0.0
Contributions paid	0.1	0.0
Liabilities Dec 31	**0.7**	**0.8**

Actuarial assumptions used

	2018	2017
Discount rate, %	1.58	1.12
Rate of salary increase, %	2.39	2.49
Rate of inflation, %	1.43	1.53
Annual adjustments to pensions, %	1.67	1.77

Sensitivity of the net liability changes in the principal assumptions

Assumption	Change in assumption	Increase in assumption	Decrease in assumption
Discount rate	0.25%	2.24% decrease	2.35% increase
Salary increase rate	0.25%	0.20% increase	0.20% decrease
Pension increase rate	0.25%	17.79% increase	17.38% decrease

Assumption	Increase by one year	Decrease by one year
Life expectancy at birth	4.42% increase	4.23% decrease

The above sensitivity analyses are based on a change in one assumption while holding all other assumptions unchanged. In practice, this is unlikely to occur, and changes in some of the assumptions may be correlated. The sensitivity of net liability for changes in assumptions has been measured using the same method as for the net liability in the statement of financial position.

7. Share-Based Payments

ACCOUNTING PRINCIPLES

Share-based payments are recognized as costs during the vesting period. The costs are based on the estimate of the amount of shares to be paid at the end of vesting period. Assumptions, on which estimates are based, are updated whenever changes occur and the effect of changes in assumptions are recognized in the statement of income.

Until the end of 2017, the cost of the equity-settled (share) part of the share-based payments corresponded to the value of Vaisala's series A share closing price on the grant date of the incentive plan, and the cash-settled (cash) part of the share-based payments was valued at the closing price of the share. As of January 1, 2018, the cost of the share part of the share-based payments as well as the cash part of the share-based payments correspond to the value of Vaisala's series A share closing price on the grant date of the incentive plan. Comparative information for 2017 related to share-based payments has been measured and presented according to accounting principles applied before January 1, 2018.

Expenses arising from share-based incentive plans

EUR million	2014	2015	2016	2017	2018	Total
Share-based incentive plan 2014	0.2	0.3	0.6	0.1	-	1.2
Share-based incentive plan 2015		0.5	1.1	1.6	-0.1	3.2
Share-based incentive plans 2016			0.7	1.2	0.6	2.5
Share-based incentive plan 2017				1.1	1.3	2.4
Share-based incentive plan 2018					0.6	0.6
Total	**0.2**	**0.8**	**2.4**	**4.0**	**2.5**	**9.9**

Share-based incentive plans The share issue without payment approved by Vaisala's Annual General Meeting on April 10, 2018 doubled the total number of series K and A shares. All share related figures have been adjusted to reflect the increased number of shares.

On December 18, 2014, the Board of Directors resolved for the Group key employees a share-based incentive plan that was based on the development of Group's profitability in calendar year 2015. The reward payment corresponded to 74% of the maximum target. On March 12, 2018, a total of 95,092 company's series A shares were conveyed without consideration to the 27 key employees participating in this incentive plan. The rest of the reward was paid in cash. Closing price of Vaisala's series A share was EUR 12.08 on the effective date of the incentive plan. A total expense of EUR 3.2 million was recognized of this plan in 2015–2018.

On December 16, 2015, the Board of Directors resolved for the Group key employees a share-based incentive plan that was based on the development of Group's profitability in calendar year 2016. The reward will be paid partly in Vaisala's series A shares and partly in cash in spring 2019. The cash proportion will cover taxes and tax-related costs arising from the reward to a key employee. The maximum amount of this plan originally corresponded to 400,000 shares and the reward payment will correspond to 49% of the maximum target. No reward will be paid if a key employee's employment or service ends before the reward payment date. The expenses of this share-based incentive plan are accrued over the term of the plan from May 2016 to March 2019. Closing price of Vaisala's series A share was EUR 11.57 on the effective date of the incentive plan. On December 31, 2018, this share-based incentive plan was directed to approximately 30 persons and the maximum reward payable totals to 176,904 Vaisala's series A shares, including the cash portion.

On February 10, 2016, the Board of Directors resolved for a share-based incentive plan, in which the earning criteria was uninterrupted employment of certain Group employees for a defined number of years. This share-based incentive plan ended in March 2018, and the remaining reward, corresponding to 3,000 Vaisala's series A shares including the cash portion, was conveyed without consideration to the key employees participating in this incentive plan. The rest of the reward was paid in cash. A total expense of EUR 0.3 million was recognized of this plan in 2016–2018.

On December 15, 2016, the Board of Directors resolved for the Group key employees a share-based incentive plan that was based on the development of Group's profitability in calendar year 2017. The reward will be paid partly in Vaisala's series A shares and partly in cash in spring 2020. The cash proportion will cover taxes and tax-related costs arising from the reward to a key employee. The maximum amount of this plan originally corresponded to 400,000 shares and the reward payment will correspond to 65% of the maximum target. No reward will be paid if a key employee's employment or service ends before the reward payment date. The expenses of this share-based incentive plan are accrued over the term of the plan from April 2017 to March 2020. Closing price of Vaisala's series A share was EUR 17.90 on the effective date of the incentive plan. On December 31, 2018, this share-based incentive plan was directed to approximately 35 persons and the maximum reward payable totals to 248,300 Vaisala's series A shares, including the cash portion.

On February 7, 2018, the Board of Directors resolved for the Group key employees a share-based incentive plan that is based on the development of Group's profitability in calendar year 2018. The reward will be paid partly in Vaisala's series A shares and partly in cash in spring 2021. The cash proportion will cover taxes and tax-related costs arising from the reward to a key employee. The maximum amount of this plan originally corresponded to 320,000 shares and the reward payment will correspond to 55% of the maximum target. No reward will be paid if a key employee's employment or service ends before the reward payment date. The expenses of this share-based incentive plan are accrued over the term of the plan from April 2018 to March 2021. Closing price of Vaisala's series A share was EUR 20.89 on the effective date of the incentive plan. On December 31, 2018, this share-based incentive plan was directed to approximately 30 persons and the maximum reward payable totals to 174,510 Vaisala's series A shares, including the cash portion.

8. Research and Development Expenditure

§ ACCOUNTING PRINCIPLES

Research and development expenditure is recognized as costs in the financial year in which they incur, except for machinery and equipment acquired for research and development use, which are capitalized and depreciated using the straight-line method.

According to IAS 38, an intangible asset is recognized in the statement of financial position only when it is probable that the company will derive financial benefit from the asset. Costs related to development of new products and processes are not capitalized because future benefit obtained from them are only assured when the products come to market. According to IAS 38 no intangible asset arising from research shall be recognized and if an entity cannot distinguish the research phase from the development phase of an internal project, the entity treats the expenditure as if it were incurred in research phase only. It is typical for the industry that it is not possible to distinguish the research stage of an internal project that aims to create an asset from its development stage.

The statement of income includes research and development costs of EUR 45.4 (39.6) million in 2018.

9. Financial Income and Expenses

ACCOUNTING PRINCIPLES

Exchange rate differences resulting from the settlement of monetary items or from the presentation of items in the financial statements at different exchange rates from which they were originally recognized during the financial period or presented in the previous financial statements, are recognized as financial income or expenses in the financial period in which they arise.

All derivative contracts are initially recognized at cost and subsequently remeasured at their fair value. Foreign exchange forward contracts are valued at their fair value using the market prices of forward contracts at the closing date. Unrealized and realized gains and losses arising from changes in the fair value are recognized in the statement of income in 'financial income and expenses" in the period in which they arise.

Financial income

EUR million	2018	2017
Interest and financial income	0.3	0.3
Gains arising from changes in fair values of derivative contracts	1.6	5.5
Foreign exchange gains	4.1	1.7
Total	**6.0**	**7.5**

Financial expenses

EUR million	2018	2017
Interest expenses		
Short- and long-term liabilities	0.1	0.2
Other financial expenses	0.2	0.2
Losses arising from changes in fair values of derivative contracts	4.1	1.3
Foreign exchange losses	3.0	8.6
Total	**7.4**	**10.3**
Financial income and expenses, net	**-1.5**	**-2.8**

Foreign exchange gains and losses include gains and losses mainly from revaluation of cash and cash equivalents, trade and other receivables, internal loans as well as trade and other payables.

10. Income Taxes

ACCOUNTING PRINCIPLES

The Group tax expense includes taxes of Group companies based on taxable profit for the financial year, together with tax adjustments for previous years and changes in deferred taxes. Taxes are recognized in the consolidated statement of income except when they are associated with items recognized in other comprehensive income or directly in shareholder's equity. Current taxes are calculated on the taxable income on the basis of the tax rates enacted or substantively enacted for each country by the end of reporting period. Taxes are adjusted for the taxes of previous financial periods, if applicable.

In financial reporting, deferred taxes are calculated for all temporary differences between the carrying amount of an asset or liability and its tax base, and those are measured with enacted or substantively enacted tax rates. Main temporary differences arise from provisions, accruals for operating expenses, depreciation and amortization, accruals for share-based incentive plans and tax losses carried forward. Other temporary timing differences consist mainly of provisions, accruals of operating expenses and revenue recognition. Deferred tax assets are recognized to the extent that it is probable that these can be utilized against future taxable profits.

Income taxes

EUR million	2018	2017
Tax based on taxable income for the financial period	8.7	8.2
Taxes from previous financial periods	-0.3	0.5
Change in deferred tax assets and liabilities	-0.4	2.2
Total	**8.0**	**10.9**

Reconciliation statement between statement of income tax item and taxes calculated at the tax rate of the Group country of domicile

EUR million	2018	2017
Result before taxes	37.5	38.1
Taxes calculated at the Finnish tax rate	7.5	7.6
Effect of foreign subsidiaries' tax rates	0.9	1.1
Non-deductible expenses and tax-free revenue	0.2	-0.1
Taxes from previous years	-0.3	0.5
Other direct taxes	0.1	0.0
Deferred tax adjustments	-0.4	1.8
Other	0.0	-0.1
Total	**8.0**	**10.9**
Effective tax rate	**21.4%**	**28.6%**

Vaisala has recognized in total of EUR 0.6 million deferred tax assets for tax losses carried forward related to business acquisitions. Vaisala had in total of EUR 16.4 million tax losses carried forward for which no deferred tax assets are recognized as of December 31, 2018. Additionally, deferred tax liabilities in total of EUR 9.3 million is recognized for intangible assets (including technology-based and customer related intangible assets) identified in business combinations as of December 31, 2018.

In 2017 re-measurement of deferred tax assets reflected the decrease in the US federal income tax rate from 35% to 21% from the beginning of 2018. The value of deferred tax assets in Vaisala Inc. decreased by approximately EUR 1.3 million.

On December 31, 2017 Vaisala's French subsidiary, Vaisala SAS, had EUR 1.0 million tax loss carried forward, which had not been recognized fully in previous years. Based on the company's financial performance, the deferred tax asset was recognized in full amount in 2017.

Deferred taxes in the statement of financial position

EUR million	2018	2017
Deferred tax assets	9.8	7.6
Deferred tax liabilities	-9.4	-0.5
Total	**0.4**	**7.1**

Gross change in deferred taxes recognized in the statement of financial position

EUR million	2018	2017
Deferred taxes Jan 1	7.1	10.8
Items recognized in statement of income	0.4	-2.2
Effect of business combinations	-7.4	-0.5
Translation differences	0.2	-1.0
Items recognized in equity	0.1	-
Items recognized in statement of comprehensive income	-0.1	-0.0
Deferred taxes Dec 31	**0.4**	**7.1**

Changes in deferred taxes during 2018

EUR million	Jan 1, 2018	Recognized in statement of income	Effect of business combinations	Translation differences	Recognized in equity	Recognized in statement of comprehensive income	Dec 31, 2018
Deferred tax assets							
Internal margin of inventories and fixed assets	0.6	0.1					0.7
Employee benefits	2.1	-0.1				-0.1	1.9
Unused tax losses	2.4	-0.3	0.6	0.2			2.8
Timing difference of amortization on intangible assets	0.3	0.2	1.7				2.2
Other temporary timing differences	2.2	-0.2	0.1	0.0	0.1		2.2
Total	**7.6**	**-0.4**	**2.4**	**0.2**	**0.1**	**-0.1**	**9.8**
Deferred tax liabilities							
Timing difference of amortization on intangible assets	0.5	-0.7	9.3				9.1
Other	0.0	-0.1	0.4	0.0			0.3
Total	**0.5**	**-0.8**	**9.7**	**0.0**			**9.4**
Deferred tax assets, net	**7.1**	**0.4**	**-7.4**	**0.2**	**0.1**	**-0.1**	**0.4**

Changes in deferred taxes during 2017

EUR million	Jan 1, 2017	Recognized in statement of income	Effect of business combinations	Translation differences	Recognized in statement of comprehensive income	Dec 31, 2017
Deferred tax assets						
Internal margin of inventories and fixed assets	1.1	-0.6				0.6
Employee benefits	1.8	0.5		-0.2	-0.0	2.1
Unused tax losses	2.9	-0.5		-0.0		2.4
Timing difference of amortization on intangible assets	0.8	0.0		-0.5		0.3
Other temporary timing differences	4.2	-1.7		-0.3		2.2
Total	**10.8**	**-2.2**		**-1.0**	**-0.0**	**7.6**
Deferred tax liabilities						
Timing difference of amortization on intangible assets			0.5			0.5
Other	0.0					0.0
Total	**0.0**		**0.5**			**0.5**
Deferred tax assets, net	**10.8**	**-2.2**	**-0.5**	**-1.0**	**-0.0**	**7.1**

11. Earnings per Share

ACCOUNTING PRINCIPLES

Earnings per share is calculated by dividing the result for the period attributable to the parent company's shareholders by weighted average number of issued shares during the financial year. Diluted earnings per share is calculated by adjusting the weighted average number of shares outstanding during the financial year with the diluted effect of potential shares from the share-based payments.

The Annual General Meeting held on April 10, 2018 resolved to issue new shares to the shareholders without payment in proportion to their holdings that one new share was issued for each share (split). After the split Vaisala has 36,436,728 shares. The change in the number of shares has been adjusted retrospectively in the per share calculations.

	2018	2017
Result attributable to shareholders of the parent company, EUR million	29.5	27.2
Weighted average number of shares outstanding, 1,000 pcs	35,772	35,693
Effect of share-based incentive plans, 1,000 pcs	603	658
Weighted average diluted number of shares, 1,000 pcs	36,376	36,351
Earnings per share, EUR	0.82	0.76
Diluted earnings per share, EUR	0.81	0.75

NET WORKING CAPITAL

12. Trade Receivables and Other Receivables

Accounting principles related to trade receivables and other receivables are presented in Note 19, Financial Assets and Liabilities.

Trade receivables and other receivables

EUR million	2018	2017
Trade receivables	62.6	60.4
Loan receivables	0.0	0.0
Advances paid	1.4	1.3
Value-added tax receivables	4.5	2.3
Other receivables	0.6	0.9
Contract assets*	17.8	12.0
Derivative contracts	0.0	1.5
Other prepaid expenses and accrued income	5.6	4.7
Total	**92.4**	**83.1**

The fair value of the trade and other receivables is, in all material respects, equivalent to their carrying amounts.

