SANDVIK GROUP MAGAZINE

SANDVIK AMONG 100 MOST SUSTAINABLE • Moving Ramses II
Crauwels craves speed • **SENDING KIDS TO SCHOOL**
CREDIT RATING UPGRADED • Computer games inspire

MEET SANDVIK

#1-2018

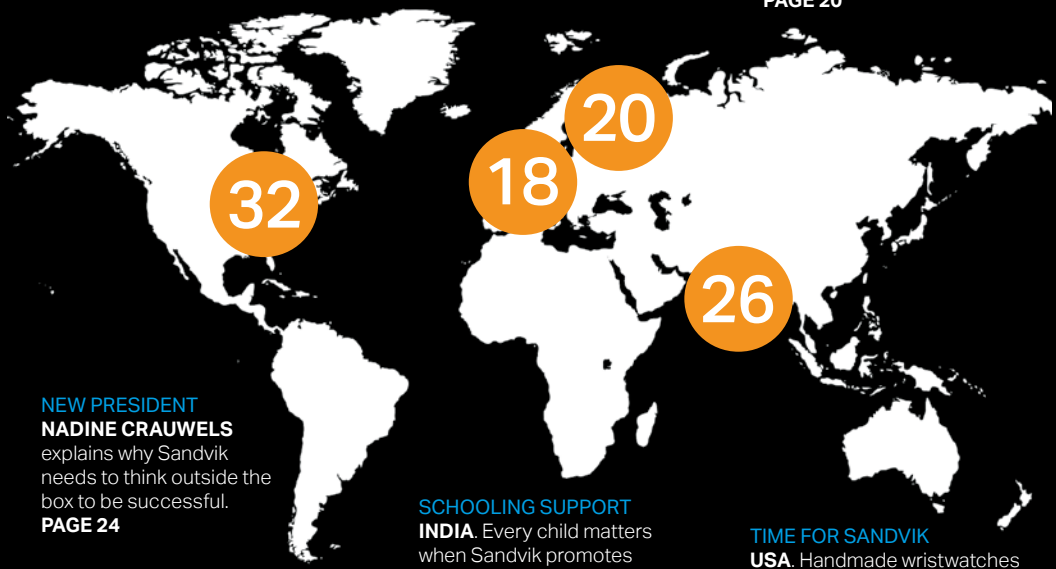
A FRESH LOOK AT INNOVATION

Creative development in the fast-moving, digital age requires a novel approach, an open mind and unexpected partnerships. Sandvik has it all.
PAGE 10

DRIVING INNOVATION
FOCUS. The concept of innovation has broadened beyond traditonal research and development.
PAGE 10

EARLY ADOPTERS
FRANCE. Appetite for innovation made one metalworking operation a valued product-testing partner.
PAGE 18

MINING FOR A NEW MINDSET
FINLAND. New solutions for the mining industry require unexpected skills.
PAGE 20



NEW PRESIDENT
NADINE CRAUWELS explains why Sandvik needs to think outside the box to be successful.
PAGE 24

SCHOOLING SUPPORT
INDIA. Every child matters when Sandvik promotes education among the underprivileged.
PAGE 26

TIME FOR SANDVIK
USA. Handmade wristwatches made from Sandvik steel. Yours at a discount.
PAGE 32

CONTENT #1-2018

Follow us on social media and find more stories at: home.sandvik/sandvikstories

MEET SANDVIK: The Sandvik Group magazine
PUBLISHER RESPONSIBLE UNDER SWEDISH PRESS LAW: Jessica Alm
EDITOR-IN-CHIEF: Marita Sander **PRODUCTION:** Spoon Publishing AB
WRITERS: Åsa Backman, Susanna Lidström, Louise Nordström, Jonas Rehnberg
PRINT: Falk Graphic **DATE OF PRINT:** Februari 2018
Published in Swedish and English, in printed form and at our website home.sandvik
EMAIL: info.group@sandvik.com.
IMAGE RIGHTS: Audrey Bardou, Samuel Unéus, Oscar Mattsson, Alamy, Johnér
COVER: Johnér

NEW PERSPECTIVES