Expected credit losses of trade receivables

EUR million Dec 31, 2018	Trade receivables, gross amount	Credit loss allowance	Trade receivables, net amount
Current	46.2	0.1	46.0
Due less than 90 days	14.3	0.0	14.3
Due 91-180 days	1.0	0.2	0.8
Due over 180 days	1.7	0.7	1.0
Loss allowance made on other grounds than age analysis	1.7	1.1	0.5
Total	**64.8**	**2.2**	**62.6**

* IFRS 15 related definition "Contract assets" has been used also for comparative information. In previous financial statements the definition was "Unbilled receivables".

EUR million Jan 1, 2018 (on adoption of IFRS 9)	Trade receivables, gross amount	Credit loss allowance	Trade receivables, net amount
Current	41.1	0.1	41.0
Due less than 90 days	16.7	0.1	16.7
Due 91-180 days	1.4	0.2	1.2
Due over 180 days	1.6	0.8	0.9
Loss allowance made on other grounds than age analysis	1.1	0.7	0.5
Total	**62.0**	**1.8**	**60.2**

Reconciliation of credit loss allowances for trade receivables

EUR million	2018	2017
Loss allowance on Dec 31 - calculated under IAS 39	1.6	2.4
Amounts restated through opening balance of retained earnings	0.2	-
Opening balance for loss allowance on Jan 1 - calculated according to IFRS 9	1.8	2.4
Change in loss allowance recognized in profit or loss during the year	0.6	-0.5
Receivables written off during the year as uncollectible	-0.2	-0.2
Business combinations	0.2	-
Assets held for sale	-0.3	-
Exchange rate differences	0.0	-0.1
Total	**2.2**	**1.6**

Amounts for 2017 have been recognized according to IAS 39.

Credit losses and related reversals arising from trade receivables recognized for the financial year amounted to EUR -0.6 (+0.5) million.

Trade receivables by currency

EUR million	2018	2017
EUR	29.7	29.1
USD	23.3	20.3
GBP	2.7	3.2
JPY	4.3	3.5
AUD	1.1	0.6
CNY	0.6	1.0
CAD	1.1	1.4
Others	0.0	1.3
Total	**62.6**	**60.4**

13. Inventories

ACCOUNTING PRINCIPLES

Inventories are stated at the lower of standard cost and net realizable value. Inventory cost includes the cost of purchase (including mainly purchase price, import duties and transport), direct labor and a proportion of production overhead. An allowance is recorded for excess inventory and obsolescence.

Accounting principles requiring management judgment and the main uncertainty factors relating to estimates

Allowances for inventory are recognized for excesses, obsolescence and decreases in net realizable value below inventory cost. Estimation and judgment are required in determining the value of the allowance for excess and obsolete inventory. Management analyses demand estimates and determines allowances for excess and obsolete inventory. Changes in the estimates can result in revisions of the inventory valuation.

Inventories

EUR million	2018	2017
Materials, supplies and finished goods	32.0	26.5
Project inventories	-	2.1
Total	**32.0**	**28.6**

Due to the application of IFRS 15 Revenue from Contracts with Customers no project inventory is generated as of January 1, 2018.

The cost of inventories recognized as an expense against realized net sales was EUR 97.2 (93.3) million.

Vaisala recognized inventory write offs and excess and obsolescence allowances for slow moving and obsolete inventory to their estimated net realizable value which resulted in a loss of EUR 1.9 (1.8) million.

14. Trade Payables and Other Liabilities

ACCOUNTING PRINCIPLES

Trade payables are recognized on an accrual basis and due to short maturity the carrying amount corresponds to the fair value. Trade and other payables are classified as current liabilities if they are due within 12 months from the balance sheet date or are to be settled within the normal operating business cycle. Accounting principles for derivative contracts are presented in note 19, Financial Assets and Liabilities.

Trade payables and other liabilities

EUR million	2018	2017
Trade payables	14.9	12.8
Personnel cost accruals	25.7	26.7
Contract liabilities*	24.5	24.9
Derivative contracts	1.0	0.3
Other accrued expenses and deferred income	8.9	5.5
Other short-term liabilities	6.9	5.0
Total	**81.8**	**75.3**

* IFRS 15 related definition “Contract liabilities” has been used also for comparative information. In previous financial statements the definition was “Accrued revenue”.

Trade payables arise from ordinary course of business and they relate to purchases of inventories, intangible and tangible assets and other goods and services. Personnel cost accruals are mainly related to bonuses and unused holidays. Contract liabilities include amounts that have been invoiced but not yet recognized as revenue.

15. Provisions

ACCOUNTING PRINCIPLES

Provision is recognized when Vaisala has a legal or constructive obligation as the result of a prior event, 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. The amount recognized as a provision is the best estimate of the expenditure required to settle the present obligation at the end of reporting period. If the effect of the time value of money is material, the amount of provision is the present value of the expenditures expected to be required to settle the obligation. The discount factor used in calculating the present value is selected so that it reflects the market view of the time value of money and the risks related to the obligations at the time of examination.

Where some or all of the expenditure required to settle a provision is expected to be reimbursed by third party, the reimbursement is recognized as a separate asset but only when the reimbursement is virtually certain. The amount of provisions is reviewed at end of each reporting period and the amount is adjusted to reflect the current best estimate. A provision is reversed when the probability of financial settlement has been removed. A change in provision is recognized in the same item of the statement of income in which the provision was originally recognized.

Provisions can relate to restructuring of operations, loss-making contracts, warranties, legal disputes and other commitments.

Restructuring provision is recognized when a detailed and appropriate plan for restructuring has been prepared and the company has started to implement the plan or has announced it to those affected by it. Restructuring provisions include mainly lease termination penalties and employee termination payments.

A provision for a loss-making contract is recognized when unavoidable costs of meeting the obligation exceed the economic benefits expected to be received from the contract.

Warranty provision contains the estimated cost to repair or replace products still under warranty. Provision is calculated based on historical experience and estimated cost to cover the liability.

Long-term provisions

EUR million	2018	2017
Provisions Jan 1	0.2	0.0
Increase in provisions	0.0	0.2
Used provisions	-0.0	-
Exchange rate differences	0.0	-0.0
Provisions Dec 31	**0.2**	**0.2**

Short-term provisions

EUR million	2018	2017
Provisions Jan 1	1.3	1.8
Increase in provisions	2.3	0.5
Used provisions	-0.5	-1.0
Provisions Dec 31	**3.2**	**1.3**

In 2018 and 2017 provisions relate to warranties, restructuring, loss-making contracts and other commitments.

INTANGIBLE AND TANGIBLE ASSETS

16. Intangible and Tangible assets

ACCOUNTING PRINCIPLES

Goodwill

Goodwill represents the excess of the cost of an acquisition over the fair value of the Vaisala's share of the net assets of the acquired subsidiary or associated company at the date of acquisition. Goodwill is calculated in the currency of the operating environment of the acquired entity. If the acquisition cost is lower than the value of the acquired subsidiary's net asset value, the difference is recognized in the statement of income. Goodwill is not amortized, but tested annually for possible impairment and whenever there is an indication that the unit may be impaired. For this purpose goodwill has been allocated to cash-generating units. Vaisala's total goodwill is allocated to the cash-generating unit formed by the Weather and Environment Business Area. Goodwill is valued at acquisition cost less impairment losses. Impairment costs are recognized in the statement of income.

Technology-based and customer related intangible assets

Intangible assets identified in connection with acquisitions are measured at the fair value at the acquisition date. In business combinations consideration transferred has been allocated to technology-based and customer related intangible assets. Initial measurement of technology-based intangible assets has been prepared by applying cost approach method. Initial measurement of customer related intangible assets has been prepared by applying income or cost approach method. Intangible assets identified in connection with acquisitions are amortized over their delivery times or estimated useful lifetimes.

Other intangible assets

Other intangible assets include mainly patents, trademarks and (software) licenses. Other intangible assets are recorded initially at acquisition cost and amortized using the straight-line method over their useful lifetime. Intangible assets that have an indefinite useful lifetime are not amortized, but are tested annually for impairment. The carrying amount of these intangible assets is not material.

Estimated useful lifetimes for intangible assets are:

Technology-based intangible assets	7-8 years
Customer related intangible assets	1-5 years
Intangible rights	3–20 years
Software licenses	3–5 years
Other intangible assets	3–5 years

Property, plant and equipment

Property, plant and equipment comprise mainly land and buildings as well as machinery and equipment. The asset values are based on original acquisition cost less accumulated depreciation as well as possible impairment losses. The cost of self-constructed assets includes materials and direct labor as well as a proportion of overhead costs attributable to construction labor. If a tangible asset consists of several parts which have useful lifetime of different lengths, the parts are treated as separate assets. Accordingly, expenses relating to the renewal of a part are capitalized and the remaining part is recognized as an expense. Otherwise, expenditures that arise later are included in the carrying amount of the tangible assets only if it is probable that the future financial benefit connected with the asset is for the benefit of Vaisala and that the acquisition cost can be reliably determined. Other repair and maintenance expenses are recognized in the statement of income when realized.

Depreciation is calculated using the straight-line method and is based on the estimated useful lifetime of the asset. Land is not depreciated. Estimated useful lifetimes for assets are:

Buildings and structures	5–40 years
Machinery and equipment	3–8 years
Other tangible assets	3–8 years

The assets' residual values, depreciation methods and useful lifetimes are reviewed, and adjusted if necessary, in connection with each financial statement to reflect changes in the expectation of economic benefit. Gains and losses on disposals are determined by comparing the disposal proceeds with the carrying amount and are included in the operating profit.

Public grants received for investments are recognized as a reduction in the carrying amounts of tangible assets. Thus, grants are recognized in the form of smaller depreciations during the useful lifetime of the asset.

Lease agreements

Lease agreements of tangible assets in which Vaisala has a substantial part of the risks and rewards of ownership are classified as finance leases. Finance leases are recognized in statement of financial position as tangible assets at the commencement of the lease term at the lower of the fair value of the leased property and the present value of the minimum lease payments. An asset acquired under a finance lease is depreciated over the shorter of the useful lifetime of the asset or the lease term. Lease payments are allocated between the liability and finance charges so that a constant interest rate on the outstanding finance balance is achieved. The corresponding lease obligations, net of finance charges, are included in interest-bearing liabilities. The Group did not have any finance lease agreements at end of the reporting period 2017 and 2018.

Lease agreements in which the lessor retains a significant portion of the risks and rewards of ownership are treated as other leases. Payments made under other leases are charged to the statement of income on a straight-line basis over the period of the lease.

Impairment

On each closing date, Vaisala reviews assets for any indication of impairment. The need for impairment is examined at the cash-generating unit level, i.e. at the lowest unit level which is mainly independent of other units and whose cash flows are separate and highly independent from the cash flows of other, corresponding, units. If there is indication for impairment, the recoverable amount from the asset is assessed. The recoverable amount is assessed annually for the following assets irrespective of whether there is indication of impairment: goodwill, intangible assets which have an indefinite useful lifetime, as well as incomplete intangible assets.

The recoverable amount is the higher of the asset's fair value less the cost arising from disposal and its value in use. When determining value in use, the expected future cash flows are discounted based on their present values at discount interest rates, which reflect the average capital cost before taxes of the specific country and industry (WACC = weighted average cost of capital). The special risks related to the asset are also taken into account in the discount interest rates. In terms of an individual asset which does not independently generate future cash flows, the recoverable amount is determined for the cash-generating unit to which the asset belongs.

An impairment loss is recognized as an expense in the statement of income when the carrying amount is greater than the recoverable amount. The impairment loss is reversed if a change in conditions has occurred and the recoverable amount of the asset has changed since the date when the impairment loss was recognized. The impairment loss may be reversed only up to the amount which reflects the carrying amount of the asset (less depreciation) without the recognition of the impairment loss. Impairment losses recognized for goodwill are not reversed under any circumstances.

ACCOUNTING PRINCIPLES REQUIRING MANAGEMENT JUDGMENT AND THE MAIN UNCERTAINTY FACTORS RELATING TO ESTIMATES

IFRS 3 requires the acquirer to recognize an intangible asset separately from goodwill, if the recognition criteria are fulfilled. Recognition of an intangible asset at fair value requires management estimates of future cash flows. Where possible, management has used available market values as the basis of acquisition cost recognition in determining fair values. When this is not possible, which is typical particularly with intangible assets, valuation is based principally on the historic profits and costs of the asset and its intended use in business operations. Valuations are based on discounted cash flows as well as estimated disposal and repurchase prices and require management estimates and assumptions about the future use of assets and the effect on the company's financial position. Changes in the emphasis and direction of company's operations can result in changes to the original valuation in the future. Vaisala tests goodwill annually for possible impairment and reviews whether there are indications of impairment according to the accounting principle presented above. The recoverable amounts of cash-generating units have been determined in calculations based on value in use. Although assumptions made by the management are appropriate, the estimated recoverable amounts might differ substantially from those realized in the future.

Intangible assets

EUR million	Goodwill	Techonology-based intangible assets	Customer related intangible assets	Other intangible assets	Advance payments and construction in progress	Total
Acquisition cost Jan 1, 2018	16.2	2.3	0.1	35.9		54.5
Translation difference	0.7	-0.0		0.4		1.0
Increases				1.1	0.1	1.2
Business combinations	8.3	35.0	11.7	0.5	0.0	55.6
Decreases		-0.0		-5.0		-5.0
Transfers between items				0.2	0.2	0.4
Acquisition cost Dec 31, 2018	**25.2**	**37.3**	**11.8**	**33.1**	**0.4**	**107.8**
Accumulated amortization and impairment Jan 1, 2018		0.1	0.0	33.8		33.9
Translation difference		0.1		0.2		0.3
Accumulated amortization of decreases and transfers		-0.0		-5.0		-5.0
Amortization in financial year		1.2	2.3	0.9		4.4
Accumulated amortization and impairment Dec 31, 2018		**1.4**	**2.3**	**30.0**		**33.7**
Carrying amount Dec 31, 2018	**25.2**	**36.0**	**9.5**	**3.1**	**0.4**	**74.1**

EUR million	Goodwill	Techonology-based intangible assets	Customer related intangible assets	Other intangible assets	Total
Acquisition cost Jan 1, 2017	16.5			50.1	66.6
Translation difference	-2.0			-2.6	-4.6
Increases				0.7	0.7
Business combinations	1.7	2.3	0.1		4.1
Decreases				-12.2	-12.2
Acquisition cost Dec 31, 2017	**16.2**	**2.3**	**0.1**	**35.9**	**54.5**
Accumulated amortization and impairment Jan 1, 2017				46.6	46.6
Translation difference				-2.6	-2.6
Accumulated amortization of decreases and transfers				-12.2	-12.2
Amortization in financial year		0.1	0.0	2.1	2.2
Accumulated amortization and impairment Dec 31, 2017	**0.0**	**0.1**	**0.0**	**33.8**	**33.9**
Carrying amount Dec 31, 2017	**16,2**	**2,2**	**0,1**	**2,1**	**20,6**

IMPAIRMENT TESTING

Vaisala assesses the value of goodwill, intangible assets which have an indefinite useful lifetime, as well as incomplete intangible assets for impairment annually and whenever there is an indication that the unit may be impaired. The recoverable amount of cash-generating unit is based on value in use calculations and cash flows are based on five year forecasts approved by Vaisala management. Vaisala's total goodwill is allocated to the cash-generating unit formed by the Weather and Environment Business Area.

In Weather and Environment Business Area cash-generating unit recoverable amount exceeds book value by EUR 422 million. Weather and Environment Business Area sales are expected to grow annually 3-12% next five years. Terminal growth rate is based on 2% growth assumption and Weighted Average Cost of Capital (WACC) is 8.5%. Calculations indicate that with other assumptions unchanged cash-generating unit can withstand sales deteriorating 17%, profitability deteriorating 11% or discount rate increase 68%. In impairment testing the impact of the acquisition of Leosphere SAS has been taken into account in the amount of goodwill, intangible assets and in cash flows generated by cash generating unit. Goodwill related to Leosphere SAS has been allocated to the segment consisting of Weather and Environment Business Area.

Property, plant and equipment

EUR million	Land and waters	Buildings and structures	Machinery and equipment	Other tangible assets	Advance payments and construction in progress	Total
Acquisition cost Jan 1, 2018	2.9	55.2	72.0	0.1	4.1	134.2
Translation difference	0.1	0.3	0.7	0.0	0.0	1.1
Increases	1.6	0.3	4.1		6.9	12.8
Business combinations		0.0	0.9	0.0	0.2	1.1
Decreases		-0.3	-6.4		0.0	-6.7
Transfers between items		0.7	2.1		-4.1	-1.3
Acquisition cost Dec 31, 2018	**4.6**	**56.1**	**73.3**	**0.1**	**7.0**	**141.2**
Accumulated depreciation and impairment Jan 1, 2018		35.9	58.0			93.9
Translation difference		0.1	0.6			0.7
Accumulated depreciation of decreases and transfers		-0.3	-7.1			-7.4
Depreciation in financial year		2.4	5.2			7.6
Impairments in financial year		0.0	0.0			0.1
Accumulated depreciation and impairment Dec 31, 2018		**38.1**	**56.8**			**94.9**
Carrying amount Dec 31, 2018	**4.6**	**18.0**	**16.5**	**0.1**	**7.0**	**46.3**

On December 31, 2018, the carrying amount of machinery and equipment used in production was EUR 10.7 (9.2) million.

Property, plant and equipment

EUR million	Land and waters	Buildings and structures	Machinery and equipment	Other tangible assets	Advance payments and construction in progress	Total
Acquisition cost Jan 1, 2017	3.2	54.8	77.6	0.0	3.5	139.1
Translation difference	-0.2	-0.8	-3.3		0.0	-4.4
Increases		1.1	1.5	0.0	5.9	8.5
Business combinations			0.0			0.0
Decreases		-0.1	-8.9			-8.9
Transfers between items		0.2	5.1		-5.3	0.0
Acquisition cost Dec 31, 2017	**2.9**	**55.2**	**72.0**	**0.1**	**4.1**	**134.2**
Accumulated depreciation and impairment Jan 1, 2017		34.1	63.7			97.8
Translation difference		-0.5	-2.2			-2.7
Accumulated depreciation of decreases and transfers		-0.1	-8.7			-8.7
Depreciation in financial year		2.4	5.0			7.4
Impairments in financial year			0.2			0.2
Accumulated depreciation and impairment Dec 31, 2017		**35.9**	**58.0**			**93.9**
Carrying amount Dec 31, 2017	**2.9**	**19.2**	**14.0**	**0.1**	**4.1**	**40.4**

Depreciation, amortization and impairments by function

EUR million	2018	2017
Procurement and production	3.9	3.9
Sales, marketing and administration	7.5	5.2
Research and development	0.7	0.6
Total	**12.1**	**9.7**

Depreciation, amortization and impairments by asset group 2018

EUR million	Depreciation and amortization	Impairments	Total
Techonology-based intangible assets	1.2		1.2
Customer related intangible assets	2.3		2.3
Other intangible assets	0.9		0.9
Buildings and structures	2.4	0.0	2.4
Machinery and equipment	5.2	0.1	5.3
Total	**12.0**	**0.1**	**12.1**

Depreciation, amortization and impairments by asset group 2017

EUR million	Depreciation and amortization	Impairments	Total
Techonology-based intangible assets	0.1		0.1
Customer related intangible assets	0.0		0.0
Other intangible assets	2.0		2.0
Buildings and structures	2.4		2.4
Machinery and equipment	5.0	0.2	5.2
Total	**9.5**	**0.2**	**9.7**

CAPITAL STRUCTURE

17. Shareholders' Equity

ACCOUNTING PRINCIPLES

Group's equity consists of share capital, reserve fund, fund of invested non-restricted equity, translation differences and retained earnings.

Shares issued by the parent company are presented as share capital. Expenses related to the share issues or acquisition of own shares are presented as a reduction of equity. If the company acquires back its own shares, the consideration paid including direct costs is deducted from the equity.

The Board of Directors' proposal for dividend distribution is not recognized in the financial statements. The dividends are recognized on the basis of the Annual General Meetings' approval.

Shares and share capital

The Annual General Meeting held on April 10, 2018 resolved to issue new shares to the shareholders without payment in proportion to their holdings to that one new share was issued for each share (split). After the split Vaisala has 36,436,728 shares, of which 6,778,662 are series K shares and 29,658,066 are series A shares. The shares do not have nominal value. A maximum of 68,490,017 shares shall be series K shares and a maximum of 68,490,017 shares shall be series A shares, with the provision that the total number of shares shall be at least 17,122,505 and not more than 68,490,017. The series K shares and A shares are differentiated by the fact that each series K share entitles its owner to 20 votes at a General Meeting of Shareholders while each series A share entitles its owner to 1 vote. The shares have the same rights to dividend. Series K shares can be converted to series A shares according to specific rules stated in the Articles of Association. In 2017, 20 series K shares were converted to series A shares. This conversion was registered into the Trade Register on August 24, 2017.

On December 31, 2018 and 2017, the fully paid and registered share capital of Vaisala Corporation amounted to EUR 7,660,807.86. The Annual General Meeting held on April 10, 2018 resolved to delete stipulations in Articles of Association on minimum and maximum share capital.

Share capital and reserves

EUR million	Number of shares 1,000	Share capital	Other reserves	Treasury shares	Total
Dec 31, 2016	**17,851**	**7.7**	**2.0**	**-9.6**	**0.0**
Share-based compensation	23		1.0	0.3	1.4
Purchase of treasury shares	-23			-0.8	-0.8
Return of treasury shares	-5				
Transfer			0.0		0.0
Translation difference			-0.0		-0.0
Dec 31, 2017	**17,846**	**7.7**	**3.0**	**-10.1**	**0.6**
Adjustment to opening balance - IFRS 2 amendment			3.9		3.9
Jan 1, 2018	**17,846**	**7.7**	**6.8**	**-10.1**	**4.4**
Share-based compensation	49		-0.7	1.1	0.4
Share issue without payment	17,895				
Translation difference			0.0		0.0
Dec 31, 2018	**35,790**	**7.7**	**6.1**	**-9.0**	**4.8**
Own shares held by the company	647				
Total	**36,437**				

Other reserves

Other reserves consist of reserve fund and invested non-restricted equity. Share-based payments are also recognized in other reserves. Reserve fund, EUR 0.4 (0.4) million, contains items based on the local rules of other Group companies. Local restrictions apply to distribute funds from the reserve fund. Invested non-restricted equity includes funds transferred from the share premium fund. On December 31, 2018 the balance was EUR 0.1 (0.1) million.

Own shares held by the company

Own shares (treasury shares) include the acquisition cost of own shares held by Vaisala, and it is presented as a reduction of retained earnings.

Translation differences

Translation differences arise from the elimination of the acquisition cost of foreign subsidiaries and the translation of the accumulated equity items after the acquisition. Additionally, translating the net income for the period using different exchange rates in the consolidated statements of income and in the consolidated statement of financial position, results in a translation difference. The Group does not hedge the foreign exchange risk related to subsidiaries' equity.

The result for the period is recorded in retained earnings.

Treasury shares

	Number of shares	Purchase price EUR million
Treasury shares Dec 31, 2016	366,877	9.6
Distribution of treasury shares to key employees	-22,506	-0.3
Purchase of treasury shares	23,173	0.8
Return of treasury shares	4,820	-
Treasury shares Dec 31, 2017	**372,364**	**10.1**
Distribution of treasury shares to key employees	-49,046	-1.1
Share issue without payment	323,318	-
Treasury shares Dec 31, 2018	**646,636**	**9.0**

Vaisala Annual General meeting decided on March, 28, 2017 that the right to shares in Vaisala joint book-entry account is forfeited. The 4,820 shares on the joint book-entry account were transferred to Vaisala Corporation by the decision of the Board of Directors. 20 series K shares were converted to series A shares.

On December 31, 2018 Vaisala had 646,636 series A shares (366,877) in its possession that represent approximately 1.8% (2.0) of all shares and 0.4% (0.5) of voting rights. The consideration paid for the series A shares was EUR 9.0 million.

Treasury shares can be used as consideration in possible acquisitions or in other business related arrangements, to finance investments, as part of the company's incentive program, or be retained, conveyed, or cancelled by the company.

Dividend

For financial year 2017 a dividend of EUR 0.55 per share and an additional dividend of EUR 0.5 per share was paid, in total of EUR 37.6 million.

The Board of Directors proposes to the Annual General Meeting to be held on March 26, 2019 that a dividend of EUR 0.58 per share be paid for the financial year 2018, representing a total dividend of approximately EUR 20.8 million. The proposed dividend has not been recognized as a dividend liability in these financial statements.

18. Long-Term Receivables

EUR million	2018 values in statement of financial position	Fair values	2017 values in statement of financial position	Fair values
Long-term rent deposits	0.8	0.8	0.7	0.7
Advance payment for lease agreement	1.0	1.0	-	-
Other long-term receivables	0.2	0.2	-	-
Total	**2.1**	**2.1**	**0.7**	**0.7**

19. Financial Assets and Liabilities

ACCOUNTING PRINCIPLES

FINANCIAL ASSETS

Financial assets are classified into following categories: at amortized cost and at fair value through profit and loss. Financial assets are measured on the basis of the entity's business model for managing the financial assets and the contractual cash flow characteristics of the financial assets or by applying fair value option in connection with the original acquisition. All purchases and sales of financial assets are recognized on the clearance date.

Financial assets measured at amortized cost are held to maturity date within a business model to collect contractual cash flows and these cash flows consist solely of payments of principal and interest on the principal amount outstanding. Financial assets measured at amortized cost include mainly trade receivables, prepaid income, accrued income and other receivables.

In initial recognition of financial asset classified as at amortized cost is measured at fair value including transaction costs that are directly attributable to the acquisition. Due to the nature current trade receivables' and other receivables' carrying amount approximates to its fair value. Interest income related to these financial assets is measured with the effective interest rate method and included in the financial income. Financial assets are derecognized from statement of financial position when the contractual rights to the cash flows from the financial asset expire or the entity substantially transfers the risks and rewards outside the Group. Profit or loss related to the derecognition of financial assets from the statement of financial position is recognized in the statement of income. Impairment losses are recognized in the statement of income.

Financial assets recognized at fair value through profit and loss are financial assets that are held for trading purposes such as derivative instruments for which Vaisala does not apply hedge accounting according to IFRS 9. Realized and unrealized gains and losses arising from changes in fair value are recognized in the statement of income in the period in which they arise. Financial assets held for trading as well as those maturing within 12 months are included in current assets.

Impairment of financial assets

Credit loss allowance for trade receivables and contract assets is measured applying simplified approach according to IFRS 9 as no significant financing component is included in those assets. Lifetime expected credit losses are defined based on provision matrix, utilizing differing credit risk characteristics of receivable groups. Groupings are based on aging buckets, geographical regions, existence of collaterals and insolvency proceedings or other factors indicating increased credit risk. Expected credit loss risks of receivable groups are based on historical performance and management estimate. Changes in credit loss allowance equaling lifetime expected credit losses as well as permanent credit losses are recognized in the statement of income.

Cash and cash equivalents are recognized in the statement of financial position at original cost. Cash and cash equivalents consist of cash and deposits.

FINANCIAL LIABILITIES

Financial liabilities are classified into following categories: at amortized cost and at fair value through profit and loss. Financial liabilities are initially measured at fair value based on the original consideration received. Transaction costs are included in the original carrying amount of the financial liabilities. Subsequently all financial liabilities, except for derivative instruments, are measured applying the effective interest method at amortized cost. Financial liabilities are included both in current and non-current liabilities and those may be both interest-bearing and non-interest-bearing. Liabilities maturing in less than 12 months are presented in current liabilities. Financial liabilities are derecognized from statement of financial position when the obligation specified in the contract is discharged, cancelled or expires.

DERIVATIVE FINANCIAL INSTRUMENTS

Group's all derivative contracts are foreign exchange forward contracts. The Group has sales in a number of foreign currencies, of which the most significant are the USD, CNY, JPY and GBP. All derivative contracts are classified at fair value through profit and loss and are initially measured at fair value on the closing date of the derivative contract. Derivative contracts are subsequently measured at fair value through profit and loss at the end of each reporting date. Fair value of foreign exchange forward contract is measured at the present value of the future cash flows. Unrealized and realized gains and losses arising from changes in the fair value are recognized in the statement of income in financial income and expenses in the period in which they arise. Derivatives are included in the statement of financial position in other receivables and payables. The Group does not apply hedge accounting under IFRS 9 to foreign exchange forward contracts.

Fair value of the derivative contracts is based on information that is observable for the assets or liability, either directly (that is, as prices) or indirectly (that is, derived from prices). In addition to the quoted prices, Vaisala prepares own assessment using commonly acceptable valuation techniques. Hence Vaisala's forward contracts belong to the level 2 in fair value hierarchy. There were no transfers between the hierarchy levels in 2017 or 2018.

The Group has a number of investments in foreign subsidiaries whose net assets are exposed to foreign currency risk. The Group does not hedge the foreign exchange risk related to subsidiaries' net assets.

NON-CURRENT ASSETS HELD FOR SALE AND DISCONTINUED OPERATIONS

A non-current asset (or disposal group) is classified as held for sale if its carrying amount will be recovered principally through a sale transaction rather than through continuing use and a sale is considered highly probable. A sale is considered highly probable when Group Management is committed to a plan to sell the asset, the asset can be sold immediately in its current condition with general and common terms and the sale will be completed within one year from the date of classification.

Non-current assets held for sale are measured at the lower of their carrying amount and fair value less cost to sell. Depreciation of these assets is ceased on the date of classification. The result of discontinued operations is presented as a separate item in the consolidated statement of income. Non-current assets classified as held for sale, groups of disposed items, items which relate to assets held for sale recognized in statement of comprehensive income as well as liabilities included in the groups of disposed items are presented separately from other items in the consolidated statement of financial position.

Above mentioned accounting principles related to financial assets and liabilities are in accordance with IFRS 9 Financial instruments (effective as of January 1, 2018). Comparative information for 2017 has been measured and presented according to accounting principles effective before January 1, 2018.

Classification of financial assets and liabilities as of December 31, 2018

EUR million	Fair value through profit and loss	Amortized cost	Carrying amount of statement of financial position items	Fair value	Note
Financial assets					
Long-term receivables		2.1	2.1	2.1	18
Trade receivables and other receivables	0.0	63.2	63.3	63.3	12
Cash and cash equivalents		72.7	72.7	72.7	21
Total	**0.0**	**138.0**	**138.0**	**138.0**	
Financial liabilities					
Interest bearing long-term liabilities		0.2	0.2	0.2	19
Non-interest bearing long-term liabilities		5.3	5.3	5.3	19
Interest bearing short-term liabilities		40.3	40.3	40.3	19
Trade payables and other liabilities	1.0	17.5	18.4	18.4	14
Total	**1.0**	**63.3**	**64.2**	**64.2**	

Classification of financial assets and liabilities as of December 31, 2017

EUR million	Assets/liabilities recognized at fair value through profit and loss and derivatives used for hedging	Loans and receivables	Financial liabilities at amortized cost	Carrying amount of statement of financial position items	Fair value	Note
Financial assets						
Long-term receivables		0.7		0.7	0.7	18
Trade receivables and other receivables	1.5	61.3		62.8	62.8	12
Cash and cash equivalents		91.3		91.3	91.3	21
Total	**1.5**	**153.3**		**154.8**	**154.8**	
Financial liabilities						
Non-interest bearing long-term liabilities			2.7	2.7	2.7	19
Trade payables and other liabilities	0.3		13.6	13.9	13.9	14
Total	**0.3**		**16.3**	**16.6**	**16.6**	

On October 5, 2018, Vaisala signed a EUR 50 million unsecured revolving credit facility. The committed credit facility agreement matures in 5 years from the signing and it has no financial covenants. The facility will be used for working capital needs, for financing of acquisitions and for general corporate purposes. On December 31, 2018, Vaisala had interest bearing liabilities totaling EUR 40.5 million, of which EUR 40 million related to utilized revolving credit facility, which matures on April 10, 2019. Vaisala has no loans that would mature after five years or a longer period of time. At the end of 2017 Vaisala did not have any interest-bearing loans.

Maturity and interest rates of interest-bearing liabilities

EUR million	2019	2020	2021	Interest rates
Revolving credit facility	40.0			0.65%
Loans from financial institutions	0.1	0.1	0.1	2.39–4.96%
Other interest-bearing loans	0.0	0.2		1%
	40.1	**0.3**	**0.1**	

Derivative contracts

EUR million	2018	2017
Nominal value of derivative contracts made to hedge against exchange rate risk		
Foreign exchange forwards	26.9	38.8
Nominal value, total	**26.9**	**38.8**

Nominal value of derivate contracts in currencies

	2018 currency million	EUR million	2017 currency million	EUR million
USD	26.0	21.6	37.0	31.7
AUD	1.2	0.7	1.0	0.6
CAD	-	-	1.2	0.8
CNH	20.0	2.5	20.0	2.5
GBP	-	-	0.8	0.8
JPY	270.0	2.1	310.0	2.3
Total		**26.9**		**38.8**

Maturity of derivative contracts

EUR million	2018	2017
Less than 90 days	12.1	15.2
Over 90 days and less than 120 days	2.9	4.8
Over 120 days and less than 180 days	8.2	7.7
Over 180 days and less than 360 days	3.8	11.2
Total	**26.9**	**38.8**

Fair value of derivative contracts made to hedge against exchange rate risk

EUR million	2018	2017
Foreign exchange forwards	-0.9	1.2

20. Liabilities in Cash Flow from Financing Activities

Reconciliation of movements of liabilities to cash flow arising from financing activities	Balance at December 31, 2017	Cash flow effect	Business combinations	Balance at December 31, 2018
Loans from financial institutions	-	-2.6	2.9	0.2
Credit facility	-	40.0		40.0
Other interest-bearing liabilities	-		0.2	0.2
Total	**-**	**37.4**	**3.1**	**40.5**

21. Cash and Cash Equivalents

Accounting principles related to cash and cash equivalents are presented in Note 19, Financial Assets and Liabilities.

Cash and cash equivalents

EUR million	2018	2017
Cash and cash equivalents	72.7	91.3

The fair values of cash and cash equivalents are equivalent to their carrying amounts.

22. Contingent Liabilities and Pledges Given

Contingent liabilities and pledges given

EUR million	2018	2017
For own loans/commitments		
Bank guarantees issued for obligations	19.5	17.9
Pledges given	0.8	-
Rental and leasing contracts	16.6	6.1
Total	**36.8**	**24.0**

Investment commitments

Vaisala has commitments related to Vantaa and Louisville building projects in total of EUR 1 million. In addition, Vaisala has other commitments related to intangible and tangible assets for EUR 3 million.

Purchase commitments

Vaisala has purchase commitments totaling to EUR 12 million. Additionally, Vaisala has purchase agreement related commitments, maximum amount of which would be EUR 18 million, if those realized.

The above mentioned amounts related to investment and purchase commitments are presented as of December 31, 2018. Comparative information is not presented as it is not reliably verified.

Rent and leasing commitments

Vaisala has operating leases related to offices, warehouses, land, cars and office equipment, among others. Some of the contracts contain renewal options for different periods of time.

In 2018, the rental expenses were EUR 4.4 (5.7) million. At the end of 2018 and 2017 there were no assets leased under financial lease arrangements.

OTHER NOTES

23. Business Combinations

BUSINESS COMBINATIONS IN 2018

On October 10, 2018 Vaisala acquired all the shares in Leosphere SAS, a French company specializing in developing, manufacturing and servicing turnkey wind lidar (light detection and ranging) instruments for wind energy, aviation, meteorology and air quality. The acquisition supports Vaisala's Weather and Environment Business Area's strategy to drive industry leadership and growth through strengthening its position as a global leader providing remote wind sensing technologies, which are relevant for several Vaisala's key customer segments.

In 2017, Leosphere's net sales were EUR 27 million.

Net sales of the acquired company between October 11, 2018 and December 31, 2018 were EUR 9.9 million and operating result EUR 3.2 million. If the acquisition had occurred on January 1, 2018, management estimates consolidated net sales would have been EUR 367 million and operating profit EUR 34 million.

The preliminary consideration transferred was EUR 54 million. The preliminary consideration transferred includes EUR 3.8 million contingent consideration based on the financial development after the consolidation date. The range of the outcome of the contingent consideration is from EUR 0 to 6.6 million.

Goodwill was preliminarily recognized for EUR 8 million and allocated to Weather and Environment Business Area cash-generating unit. Goodwill of this acquisition reflects the synergies for Vaisala expected to arise especially from faster access to markets utilizing laser based technology in their measurements and the possibilities for Vaisala Group related to know-how and expertise obtained in the acquisition.

Acquisition related costs amounted to EUR 1.6 million and those have been included in the consolidated statement of income.

As the acquisition was finished during the last quarter of the year, the assets acquired, liabilities assumed and consideration transferred related to the business combination have been recognized provisionally.

The preliminary amounts of the assets acquired and liabilities assumed recognized and the cash flow from the acquisition were as follows:

EUR 1,000	Fair value recognized on acquisition
Goodwill	8,286
Technology-based intangible assets	27,321
Customer related intangible assets	7,123
Other intangible assets	215
Tangible assets	771
Long-term receivables	1,299
Deferred tax assets	2,327
Inventory	8,459
Trade receivables and other receivables	13,289
Cash and cash equivalents	10,672
Total assets	**79,762**
Deferred tax liabilities	7,269
Non-current liabilities	2,262
Provisions	357
Current liabilities	16,328
Total liabilities	**26,216**
Net assets	**53,546**
Purchase price paid in cash	-49,747
Cash and cash equivalents acquired	10,672
Total net cash outflow on acquisition	**-39,075**

On December 31, 2018 Vaisala acquired all the shares in K-Patents Oy and Janesko Oy (K-Patents), Finnish companies specializing in developing, manufacturing and servicing in-line liquid measurements for industrial applications. The acquisition broadens Industrial Measurements Business Area's product offering to liquid measurements and strengthens its position in the industrial measurement market.

In 2017, K-Patent's net sales were EUR 11.4 million.

The preliminary consideration transferred was EUR 15 million.

Acquisition related costs were immaterial. As the acquisition was finished on the last day of the reporting period, the assets acquired, liabilities assumed and consideration transferred related to the business combination have been recognized provisionally.

The preliminary amounts of the assets acquired and liabilities assumed recognized and the cash flow from the acquisition were as follows:

EUR 1,000	Fair value recognized on acquisition
Technology-based intangible assets	7,718
Customer related intangible assets	4,556
Other intangible assets	320
Tangible assets	332
Other financial assets	50
Deferred tax assets	32
Inventory	1,996
Trade receivables and other receivables	2,032
Cash and cash equivalents	2,548
Total assets	**19,584**
Deferred tax liabilities	2,460
Non-current liabilities	37
Current liabilities	2,087
Total liabilities	**4,584**
Net assets	**15,000**
Purchase price paid in cash	-15,000
Cash and cash equivalents acquired	2,548
Total net cash outflow on acquisition	**-12,452**

A contingent consideration liability relating to prior acquisitions totaling EUR 0.2 million was paid in 2018. The remaining contingent consideration for acquisitions is EUR 0.3 million. Additionally, reversal of contingent consideration liability amounting to EUR 1.0 million was recognized as other operating income based on the financial development after the business combinations.

BUSINESS COMBINATIONS IN 2017

On October 26, 2017, Vaisala acquired a Finnish IT company, Vionice Oy, specialized in computer vision. The acquisition followed Vaisala's Weather and Environment Business Area's strategy in which the company is aiming for growth through acquisitions in its focus segments and expansion to environmental measurements. Vaisala has continued selling Vionice's product portfolio globally to its road and rail customers. In addition, Vaisala has utilized Vionice team expertise and existing computer vision platform by developing new innovative offering to Weather and Environment Business Area customer segments. Vaisala's ownership of Vionice after the acquisition is 100%.

In 2016, Vionice's net sales were EUR 0.2 million.

Net sales of the acquired company between October 27, 2017 and December 31, 2017 were EUR 0.1 million and operating result EUR 0.1 million. If the acquisition had occurred on January 1, 2017, management estimates consolidated net sales would have been EUR 332.7 million and operating profit EUR 40.6 million.

The consideration transferred was EUR 3.7 million. Of the purchase price, EUR 2.2 million was paid at the time of purchase and the hold-back amount and the contingent consideration to be paid in 2019-2021 is in total of EUR 1.5 million. Goodwill was recognized for EUR 1.7 million and allocated to the cash-generating unit formed by the Weather and Environment Business Area.

Acquisition related costs were immaterial.

The amounts of the assets acquired and liabilities assumed recognized and the cash flow from the acquisition were as follows:

EUR 1,000	Fair value recognized on acquisition
Goodwill	1,674
Technology-based intangible assets	2,292
Customer related intangible assets	143
Other intangible assets	0
Tangible assets	3
Trade receivables and other receivables	67
Cash and cash equivalents	213
Total assets	**4,391**
Deferred tax liabilities	487
Non-current liabilities	166
Current liabilities	40
Total liabilities	**693**
Net assets	**3,699**
Purchase price paid in cash	-2,200
Cash and cash equivalents acquired	213
Total net cash outflow on acquisition	**-1,987**

24. Non-Current Assets Classified as Held for Sale and Related Liabilities

Vaisala has classified Weather and Environment Business Area's renewable energy digital solutions business as non-current assets held for sale. The transaction is expected to be completed by the end of 2019. The liabilities related to non-current assets classified as held for sale were EUR 1.1 million.

Non-current assets held for sale

EUR million	2018
Tangible assets	0.1
Receivables	1.8
Cash and cash equivalents	1.1
Total	**3.1**

25. Subsidiaries

Name	Country	Group ownership %, 2018	Group ownership %, 2017
Vaisala Holding Oy	Finland	100	100
Vionice Oy	Finland	-	100
Vaisala Limited	United Kingdom	100	100
Vaisala Pty Ltd.	Australia	100	100
Vaisala GmbH	Germany	100	100
Vaisala KK	Japan	100	100
Vaisala Inc.	United States	100	100
Vaisala China Ltd	China	100	100
Vaisala Canada Inc.	Canada	100	100
Tycho Technology Inc	United States	-	100
Vaisala SAS	France	100	100
Vaisala Sdn Bhd	Malaysia	100	100
Vaisala Servicos De Marketing Ltda	Brazil	100	100
3TIER R&D India Pvt Ltd	India	100	100
Vaisala East Africa Limited	Kenya	100	100
Vaisala Mexico Limited, S. de R.L. de C.V	Mexico	100	100
Leosphere SAS	France	100	-
Upwind SAS	France	100	-
SCI Septentrion	France	100	-
Minas Ltd	China	100	-
K-Patents Oy	Finland	100	-
K-Patents Inc.	United States	100	-
K-Patents (Shanghai) Co.,Ltd.	China	100	-
Janesko Oy	Finland	100	-

26. Associated Company

Accounting principles related to associated companies are presented in Consolidation Principles. The Group has one associated company, SAS Meteorage. SAS Meteorage is a French company, which maintains lightning detection networks and sells information related to lightning strikes. Ownership in Meteorage supports Vaisala's role in the global lightning detection community.

Company name	Place of incorporation and principal place of business	Share of ownership	Measurement method
SAS Meteorage	France	35%	Equity method

Summarized financial information of the associated company

EUR million	2018	2017
Non-current assets	2.2	2.5
Current assets	2.4	2.1
Liabilities	1.9	2.0
Net assets	**2.7**	**2.5**
Vaisala's share of net assets	1.0	0.9
Net sales	3.5	3.2
Result for the period	0.3	0.2

The information presented in the table is based on latest available financial information.

Carrying amount of investments in associated company

EUR million	2018	2017
Carrying amount at Jan 1	0.9	0.8
Share of result	0.1	0.1
Dividend received	-0.0	-0.0
Carrying amount at Dec 31	**1.0**	**0.9**

The carrying value of the associated company does not include goodwill.

Transactions with associated company and receivables and liabilities

EUR million	2018	2017
Sales	0.1	0.2
Receivables	0.0	0.1

27. Related Party Transactions

Related parties of Vaisala Group are the parent company, subsidiaries, associated company, members of Board of Directors and Management Group. Related party transactions are based on market prices of goods and services and common market terms. Related party information is presented only to extent it is not eliminated in Group consolidation.

The subsidiaries are presented in note 25, Subsidiaries and the associated company in note 26, Associated Company. Transactions with the associated company as well as receivables and liabilities are presented in note 26, Associated Company.

Employee benefits of management

EUR 1,000	2018	2017
Salary and bonuses of the President and CEO (payment basis)		
Forsén Kjell		
Salary	515	512
Bonuses	302	191
Share-based payments	502	205
Obligatory pension	146	126
Voluntary pension	120	120
Total	**1,586**	**1,154**
Remuneration of the members of the Management Group (excl. the President and CEO) (payment basis)		
Salaries	1,393	1,363
Bonuses	622	423
Share-based payments	1,319	580
Obligatory pensions	360	320
Voluntary pensions	235	228
Total	**3,929**	**2,915**

Comparative information for 2017 has been changed and is presented on payment basis.

Retirement age of the President and CEO is 62 years. The President and CEO has a voluntary defined contribution plan. Compensation equal to 12 month salary is paid to the President and CEO, if employer terminates the CEO agreement. In case the President and CEO resigns, compensation equal to 6 month salary is paid.

Remuneration of the Board of Directors 2018 (payment basis)

EUR 1,000		Annual remuneration	Compensation, Audit Committee	Compensation, Remuneration and Human Resources Committee	Total
Castrén Petri	Member of the Board	35	5	3	43
Lundström Petra	Member of the Board	35			35
Neuvo Yrjö	Vice Chairman of the Board	35			35
Niinivaara Mikko	Member of the Board	35	5	3	43
Ståhlberg Kaarina	Member of the Board	35	8		43
Torstila Pertti	Member of the Board	35			35
Voipio Raimo	Chairman of the Board	45		3	48
Voipio Ville	Member of the Board	35			35
Total		**290**	**18**	**9**	**317**

Remuneration of the Board of Directors 2017 (payment basis)

EUR 1,000		Annual remuneration	Compensation, Audit Committee	Compensation, Remuneration and Human Resources Committee	Total
Castrén Petri (since Mar 28, 2017)	Member of the Board	26	4		30
Lundström Petra	Member of the Board	35	1		36
Neuvo Yrjö	Vice Chairman of the Board	35		4	39
Niinivaara Mikko	Member of the Board	35	5	4	44
Ståhlberg Kaarina	Member of the Board	35	8		43
Torstila Pertti	Member of the Board	35		4	39
Voipio Raimo	Chairman of the Board	45		4	49
Voipio Ville	Member of the Board	35			35
Total		**281**	**18**	**16**	**315**

To the President and CEO and the members of the Board have not been granted loans nor have guarantees or commitments been given on their behalf.

28. Auditor's Fees

Authorized Public Accountants Deloitte

EUR million	2018	2017
Audit	0.4	0.3
Tax advice	0.0	0.0
Statements	0.0	0.0
Other fees	0.1	0.2
Total	**0.5**	**0.5**

Other audit companies

EUR million	2018	2017
Audit	0.1	-
Total	**0.1**	**-**

Other work than audit services given by the principal auditor Deloitte Oy during the year 2018 were EUR 0.1 million.

29. Financial Risk Management

Vaisala is exposed to various financial risks the core of which are interest rate risk, foreign exchange rate risk, refinancing and liquidity risks as well as financial and customer credit risks. Vaisala aims to limit the effect of these risks to statement of income, financial position and cash flow. Vaisala's financial risk management is based on the treasury and credit policies approved by the Board of Directors.

Interest rate risk

Interest rate risk refers to uncertainty in statement of income, financial position and cash flow arising from interest rate fluctuation. The Group is mainly exposed to cash flow risk, which arises from liabilities at variable interest rates. At the end of reporting period all interest-bearing liabilities and loans had fixed interest rates and those totaled to EUR 40.5 million. As the Group has no liabilities with variable interest rates, the Group is not currently exposed to interest rate risk due to fluctuations in interest rates.

Foreign exchange risk

Foreign exchange risk refers to uncertainty in statement of income, financial position and cash flow arising from exchange rate fluctuation. Vaisala operates globally and is exposed to transaction and translation risk in many currencies. Transaction risk refers to income and expense flows in foreign currencies. Translation risk refers to translation of statement of income and statement of financial position of foreign subsidiaries into euros.

Vaisala's sales are denominated in various currencies. In 2018, 45% of the Group's sales were in EUR, 35% in USD, 6% in CNY, 5% in JPY and 4% in GBP. Costs and purchases occurred mostly in EUR and USD. The Group policy is to hedge with foreign exchange forward positions that consists of order book, purchase orders and net receivables. Vaisala does not hedge forecasted cash flows other than order book. Additionally, Vaisala does not apply hedge accounting in accordance with IFRS and gains and losses arising from changes in fair value of the derivatives are recognized in the statement of income.

Intercompany loans and deposits are initiated in subsidiaries' local currencies. Vaisala does not hedge intercompany loans, deposits or equities of foreign subsidiaries. Translation of subsidiaries' equities into euros caused translation adjustment of EUR 1.0 (-3.1) million. The most significant translation risk exposures are in USD.

Foreign exchange sensitivity analysis in accordance with IFRS 7 is based on the foreign currency nominated receivables, cash and liabilities of Group companies. Calculation does not include internal loans, order book or forecasted cash flows but includes foreign exchange forwards in their nominal value. 10% strengthening of currencies against EUR would have had an effect on Vaisala's result after taxes and equity amounting to EUR -0.1 (-1.0) million. Foreign exchange net exposures more than EUR 1 million and their sensitivity based on a change of 10% are presented in the following table (before taxes):

Foreign exchange net exposures against EUR

	2018		2017	
EUR million	Net position	Sensitivity	Net position	Sensitivity
USD	-8.8	+/- 0.9	-17.1	+/-1.7
INR	1.8	+/- 0.2	1.1	+/-0.1
CAD	0.9	+/- 0.1	0.6	+/-0.1

Refinancing and liquidity risks

Refinancing and liquidity risks refer to uncertainty in maintaining liquidity. In order to ensure liquidity the amount of cash and availability of credit facilities is maintained at sufficient level.

Vaisala's cash at hand amounted to EUR 72.7 (91.3) million.

On October 5, 2018, Vaisala signed a EUR 50 million unsecured revolving credit facility. The committed credit facility agreement matures in 5 years from the signing and it has no financial covenants. On December 31, 2018, Vaisala had interest bearing liabilities totaling EUR 40.5 million, of which EUR 40 million related to utilized revolving credit facility. Vaisala has no loans that would mature after five years or a longer period of time. Additionally, Vaisala had commercial paper program amounting to EUR 150 million, which was not utilized as of December 31, 2018.

Financial credit risk

Financial credit risk refers to uncertainty in counterparty's capability to meet financial liabilities against Vaisala. Financial credit risk exposure relates to cash and financial derivatives. Vaisala's cash and cash equivalents amounted to EUR 72.7 (91.3) million and the nominal value of financial derivatives to EUR 26.9 (38.8) million. Vaisala invests cash and executes derivative contracts only with counterparties who are accepted by the Board of Directors and who have good credit worthiness. Counterparty creditworthiness is evaluated constantly.

Trade receivables credit risk

Trade receivables credit risk refers to uncertainty of collectability of customer receivables. Credit risk is managed by using the following payment terms; letters of credit, advance payments and bank guarantees. Additionally, credit risk is managed by utilizing credit risk insurances and following creditworthiness of customers. Management estimates that the Group does not have material credit risk concentrations as due to global customer base no individual customer or a customer group constitute a significant risk. Credit losses and related reversals arising from trade receivables recognized for the financial year amounted to EUR -0.6 (+0.5) million. Credit loss is recognized when official announcement of liquidation or bankruptcy is received confirming that the receivable will not be collected.

30. Application of New and Revised IFRSs in Issue but not yet Effective

IASB published the following new or revised standards which the Group has not yet adopted and which may have an effect on the consolidated financial statements of the Group. The Group will adopt each standard as from the effective date, or if the effective date is other than the first day of the reporting period, from the beginning of the next reporting period after the effective date.

At the date of authorization of these financial statements, The Group has not applied the following new and revised IFRS Standards that have been issued but are not yet effective and had not yet been adopted by the EU:

- IFRS 16 Leases
- IFRS 17 Insurance Contracts
- Amendments to IFRS 9 Prepayment Features with Negative Compensation
- Amendments to IAS 28 Long-term Interests in Associates and Joint Ventures
- Annual Improvements to IFRS Standards 2015–2017 Cycle: Amendments to IFRS 3 Business Combinations, IFRS 11 Joint Arrangements, IAS 12 Income Taxes and IAS 23 Borrowing Costs
- Amendments to IAS 19 Employee Benefits: Plan Amendment, Curtailment or Settlement
- IFRS 10 Consolidated Financial Statements and IAS 28 (amendments): Sale or Contribution of Assets between an Investor and its Associate or Joint Venture
- IFRIC 23 Uncertainty over Income Tax Treatments
- Amendments to IFRS 3 Definition of a Business
- Amendments to IAS 1 and IAS 8: Definition of Material

The directors do not expect that the adoption of the Standards listed above will have a material impact on the financial statements of the Group in future periods, except IFRS 16 Leases.

GENERAL IMPACT OF APPLICATION OF IFRS 16 LEASES

IFRS 16 provides a comprehensive model for the identification of lease arrangements and their treatment in the financial statements for both lessors and lessees. IFRS 16 will supersede the current lease guidance including IAS 17 Leases and the related Interpretations when it becomes effective for accounting periods beginning on or after January 1, 2019. The date of initial application of IFRS 16 for the Group will be January 1, 2019.

In contrast to lessee accounting, IFRS 16 substantially carries forward the lessor accounting requirements in IAS 17.

Impact of the new definition of a lease

The Group will make use of the practical expedient available on transition to IFRS 16 not to reassess whether a contract is or contains a lease. Accordingly, the definition of a lease in accordance with IAS 17 and IFRIC 4 will continue to apply to those leases entered or modified before January 1, 2019.

The change in definition of a lease mainly relates to the concept of control. IFRS 16 distinguishes between leases and service contracts on the basis of whether the use of an identified asset is controlled by the customer. Control is considered to exist if the customer has:

- The right to obtain substantially all of the economic benefits from the use of an identified asset; and
- The right to direct the use of that asset.

Vaisala will apply the definition of a lease and related guidance set out in IFRS 16 to all lease contracts entered into or modified on or after January 1, 2019 (whether it is a lessor or a lessee in the lease contract). In preparation for the first-time application of IFRS 16, the Group has carried out an implementation project. The project has shown that the new definition in IFRS 16 will not change significantly the scope of contracts that meet the definition of a lease for the Group.

Impact on lessee accounting

Operating leases

IFRS 16 will change how Vaisala accounts for leases previously classified as operating leases under IAS 17, which were off-balance sheet.

On initial application of IFRS 16, for all leases (except as noted below), Vaisala will:

(a) Recognize right-of-use assets and lease liabilities in the consolidated statement of financial position,

- Vaisala will apply simplified approach when adopting IFRS 16 in which right-of-use asset is initially measured at amount of the initial measurement of the lease liability less any lease payments made at or before the commencement date (at cost). Subsequently right-of-use asset is measured at cost less accumulated depreciation and impairment losses, adjusted for any remeasurement of the lease liability. The lease liability is initially measured at the present value of the future lease payments that are not paid at that date. The lease payments are discounted by incremental borrowing rate. Subsequently, the lease liability is adjusted for interest and lease payments, as well as the impact of lease modifications, amongst others.

(b) Recognize depreciation of right-of-use assets and interest on lease liabilities in the consolidated statement of profit or loss;

(c) Separate the total amount of cash paid into a principal portion (presented within financing activities) and interest (presented within operating activities) in the consolidated cash flow statement.

Lease incentives (e.g. rent-free period) will be recognized as part of the measurement of the right-of-use assets and lease liabilities whereas under IAS 17 they resulted in the recognition of a lease liability incentive, amortized as a reduction of rental expenses on a straight-line basis.

Under IFRS 16, right-of-use assets will be tested for impairment in accordance with IAS 36 Impairment of Assets. This will replace the previous requirement to recognize a provision for onerous lease contracts.

Vaisala will not apply the practical expedient as permitted by IFRS 16 not to recognize right-of-use asset and corresponding lease liability for short-term leases (lease term of 12 months or less) and leases of low-value assets. Vaisala will recognize in the balance all material right-of-use assets and lease liabilities. Right-of-use assets to be recognized in the balance sheet on the effective date consist of offices, other premises, apartments and cars. IFRS 16 is not applied for immaterial lease arrangements and the lease expense for those arrangements is recognized on a straight-line basis in the consolidated statement of income.

Majority of Vaisala's lease arrangements are fixed-term arrangements without one-sided extension or termination options and thus lease term is defined based on the duration of the arrangement. If arrangement includes such conditions, management needs to estimate the likely lease term for each arrangement. Significant judgments need to be exercised when making these estimates. At the end of 2018, the number of such arrangements was limited.

As at December 31, 2018, the Group has non-cancellable operating lease commitments of EUR 16.6 million.

A preliminary assessment indicates that EUR 12 million of these arrangements relate to leases, which management estimates to be material and thus will be recognized in the balance sheet as a result of application IFRS 16. Additionally, lease term of a contract related to an operating lease commitment amounting to EUR 4 million will start in the future. According to current understanding the Group will recognize a right-of-use asset of EUR 13 million and a corresponding lease liability of EUR 12 million. The impact on profit or loss, based on the arrangements valid on the effective date of IFRS 16 and based on the preliminary assessment, is to increase depreciation by EUR 4 million and to increase interest expense by EUR 0.2 million. In 2018, the amount of rent costs recognized in sales, marketing and administrative costs as well as in research and development costs were in total EUR 4.4 million, of which most will be reclassified in depreciation and interest costs in 2019 as a result of IFRS 16 implementation.

Under IAS 17, all lease payments on operating leases are presented as part of cash flows from operating activities. The impact of the changes under IFRS 16 would be to reduce the cash generated by operating activities and to increase net cash used in financing activities by the same amount.

Vaisala will apply IFRS 16 retrospectively with the cumulative effect of initial application recognized as of January 1, 2019. Comparative information is not restated.

Finance leases

The main differences between IFRS 16 and IAS 17 with respect to assets formerly held under a finance lease is the measurement of the residual value guarantees provided by the lessee to the lessor. IFRS 16 requires that the Group recognizes as part of its lease liability only the amount expected to be payable under a residual value guarantee, rather than the maximum amount guaranteed as required by IAS 17. As the Group has no finance leases as of December 31, 2018, this change will not have an impact on the amounts recognized in the consolidated financial statements.

Impact on lessor accounting

Under IFRS 16, a lessor continues to classify leases as either finance leases or operating leases and account for those two types of leases differently. However, IFRS 16 has changed and expanded the disclosures required, in particular regarding how a lessor manages the risks arising from its residual interest in leased assets.

Under IFRS 16, an intermediate lessor accounts for the head lease and the sublease as two separate contracts. The intermediate lessor is required to classify the sublease as a finance or operating lease by reference to the right-of-use asset arising from the head lease (and not by reference to the underlying asset as was the case under IAS 17). As the Group does not act as lessor as of December 31, 2018, this change will not have an impact on the amounts recognized in the consolidated financial statements.

IFRS 17 INSURANCE CONTRACTS

The new Standard establishes the principles for the recognition, measurement, presentation and disclosure of insurance contracts and supersedes IFRS 4 Insurance Contracts.

The Standard outlines a General Model, which is modified for insurance contracts with direct participation features, described as the Variable Fee Approach. The General Model is simplified if certain criteria are met by measuring the liability for remaining coverage using the Premium Allocation Approach.

The General Model will use current assumptions to estimate the amount, timing and uncertainty of future cash flows and it will explicitly measure the cost of that uncertainty, it takes into account market interest rates and the impact of policyholders' options and guarantees.

The implementation of the Standard is likely to bring significant changes to an entity's processes and systems, and will require much greater co ordination between many functions of the business, including finance, actuarial and IT.

The Standard is effective for annual reporting periods beginning on or after January 1, 2021, with early application permitted. It is applied retrospectively unless impracticable, in which case the modified retrospective approach or the fair value approach is applied. The standard has not yet been endorsed for use in the EU.

The application of the standard in the future is not anticipated to have an impact on the Group's consolidated financial statements as the Group does not hold any insurance contracts.

AMENDMENTS TO IFRS 9 PREPAYMENT FEATURES WITH NEGATIVE COMPENSATION

The amendments to IFRS 9 clarify that for the purpose of assessing whether a prepayment feature meets the SPPI condition, the party exercising the option may pay or receive reasonable compensation for the prepayment irrespective of the reason for prepayment. In other words, prepayment features with negative compensation do not automatically fail SPPI.

The amendment applies to annual periods beginning on or after January 1, 2019, with earlier application permitted. There are specific transition provisions depending on when the amendments are first applied, relative to the initial application of IFRS 9.

The application of the amendments in the future is not anticipated to have an impact on the Group's consolidated financial statements.

AMENDMENTS TO IAS 28 LONG-TERM INTERESTS IN ASSOCIATES AND JOINT VENTURES

The amendment clarifies that IFRS 9, including its impairment requirements, applies to long-term interests. Furthermore, in applying IFRS 9 to long-term interests, an entity does not take into account adjustments to their carrying amount required by IAS 28 (i.e., adjustments to the carrying amount of long-term interests arising from the allocation of losses of the investee or assessment of impairment in accordance with IAS 28).

The amendments apply retrospectively to annual reporting periods beginning on or after January 1, 2019. Earlier application is permitted. Specific transition provisions apply depending on whether the first-time application of the amendments coincides with that of IFRS 9. The amendments have not yet been endorsed for use in the EU.

The application of the amendments in the future is not anticipated to have an impact on the Group's consolidated financial statements.

ANNUAL IMPROVEMENTS TO IFRS STANDARDS 2015–2017 CYCLE AMENDMENTS TO IFRS 3 BUSINESS COMBINATIONS, IFRS 11 JOINT ARRANGEMENTS, IAS 12 INCOME TAXES AND IAS 23 BORROWING COSTS

The Annual Improvements include amendments to four Standards.

IAS 12 INCOME TAXES

The amendments clarify that an entity should recognize the income tax consequences of dividends in profit or loss, other comprehensive income or equity according to where the entity originally recognized the transactions that generated the distributable profits. This is the case irrespective of whether different tax rates apply to distributed and undistributed profits.

IAS 23 BORROWING COSTS

The amendments clarify that if any specific borrowing remains outstanding after the related asset is ready for its intended use or sale, that borrowing becomes part of the funds that an entity borrows generally when calculating the capitalisation rate on general borrowings.

IFRS 3 BUSINESS COMBINATIONS

The amendments to IFRS 3 clarify that when an entity obtains control of a business that is a joint operation, the entity applies the requirements for a business combination achieved in stages, including remeasuring its previously held interest (PHI) in the joint operation at fair value. The PHI to be remeasured includes any unrecognized assets, liabilities and goodwill relating to the joint operation.

IFRS 11 JOINT ARRANGEMENTS

The amendments to IFRS 11 clarify that when a party that participates in, but does not have joint control of, a joint operation that is a business obtains joint control of such a joint operation, the entity does not remeasure its PHI in the joint operation.

All the amendments are effective for annual periods beginning on or after January 1, 2019 and generally require prospective application. Earlier application is permitted. The amendments have not yet been endorsed for use in the EU.

The application of the amendments in the future is not anticipated to have an impact on the Group's consolidated financial statements.

AMENDMENTS TO IAS 19 EMPLOYEE BENEFITS PLAN AMENDMENT, CURTAILMENT OR SETTLEMENT

The amendments clarify that the past service cost (or the gain or loss on settlement) is calculated by measuring the defined benefit liability (asset) using updated assumptions and comparing benefits offered and plan assets before and after the plan amendment (or curtailment or settlement) but ignoring the effect of the asset ceiling (that may arise when the defined benefit plan is in a surplus position). IAS 19 is now clear that the change in the effect of the asset ceiling that may result from the plan amendment (or curtailment or settlement) is determined in a second step and is recognized in the normal manner in other comprehensive income.

The paragraphs that relate to measuring the current service cost and the net interest on the net defined benefit liability (asset) have also been amended. An entity will now be required to use the updated assumptions from this remeasurement to determine current service cost and net interest for the remainder of the reporting period after the change to the plan. In the case of the net interest, the amendments make it clear that for the period post plan amendment, the net interest is calculated by multiplying the net defined benefit liability (asset) as remeasured under IAS 19.99 with the discount rate used in the remeasurement (also taking into account the effect of contributions and benefit payments on the net defined benefit liability (asset)).

The amendments are applied prospectively. They apply only to plan amendments, curtailments or settlements that occur on or after the beginning of the annual period in which the amendments to IAS 19 are first applied. The amendments to IAS 19 must be applied to annual periods beginning on or after January 1, 2019, but they can be applied earlier if an entity elects to do so. The amendments have not yet been endorsed for use in the EU.

The application of the amendments in the future is not anticipated to have an impact on the Group's consolidated financial statements.

IFRS 10 CONSOLIDATED FINANCIAL STATEMENTS AND IAS 28 (AMENDMENTS) SALE OR CONTRIBUTION OF ASSETS BETWEEN AN INVESTOR AND ITS ASSOCIATE OR JOINT VENTURE

The amendments to IFRS 10 and IAS 28 deal with situations where there is a sale or contribution of assets between an investor and its associate or joint venture. Specifically, the amendments state that gains or losses resulting from the loss of control of a subsidiary that does not contain a business in a transaction with an associate or a joint venture that is accounted for using the equity method, are recognized in the parent's profit or loss only to the extent of the unrelated investors' interests in that associate or joint venture. Similarly, gains and losses resulting from the remeasurement of investments retained in any former subsidiary (that has become an associate or a joint venture that is accounted for using the equity method) to fair value are recognized in the former parent's profit or loss only to the extent of the unrelated investors' interests in the new associate or joint venture.

The effective date of the amendments has yet to be set by the IASB; however, earlier application of the amendments is permitted.

The application of these amendments may have an impact on the Group's consolidated financial statements in future periods should such transactions arise.

IFRIC 23 UNCERTAINTY OVER INCOME TAX TREATMENTS

IFRIC 23 sets out how to determine the accounting tax position when there is uncertainty over income tax treatments. The Interpretation requires an entity to:

- determine whether uncertain tax positions are assessed separately or as a Group; and
- assess whether it is probable that a tax authority will accept an uncertain tax treatment used, or proposed to be used, by an entity in its income tax filings:
  - If yes, the entity should determine its accounting tax position consistently with the tax treatment used or planned to be used in its income tax filings.
  - If no, the entity should reflect the effect of uncertainty in determining its accounting tax position.

The Interpretation is effective for annual periods beginning on or after January 1, 2019. Entities can apply the Interpretation with either full retrospective application or modified retrospective application without restatement of comparatives retrospectively or prospectively. The application of these amendments may have an impact on the Group's consolidated financial statements in future periods should such transactions arise.

AMENDMENTS TO IFRS 3 DEFINITION OF A BUSINESS

The amendments in Definition of a Business (Amendments to IFRS 3) are changes to Appendix A Defined terms, the application guidance, and the illustrative examples of IFRS 3 only. They clarify that to be considered a business, an acquired set of activities and assets must include, at a minimum, an input and a substantive process that together significantly contribute to the ability to create outputs. The amendments also narrow the definitions of a business and of outputs by focusing on goods and services provided to customers and by removing the reference to an ability to reduce costs and add guidance and illustrative examples to help entities assess whether a substantive process has been acquired. The assessment of whether market participants are capable of replacing any missing inputs or processes and continuing to produce outputs is removed and an optional concentration test that permits a simplified assessment of whether an acquired set of activities and assets is not a business is added.

The amendments are effective for business combinations for which the acquisition date is on or after the beginning of the first annual reporting period beginning on or after January 1, 2020. The amendments have not yet been endorsed for use in the EU.

The application of these amendments may have an impact on the Group's consolidated financial statements in future periods should such transactions arise.

AMENDMENTS TO IAS 1 AND IAS 8: DEFINITION OF MATERIAL

The amendments to IAS 1 and IAS 8 clarify the definition of 'material' and align the definition used in the Conceptual Framework and the standards. The revised definition of 'material' reads:

Information is material if omitting, misstating or obscuring it could reasonably be expected to influence decisions that the primary users of general purpose financial statements make on the basis of those financial statements, which provide financial information about a specific reporting entity.

The new aspects of the new definition are:

- Obscuring. The existing definition only focused on omitting or misstating information. Now obscuring material information with information that can be omitted can have a similar effect.
- Could reasonably be expected to influence. The existing definition referred to 'could influence', but was considered to indicate too broad definition of events to include.
- Primary users. The existing definition referred only to 'users', which might be understood too broadly, when deciding what information to disclose.

The amendments are effective for annual reporting periods beginning on or after January 1, 2020. Earlier application is permitted. The amendments have not yet been endorsed for use in the EU.

Vaisala will update the principles applied in materiality evaluation to correspond with the new definition, however the application of the amendments in the future is not anticipated to have an impact on the Group's consolidated financial statements.

PARENT COMPANY FINANCIAL STATEMENTS*, FAS

PARENT COMPANY INCOME STATEMENT

EUR	Note	Jan 1–Dec 31, 2018	Jan 1–Dec 31, 2017
Net sales	2	241,898,219.10	235,808,651.53
Cost of production and procurement	4, 5	-121,681,321.66	-120,280,810.34
Gross profit		**120,216,897.44**	**115,527,841.19**
Cost of sales and marketing	4, 5	-26,298,091.69	-25,269,335.38
Cost of administration			
Research and development costs	4, 5	-36,526,100.55	-30,817,129.50
Other administrative costs	4, 5	-27,830,244.73	-26,882,684.93
Other operating income	3	330,137.53	471,289.81
Operating result		**29,892,598.00**	**33,029,981.19**
Financial income and expenses	6	5,231,588.24	-366,215.20
Result before appropriations and taxes		**35,124,186.24**	**32,663,765.99**
Result before taxes		**35,124,186.24**	**32,663,765.99**
Direct taxes	7	-6,385,321.15	-6,829,995.51
Result for the financial year		**28,738,865.09**	**25,833,770.47**

*The parent company financial statements are prepared in accordance with the principles of Finnish Accounting Standards (FAS).

PARENT COMPANY BALANCE SHEET

EUR	Note	Dec 31, 2018	Dec 31, 2017
Assets			
Non-current assets			
Intangible assets	8		
Intangible rights		1,647,438.34	1,832,802.08
Other intangible assets		3,241,104.78	133,858.35
Advance payments and intangible assets in progress		247,574.08	-
Total intangible assets		**5,136,117.20**	**1,966,660.43**
Property, plant and equipment	8		
Land and waters		2,904,868.22	1,277,402.12
Buildings		21,409,923.55	22,557,124.83
Machinery and equipment		12,583,934.58	10,520,855.28
Other tangible assets		69,212.81	69,212.81
Advance payments and construction in progress		5,845,826.82	3,686,352.17
Total property, plant and equipment		**42,813,765.98**	**38,110,947.21**
Investments	8		
Holdings in Group undertakings		89,333,080.51	22,668,039.29
Other shares and holdings		100,000.00	100,000.00
Total investments		**89,433,080.51**	**22,768,039.29**
Total non-current assets		**137,382,963.69**	**62,845,646.93**

EUR	Note	Dec 31, 2018	Dec 31, 2017
Current assets			
Long-term receivables			
Other receivables		20,616.00	25,699.92
Total long-term receivables		**20,616.00**	**25,699.92**
Inventories			
Materials, consumables and finished goods		19,882,874.35	23,009,125.39
Project inventories		-	1,177,003.64
Total inventories		**19,882,874.35**	**24,186,129.03**
Short-term receivables			
Trade receivables	17	35,020,144.27	42,781,431.46
Loan receivables	17	26,255,750.84	26,213,889.77
Other receivables	9, 17	2,777,712.86	2,506,489.01
Prepaid expenses and accrued income	10, 17	16,784,205.68	16,153,854.68
Total short-term receivables		**80,837,813.65**	**87,655,664.92**
Cash and cash equivalents		52,082,989.57	79,873,856.42
Total current assets		**152,824,293.57**	**191,741,350.29**
Total assets		**290,207,257.26**	**254,586,997.22**

PARENT COMPANY BALANCE SHEET

EUR	Note	Dec 31, 2018	Dec 31, 2017
Shareholders´ equity and liabilities			
Shareholders´ equity	13		
Share capital		7,660,807.86	7,660,807.86
Fund of invested non-restricted equity		414,924.89	297,008.31
Retained earnings		130,403,020.97	141,095,250.23
Result for the financial year		28,738,865.09	25,833,770.47
Total shareholders´ equity		**167,217,618.81**	**174,886,836.87**
Provisions	12	97,119.25	97,119.25
Liabilities			
Non-current			
Other non-current liabilities	14	4,399,779.08	1,654,512.99
Current			
Advances received		2,126,806.46	3,050,974.18
Trade payables	17	12,212,804.97	12,430,341.01
Loans from financial institutions	15	40,000,000.00	-
Other current loans	17	16,795,874.93	14,426,173.93
Other current liabilities		2,083,242.52	1,941,164.69
Provisions	12	1,733,728.50	851,709.63
Accrued expenses and deferred income	16, 17	43,540,282.74	45,248,164.67
Current liabilities total		**118,492,740.12**	**77,948,528.11**
Total liabilities		**122,989,638.45**	**79,700,160.35**
Total shareholders´ equity and liabilities		**290,207,257.26**	**254,586,997.22**

PARENT COMPANY CASH FLOW STATEMENT

EUR thousand	Note	Jan 1–Dec 31, 2018	Jan 1–Dec 31, 2017
Cash flow from operating activities			
Cash receipts from customers		247,706	226,111
Cash paid to suppliers and employees		-201,849	-183,899
Cash flow from operating activities before financial items and taxes		**45,857**	**42,212**
Paid financial items, net	6	746	1,094
Dividend received from business operations	6	4,392	1,007
Income taxes paid		-6,912	-6,746
Cash flow from operating activities		**44,082**	**37,567**
Cash flow from investing activities			
Investments in shares		-66,469	-2,204
Investments in intangible assets	8	-840	-273
Investments in property, plant and equipment	8	-10,678	-6,244
Divestments	8	37	225
Repayments on loan receivables		1,111	7,393
Cash flow from investing activities		**-76,839**	**-1,103**

EUR thousand	Note	Jan 1–Dec 31, 2018	Jan 1–Dec 31, 2017
Cash flow from financing activities			
Proceeds from short-term borrowings		42,203	972
Purchase of treasury shares	13	-	-790
Dividend paid	13	-37,580	-17,846
Cash flow from financing activities		**4,623**	**-17,665**
Change in liquid funds increase (+) / decrease (-)		**-28,134**	**18,800**
Cash and cash equivalents at Jan 1		79,874	61,074
Change in cash and cash equivalents increase (+) / decrease (-)		-28,134	18,800
Cash received in merger		343	-
Cash and cash equivalents at Dec 31		**52,083**	**79,874**

NOTES TO THE PARENT COMPANY FINANCIAL STATEMENTS

1. Accounting Principles

The financial statements of the parent company have been prepared according to the Finnish Accounting Standards (FAS). Financial statement data are based on original acquisition costs if not otherwise stated in the accounting principles outlined below.

NON-CURRENT ASSETS

Non-current assets consist of intangible assets, property, plant and equipment as well as investments. Carrying amounts of non-current assets are measured at cost less accumulated depreciation, amortization and impairment and plus revaluations. Depreciation and amortization according to plan is calculated on a straight-line basis over the expected useful lifetime of the asset. Land and investments are not depreciated. The cost of assets produced for own use includes also overhead costs attributable to the production work. No interest is capitalized in non-current assets. Estimated useful lifetimes for assets are:

Intangible rights	3–10 years
Buildings and structures	5–40 years
Machinery and equipment	3–8 years
Other tangible assets	3–8 years

Other intangible assets include assets that have an indefinite useful lifetime and are not amortized. Additionally, merger loss has been allocated to other intangible assets and the useful lifetime is 6 years.

INVENTORIES

Inventories are stated at the lower of standard cost and net realizable value. Inventory cost includes the cost of purchase (including mainly purchase price, import duties and transport), direct labor and a proportion of production overhead. An allowance is recorded for excess inventory and obsolescence.

FOREIGN CURRENCY TRANSLATION

Transactions in foreign currencies are recorded using the exchange rate on the date of transaction. Receivables and payables in foreign currency have been valued at the rates quoted by the European Central Bank on the last trading date of the balance sheet date. Foreign exchange gains and losses arising from revaluation of cash and cash equivalents, trade and other receivables, loan receivables as well as trade and other payables are recognized as financial income and expense in the income statement.

DERIVATIVE CONTRACTS AND HEDGING ACTIVITIES

All derivative contracts are forward foreign exchange rate contracts. The parent company has sales in a number of foreign currencies, of which the most significant are the USD, JPY and GBP. All derivative contracts are initially measured at fair value on the closing date of the derivative contract. Derivative contracts are subsequently measured at fair value through profit and loss at the end of each reporting date. Fair value of forward foreign exchange rate contract is measured at the present value of the future cash flows. Unrealized and realized gains and losses arising from changes in the fair value are recognized in the income statement in financial income and expenses in the period in which they arise.

Derivatives are included in the balance sheet in other receivables and payables. The parent company does not apply hedge accounting to forward foreign exchange rate contracts.

PENSION COSTS

Pension costs are recorded according to the Finnish regulations. The additional pension coverage of parent company personnel was arranged by the Vaisala Pension Fund that was closed on January 1, 1983. The pension fund liability was transferred to a pension insurance company on December 31, 2005 and the fund was dissolved in 2006. The pension liability of the fund is fully covered.

RESEARCH AND DEVELOPMENT EXPENSES

Research and development expenses are booked as cost in the financial period in which they occur.

INCOME TAXES

Tax expense includes taxes based on taxable profit for the financial year and tax adjustments for previous years. Current taxes are calculated on the taxable income on the basis of the tax rates enacted by the end of financial year.

NET SALES AND REVENUE RECOGNITION PRINCIPLES

The parent company's net sales consist of revenue recognized from contracts with customers. Net sales are divided into products, projects and services. Indirect taxes and discounts have been deducted from sales revenue. Possible exchange rate differences are recognized in the financial income and expenses.

The parent company revenue recognition principles have been changed on January 1, 2018. The most significant difference compared to previously applied principles consist of revenue recognition for projects. Comparative information has been presented according to revenue recognition principles applied before January 1, 2018.

Product net sales include revenue from products, spare parts and system deliveries. System delivery contains standard product delivery with limited amount of configuration. Revenue from the sale of product is recognized at a point in time when the control is transferred to the customer according to the delivery terms used.

Projects are integrated projects, in which observation solutions, consisting of products, services and software, are delivered. Solutions are integrated to customer systems according to customer specifications. As of the beginning of the financial year 2018, revenue for all projects is recognized over time using percentage of completion method. Progress is measured by cost-to-cost method, comparing incurred costs and forecasted costs. Projects meet the over-time revenue recognition criteria, either by creating an asset without an alternative use and Vaisala having an enforceable right to payment for performance completed to date and/or by creating an asset under customer control.

The applied revenue recognition principles fulfill the Finnish Accounting Standard requirement related to the predictability of project margin. Previously only revenue for long-term projects was recognized over time using percentage of completion method. Current definition of project is larger than the definition for long-term project.

Services are divided into service contracts and one-off service deliverables. Services may include maintenance, calibration and repair, modernization, extended warranties and data based solutions supporting decisions in weather critical operations. Service contracts are continuous services including for example extended warranty, availability of customer support and availability of spare part delivery. Service contracts are recognized over time or point of time depending on the nature of the service and content of a contract. In case of one-off request services, the revenue is recognized at a point in time when the service has been rendered.

Standard warranty period for products is one year and 2, 5 or 10 years for selected products. Standard warranty period for services is 6 or 12 months. Extended warranty is a separately sold and priced service over a separately agreed period. Revenue for extended warranty is recognized over time starting at the time of standard warranty expiration. Provision for warranty costs is recognized in the balance sheet.

OTHER OPERATING INCOME AND EXPENSES

Other operating income consists mainly of gains on the disposal of assets as well as income other than revenue from contracts with customers, such as reversal of contingent liabilities related to acquisitions and indemnities. Other operating expenses consist mainly of losses on disposal of assets.

2. Net Sales

DISAGGREGATION OF REVENUE

Net sales by market area

EUR thousand	2018	2017
EMEA	84,973	93,184
of which Finland	7,657	9,139
Americas	74,735	65,341
of which United States	46,956	41,659
APAC	82,190	77,284
Total	**241,898**	**235,809**

Net sales by Business Area

EUR thousand	2018	2017
Weather and Environment		
Products	56,409	55,141
Projects	52,046	58,045
Services	5,073	3,997
Total	**113,528**	**117,183**
Industrial Measurements		
Products	24,331	22,108
Services	2,486	2,797
Total	**26,817**	**24,906**
Net sales from subsidiaries	101,554	93,720
Total	**241,898**	**235,809**

Net sales by timing of revenue recognition

EUR thousand	2018	2017
Revenue recognized at a point in time	83,782	130,900
Revenue recognized over time	56,562	11,189
Net sales from subsidiaries	101,554	93,720
Total	**241,898**	**235,809**

Net sales from subsidiaries are mainly recognized at a point in time.

PAYMENT TERMS

Payment terms vary based on geographical areas. In product and service business, the standard payment term is 30 days net, but in some areas prepayments are commonly used. Project invoicing is based on milestones and typically follows the general project delivery terms where 30% is advance payment, 60% against delivery documents and 10% after site acceptance test. In project business the most common payment terms are letter of credit or as per contract.

ASSETS AND LIABILITIES RELATED TO NET SALES

The following table provides information about receivables and liabilities from contracts with customers included in the balance sheet.

EUR thousand	Dec 31, 2018	Dec 31, 2017	Jan 1, 2018
Trade receivables	35,020	42,781	42,696
Accrued revenue	11,089	10,658	12,291
Unbilled advances received	2,127	3,051	3,051
Deferred revenue	18,509	19,741	21,037

Accrued revenue includes the balance of project and service revenue recognized but not yet invoiced. In general, most of project revenue is recognized after the product manufacturing as percentage of completion increases and most of the performance obligation is satisfied. According to general project delivery terms, majority of project is invoiced at the time of delivery. Therefore, amount of accrued revenue is typically at its highest between product manufacturing phase of the project and delivery of the product to the customer. Services, which are satisfied over time, the customer is mainly invoiced in advance and only in some cases in arrears after the customer has received or consumed the service. Arrears invoicing generates accrued revenue as revenue is recognized before invoicing.

Unbilled advances received are customer payments related to contracts not yet invoiced.

Deferred revenue includes the balance of projects, services and products invoiced but revenue not yet recognized. For projects, deferred revenue is often generated in the early phase of project lifecycle, when customer is invoiced in advance, but as the project is in early stage none or a minor part of the revenue has been recognized. Services, which are recognized over time, are often invoiced in advance and therefore deferred revenue is generated in the beginning of service period. For products and services, which are recognized at a point in time, deferred revenue is generated when customer has been invoiced, but performance obligation has not been satisfied and consequently revenue has not been recognized.

In 2018, the parent company recognized EUR 16 million revenue that was included in the deferred revenue balance at the beginning of the period.

At the end of 2018, the order book amounted to EUR 50.1 million. Of the order book, EUR 36.9 million is scheduled to be recognized as revenue in 2019 and EUR 13.2 million is scheduled to be recognized later.

3. Other Operating Income

Other operating income

EUR thousand	2018	2017
Gains on the disposal of fixed assets	10	48
Other operating income		
Reversal of contingent consideration	143	-
Indemnities and other	177	423
Total	**330**	**471**

In 2018 and 2017 the parent company did not have other operating expenses.

4. Personnel Expenses and Number of Personnel

Personnel expenses

EUR thousand	2018	2017
Wages and salaries	65,055	62,259
Pension costs	11,284	10,599
Other personnel costs	2,117	2,475
Total	**78,457**	**75,333**

Personnel average

Persons	2018	2017
In Finland	1,050	1,000
Outside Finland	6	5
Total	**1,056**	**1,005**

Personnel Dec 31

Persons	2018	2017
In Finland	1,049	1,011
Outside Finland	7	5
Total	**1,056**	**1,016**

Salary and bonuses of the President and CEO (payment basis)

EUR thousand	2018	2017
Forsén Kjell		
Salary	515	512
Bonus	302	191
Share-based payment	502	205
Obligatory pension	146	126
Voluntary pension	120	120
Total	**1,586**	**1,154**

Comparative information for 2017 has been changed and are presented on payment basis.

Retirement age of the President and CEO is 62 years. The President and CEO has a voluntary compensation based retirement plan. Compensation equal to 12 month salary is paid to the President and CEO, if employer terminates the CEO agreement. In case the President and CEO resigns, compensation equal to 6 month salary is paid.

Remuneration of the Board of Directors 2018 (payment basis)

EUR thousand		Annual remuneration	Compensation, Audit Committee	Compensation, Remuneration and Human Resources Committee	Total
Castrén Petri	Member of the Board	35	5	3	43
Lundström Petra	Member of the Board	35			35
Neuvo Yrjö	Vice Chairman of the Board	35			35
Niinivaara Mikko	Member of the Board	35	5	3	43
Ståhlberg Kaarina	Member of the Board	35	8		43
Torstila Pertti	Member of the Board	35			35
Voipio Raimo	Chairman of the Board	45		3	48
Voipio Ville	Member of the Board	35			35
Total		**290**	**18**	**9**	**317**

Remuneration of the Board of Directors 2017 (payment basis)

EUR thousand		Annual remuneration	Compensation, Audit Committee	Compensation, Remuneration and Human Resources Committee	Total
Castrén Petri (since Mar 28, 2017)	Member of the Board	26	4		30
Lundström Petra	Member of the Board	35	1		36
Neuvo Yrjö	Vice Chairman of the Board	35		4	39
Niinivaara Mikko	Member of the Board	35	5	4	44
Ståhlberg Kaarina	Member of the Board	35	8		43
Torstila Pertti	Member of the Board	35		4	39
Voipio Raimo	Chairman of the Board	45		4	49
Voipio Ville	Member of the Board	35			35
Total		**281**	**18**	**16**	**315**

To the President and CEO and the members of the Board have not been granted loans nor have guarantees or commitments been given on their behalf.

5. Depreciation, Amortization and Impairments

EUR thousand	2018	2017
Amortization of intangible assets	857	1,817
Depreciation of property, plant and equipment	5,496	5,075
Impairments on tangible assets	123	1
Total	**6,476**	**6,893**

6. Financial Income and Expenses

EUR thousand	2018	2017
Dividend income		
From Group companies	4,392	1,007
Other interest and financial income		
From Group companies	2,353	1,582
From others	1,841	5,693
Write-down of loan receivables	-88	-
Interest and other financial expenses		
To Group companies	-210	-90
To others	-4,328	-1,418
Foreign exchange gains and losses	1,271	-7,141
Total	**5,232**	**-366**

7. Income Taxes

EUR thousand	2018	2017
Taxes from the financial period	6,417	6,833
Taxes from previous years	-32	-3
Total	**6,385**	**6,830**

8. Non-Current Assets and Other Long-Term Investments

Intangible assets 2018

EUR thousand	Intangible rights	Other intangible assets	Advance payments and intangible assets in progress	Total
Acquisition cost Jan 1, 2018	33,285	134		33,418
Increases	338	3,242	102	3,682
Decreases	-4,287			-4,287
Transfers between items	199		146	345
Acquisition cost Dec 31, 2018	**29,535**	**3,376**	**248**	**33,158**
Accumulated amortization and write-downs Jan 1, 2018	31,452	0		31,452
Accumulated amortization of decreases and transfers	-4,287			-4,287
Amortization and write-downs for the financial period	722	135		857
Accumulated amortization and write-downs Dec 31, 2018	**27,887**	**135**		**28,023**
Balance sheet value Dec 31, 2018	**1,648**	**3,241**	**248**	**5,136**

Intangible assets 2017

EUR thousand	Intangible rights	Other intangible assets	Total
Acquisition cost Jan 1, 2017	33,097	134	33,231
Increases	273		273
Decreases	-490		-490
Transfers between items	404		404
Acquisition cost Dec 31, 2017	**33,285**	**134**	**33,418**
Accumulated amortization and write-downs Jan 1, 2017	30,124	0	30,124
Accumulated amortization of decreases and transfers	-490		-490
Amortization and write-downs for the financial period	1,817		1,817
Accumulated amortization and write-downs Dec 31, 2017	**31,452**	**0**	**31,452**
Balance sheet value Dec 31, 2017	**1,833**	**133**	**1,967**

Property, plant and equipment 2018

EUR thousand	Land and waters	Buildings	Machinery and equipment	Other tangible assets	Advance payments and construction in progress	Total
Acquisition cost Jan 1, 2018	1,193	48,520	53,536	69	3,686	107,004
Increases	1,627	107	3,045		5,899	10,678
Decreases			-3,815		-14	-3,829
Transfers between items		681	2,699		-3,725	-345
Acquisition cost Dec 31, 2018	**2,820**	**49,309**	**55,464**	**69**	**5,846**	**113,509**
Accumulated depreciation and write-downs Jan 1, 2018		31,581	43,015			74,596
Accumulated depreciation of decreases and transfers			-3,817			-3,817
Depreciation for the financial period		1,936	3,561			5,496
Write-downs			123			123
Accumulated depreciation and write-downs Dec 31, 2018		**33,517**	**42,881**			**76,398**
Revaluation	84	5,618				5,702
Balance sheet value Dec 31, 2018	**2,905**	**21,410**	**12,584**	**69**	**5,846**	**42,814**

Property, plant and equipment 2017

EUR thousand	Land and waters	Buildings	Machinery and equipment	Other tangible assets	Advance payments and construction in progress	Total
Acquisition cost Jan 1, 2017	1,193	47,401	54,210	46	3,159	106,009
Increases		977	-83	24	5,743	6,660
Decreases			-4,786		-57	-4,844
Transfers between items		142	4,195		-5,158	-820
Acquisition cost Dec 31, 2017	**1,193**	**48,520**	**53,536**	**69**	**3,686**	**107,004**
Accumulated depreciation and write-downs Jan 1, 2017		29,743	44,443			74,187
Accumulated depreciation of decreases and transfers			-4,666			-4,666
Depreciation for the financial period		1,838	3,237			5,075
Write-downs			1			1
Accumulated depreciation and write-downs Dec 31, 2017		**31,581**	**43,015**			**74,597**
Revaluation	84	5,618				5,702
Balance sheet value Dec 31, 2017	**1,277**	**22,557**	**10,520**	**69**	**3,686**	**38,111**

On December 31, 2018, the carrying amount of machinery and equipment used in production was EUR 8.9 (7.7) million.

Investments 2018

EUR thousand	Holdings in Group undertakings	Other shares and holdings	Total
Acquisition cost Jan 1, 2018	22,668	100	22,768
Increases	70,364		70,364
Decreases	-3,699		-3,699
Balance sheet value Dec 31, 2018	**89,333**	**100**	**89,433**

In 2018, the additions include the acquisition costs of the shares in Leosphere SAS, K-Patents Oy and Janesko Oy. The decrease relates to Vionice Oy's merger into the parent company on September 28, 2018.

Investments 2017

EUR thousand	Holdings in Group undertakings	Other shares and holdings	Total
Acquisition cost Jan 1, 2017	18,966	100	19,066
Increases	3,702		3,702
Balance sheet value Dec 31, 2017	**22,668**	**100**	**22,768**

9. Other Receivables

EUR thousand	2018	2017
Advances paid	132	1,107
Value added tax receivables	2,588	1,109
Other	58	291
Total	**2,778**	**2,506**

10. Deferred Assets

EUR thousand	2018	2017
Tax related assets	531	272
Deferred revenue	11,089	10,658
Derivative contracts	29	1,454
Deferred interests	2,287	1,166
Other deferred assets	2,848	2,605
Total	**16,784**	**16,154**

The change in the fair value of the financial derivatives has been recognized in financial income and expenses in the income statement. Notes related to derivative contracts are presented in the note to the consolidated financial statements 19, Financial Assets and Liabilities.

11. Deferred Tax Assets and Liabilities

Deferred tax assets

EUR thousand	2018	2017
Deferred depreciation and amortization	223	334
Share-based payments	1,052	1,217
Provisions	435	167
Total	**1,710**	**1,718**

Deferred tax assets and liabilities have not been recognized in the parent company's balance sheet. Deferred tax liabilities arising from revaluation have not been taken into account. If realized, the tax effect of revaluation would be EUR 1.1 million at the current tax rate of 20%.

12. Provisions

Long-term provisions

EUR thousand	2018	2017
Provisions Jan 1	97	-
Increases	-	97
Provisions Dec 31	**97**	**97**

Short-term provisions

EUR thousand	2018	2017
Provisions Jan 1	852	1,044
Increases	900	14
Decreases	-18	-206
Provisions Dec 31	**1,734**	**852**

The provisions in 2018 and 2017 include warranty provision, loss-making project provisions and other contractual provisions.

13. Shareholders' Equity

The parent company's shares are divided into series K shares and series A shares. The Annual General Meeting held on April 10, 2018 resolved to issue new shares to the shareholders without payment in proportion to their holdings to that one new share was issued for each share (split). After the split Vaisala Corporation has 36,436,728 shares, of which 6,778,662 are series K shares and 29,658,066 are series A shares. The shares do not have nominal value. A maximum of 68,490,017 shares shall be series K shares and a maximum of 68,490,017 shares shall be series A shares, with the provision that the total number of shares shall be at least 17,122,505 and not more than 68,490,017. The series K shares and A shares are differentiated by the fact that each series K share entitles its owner to 20 votes at a General Meeting of Shareholders while each series A share entitles its owner to 1 vote. The shares have the same rights to dividend. Series K shares can be converted to series A shares according to specific rules stated in the Articles of Association. In 2017, 20 series K shares were converted to series A shares. This conversion was registered into the Trade Register on August 24, 2017.

On December 31, 2018 and 2017, the fully paid and registered share capital of Vaisala Corporation amounted to EUR 7,660,807.86. The Annual General Meeting held on April 10, 2018 resolved to delete stipulations in Articles of Association on minimum and maximum share capital.

Shareholders' equity

EUR thousand	2018	2017
Share capital		
A shares	6,371	6,371
K shares	1,290	1,290
Share capital Dec 31	**7,661**	**7,661**
Fund of invested non-restricted equity Jan 1	297	93
Gain on transfer of treasury shares	118	204
Fund of invested non-restricted equity Dec 31	**415**	**297**
Retained earnings Jan 1	166,929	159,390
Effect of change in accounting principles	-40	-
Dividend paid	-37,580	-17,846
Purchase of treasury shares	-	-790
Distribution of treasury shares	1,093	341
Retained earnings Dec 31	**130,403**	**141,095**
Result for the financial year	28,739	25,834
Total equity	**167,218**	**174,887**

Distributable funds

EUR thousand	2018	2017
Retained earnings	130,403	141,095
Result for the financial year	28,739	25,834
Fund of invested non-restricted equity	415	297
Total	**159,557**	**167,226**

For 2017 a dividend of EUR 0.55 per share and additional dividend of EUR 0.50 per share was paid, a total of EUR 37.6 million.

14. Non-Current Liabilities

The Parent Company has non-current non-interest-bearing liabilities in total of EUR 4.4 million. Non-current liabilities include hold-back consideration related to acquisition of subsidiaries in total of EUR 0.4 million and those will mature in 2020. Non-current liabilities include contingent considerations related to acquisition of subsidiaries in total of EUR 4 million and those will mature in 2021–2022. During 2018, non-current liabilities related to acquisition of subsidiaries in total of EUR 0.1 million were reversed and recognized in other operating income. The parent company has no non-current liabilities that will mature after five years.

15. Loans from Financial Institutions

On October 5, 2018, Vaisala signed a EUR 50 million unsecured revolving credit facility. The committed credit facility agreement matures in 5 years from the signing and it has no financial covenants. The facility will be used for working capital needs, for financing of acquisitions and for general corporate purposes. On December 31, 2018, the Parent Company had interest bearing liabilities totaling EUR 40.2 million, of which EUR 40 million related to utilized revolving credit facility, which matures on April 10, 2019. Vaisala has no loans that would mature after five years or a longer period of time. At the end of 2017 Vaisala did not have any interest bearing loans.

16. Accrued Expenses and Deferred Income

EUR thousand	2018	2017
Personnel cost accruals	20,024	20,090
Deferred revenue	18,509	19,741
Derivative contracts	955	271
Other accrued expenses and deferred income	4,052	5,146
Total	**43,540**	**45,248**

The change in the fair value of the financial derivatives has been recognized in financial income and expenses in the income statement. Notes related to derivative contracts are presented in the note to the consolidated financial statements 19, Financial Assets and Liabilities.

17. Receivables and Liabilities from Other Companies in Vaisala Group

EUR thousand	2018	2017
Current loan receivables	26,256	26,214
Trade receivables	12,272	12,947
Other receivables	6	5
Prepaid expenses and accrued income	5,541	3,491
Total receivables	**44,075**	**42,657**
Current liabilities	16,630	14,426
Trade payables	634	959
Other liabilities	1	1
Accrued expenses and deferred income	4,369	2,597
Total liabilities	**21,633**	**17,984**

18. Contingent Liabilities and Pledges Given

EUR thousand	2018	2017
For own debt or liability		
Bank guarantees issued for obligations	18,942	17,507
For Group companies		
Guarantees	358	387
Leasing liabilities		
Payable during the financial year	180	140
Payable later	130	93
Total leasing liabilities	**309**	**232**
Total contingent liabilities and pledges given	**19,609**	**18,126**

Investment commitments

The parent company has commitments related to Vantaa building project in total of EUR 1 million. In addition, the parent company has other commitments related to intangible and tangible assets for EUR 3 million.

Purchase commitments

The parent company has purchase commitments totaling to EUR 10 million.

The above mentioned amounts related to investment and purchase commitments are presented as of December 31, 2018. Comparative information is not presented as it is not reliably verified.

19. Auditor's Fees

EUR thousand	2018	2017
Audit	290	221
Statements	1	6
Tax advice	10	13
Other fees	141	164
Total	**442**	**404**

BOARD OF DIRECTORS' PROPOSAL FOR DISTRIBUTION OF EARNINGS

The parent company's distributable earnings amount to EUR 159,556,810.95 of which the result for the period is EUR 28,738,865.09. The Board of Directors proposes to the Annual General Meeting that dividend of EUR 0.58 per share be paid out of distributable earnings totaling approximately EUR 20.8 million and the rest to be carried forward in the shareholders' equity. No dividend will be paid for treasury shares held by the company.

There have been no significant changes to the company's financial position since the close of the financial period. According to the Board of Directors, the proposed dividend distribution does not endanger the company's financial standing.

SIGNING OF THE BOARD OF DIRECTORS' REPORT AND FINANCIAL STATEMENTS

Vantaa, February 12, 2019

Petri Castrén	Petra Lundström	Yrjö Neuvo Vice Chairman of the Board
Mikko Niinivaara	Kaarina Ståhlberg	Pertti Torstila
Raimo Voipio Chairman of the Board	Ville Voipio	Kjell Forsén President and CEO

Auditor's report

(Translation of the Finnish Original)

To the Annual General Meeting of Vaisala Oyj

REPORT ON THE AUDIT OF THE FINANCIAL STATEMENTS

OPINION

We have audited the financial statements of Vaisala Oyj (business identity code 0124416-2) for the year ended 31 December 2018. The financial statements comprise the consolidated income statement, statement of comprehensive income, balance sheet, statement of changes in equity, statement of cash flows and notes, including a summary of significant accounting policies, as well as the parent company's balance sheet, income statement, statement of cash flows and notes.

In our opinion

- the consolidated financial statements give a true and fair view of the group's financial position, financial performance and cash flows in accordance with International Financial Reporting Standards (IFRS) as adopted by the EU.
- 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 financial statements in Finland and comply with statutory requirements.

Our opinion is consistent with the additional report submitted to the Audit Committee.

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 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.

In our best knowledge and understanding, the non-audit services that we have provided to the parent company and group companies are in compliance with laws and regulations applicable in Finland regarding these services, and we have not provided any prohibited non-audit services referred to in Article 5(1) of regulation (EU) 537/2014. The non-audit services that we have provided have been disclosed in note 28 to the consolidated financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

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.

We have also addressed the risk of management override of internal controls. This includes consideration of whether there was evidence of management bias that represented a risk of material misstatement due to fraud.

KEY AUDIT MATTER

Revenue recognition of product and project sales

Refer to Notes 1,2 and 3

- Vaisala group net sales EUR 348,8 million consists of product, service and project sales. Product and project sales account for EUR 300,5 million of the net sales.
- Vaisala has applied IFRS 15 Revenue from Contracts with Customers standard from January 1, 2018. IFRS 15 affected mainly Vaisala's Weather and Environment Business Area's project business.
- Vaisala has applied IFRS 15 in accordance with the modified retrospective transitional approach and IFRS 15 is applied retrospectively only to contracts that were not completed as of January 1, 2018.
- Revenue from the product sales is recognized at a point in time when the control is transferred to the customer according to the delivery terms used. Large number of sales contracts and different nature of terms of contracts increase the risk of misstatement in timing of revenue recognition.
- Revenue for projects is recognized over time using percentage of completion method. Progress is measured by cost-to-cost method, comparing incurred costs and forecasted costs.
- Projects recognized over time require continuing management estimation of the project progress, project costs and project profitability during the whole project.
- This matter is a significant risk of material misstatement referred to in EU Regulation No 537/241, point (c) of Article 10(2).

HOW OUR AUDIT ADDRESSED THE KEY AUDIT MATTER

- Our audit procedures included an assessment of revenue recognition process and assessment of controls relating to timing of revenue recognition.
- We have reviewed Vaisala´s accounting manual and principles regarding different types of revenue contracts to evaluate, whether they are in line with IFRS 15 accounting principles.
- We have audited the accurate timing and the amount of revenue arising from the sales of products and from the projects.
- As a part of our audit procedures covering the revenue recognition principles of product sales, we have compared the sales transactions recorded in accounting to the related sales agreements and delivery documentation.
- Regarding to the projects we have compared the project calculations to the existing agreements and to the possible amendments to the agreements.
- We have audited the project estimates prepared and reviewed by the management as well as the realization of these estimates and assessed the level of completion based on the documentation received.
- We have evaluated the appropriateness of the presentation in the financial statements.

KEY AUDIT MATTER

Leosphere acquisition

Refer to Notes 16 and 23

- Vaisala acquired on October 10, 2018 the shares in Leosphere SAS, a French company.
- The preliminary consideration transferred was EUR 54 million based on management's estimate.
- Determining the acquisition price, the identifiable assets acquired and liabilities assumed in accordance with IFRS 3 requires management's judgement.
- As the acquisition was finished during the last quarter of the year, the identifiable assets acquired, liabilities assumed and consideration transferred related to the business combination have been recognized provisionally.
- This matter is a significant risk of material misstatement referred to in EU Regulation No 537/241, point (c) of Article 10(2).

HOW OUR AUDIT ADDRESSED THE KEY AUDIT MATTER

- We have reviewed the key transaction documents relating to the acquisition to evaluate the accounting treatment.
- We have evaluated the determination of the preliminary consideration transferred based on IFRS 3 requirements.
- We have evaluated the determination and the initial valuation of the assets acquired and liabilities assumed.
- We have challenged the assumptions and methods used.
- We have evaluated the appropriateness of the presentation in the financial statements.

Inventory valuation

Refer to Note 13

- Vaisala group inventory EUR 32,0 million consists mostly of high technology products, which are subject to research and development and which are associated with the excess and obsolescence risk.
- Risk is increased because some products have long life cycle.
- As disclosed in the note 13 Vaisala has written down inventories and recognized excess and obsolescence allowances for slow moving and obsolete inventory.
- Estimation and judgment are required in determining the value of the allowance for excess and obsolete inventory. Management analyses the demand estimates of the products to determine allowance.
- This matter is a significant risk of material misstatement referred to in EU Regulation No 537/241, point (c) of Article 10(2).

- Our audit procedures included an assessment of Vaisala inventory process and assessment of controls relating inventory valuation.
- We have assessed the valuation principles used by the group and analyzed the slow moving inventory to be able to assure the accuracy of obsolesce provision accounting.
- We have audited inventory valuation by comparing the accounting values to the acquisition and manufacturing costs as well as to the net realizable values to evaluate that value of inventory do not exceed the lower of the acquisition and manufacturing costs or net realizable value.
- We have assessed management judgements and estimates regarding the future life cycle and demand of products.
- We have evaluated the appropriateness of the presentation in the financial statements.

RESPONSIBILITIES OF THE BOARD OF DIRECTORS AND CHIEF EXECUTIVE OFFICER FOR THE FINANCIAL STATEMENTS

The Board of Directors and Chief Executive Officer 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 Chief Executive Officer 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 Chief Executive Officer are responsible for assessing the parent company's and the group's ability to continue as 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 cease operations, or there is no realistic alternative but to do so.

AUDITOR'S RESPONSIBILITIES FOR THE AUDIT OF FINANCIAL STATEMENTS

Our objectives are to obtain reasonable assurance on 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 aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of the 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 Chief Executive Officer'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.
- 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.
- 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 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

INFORMATION ON OUR AUDIT ENGAGEMENT

We were first appointed as auditors by the Annual General Meeting on March 26, 2014 and our appointment represents a total period of uninterrupted engagement of 5 years.

OTHER INFORMATION

The Board of Directors and Chief Executive Officer 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 identified above 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 on the other information that we obtained prior to the date of this auditor's report, we conclude that there is a material misstatement of this other information, we are required to report that fact. We have nothing to report in this regard.

OTHER OPINIONS

We support that the financial statements should be adopted. The proposal by the Board of Directors regarding the treatment of distributable funds is in compliance with the Limited Liability Companies Act. We support that the Board of Directors of the parent company and the Chief Executive Officer should be discharged from liability for the financial period audited by us.

Vantaa, February 12, 2019

Deloitte Oy
Audit Firm

Merja Itäniemi
Authorised Public Accountant (KHT)

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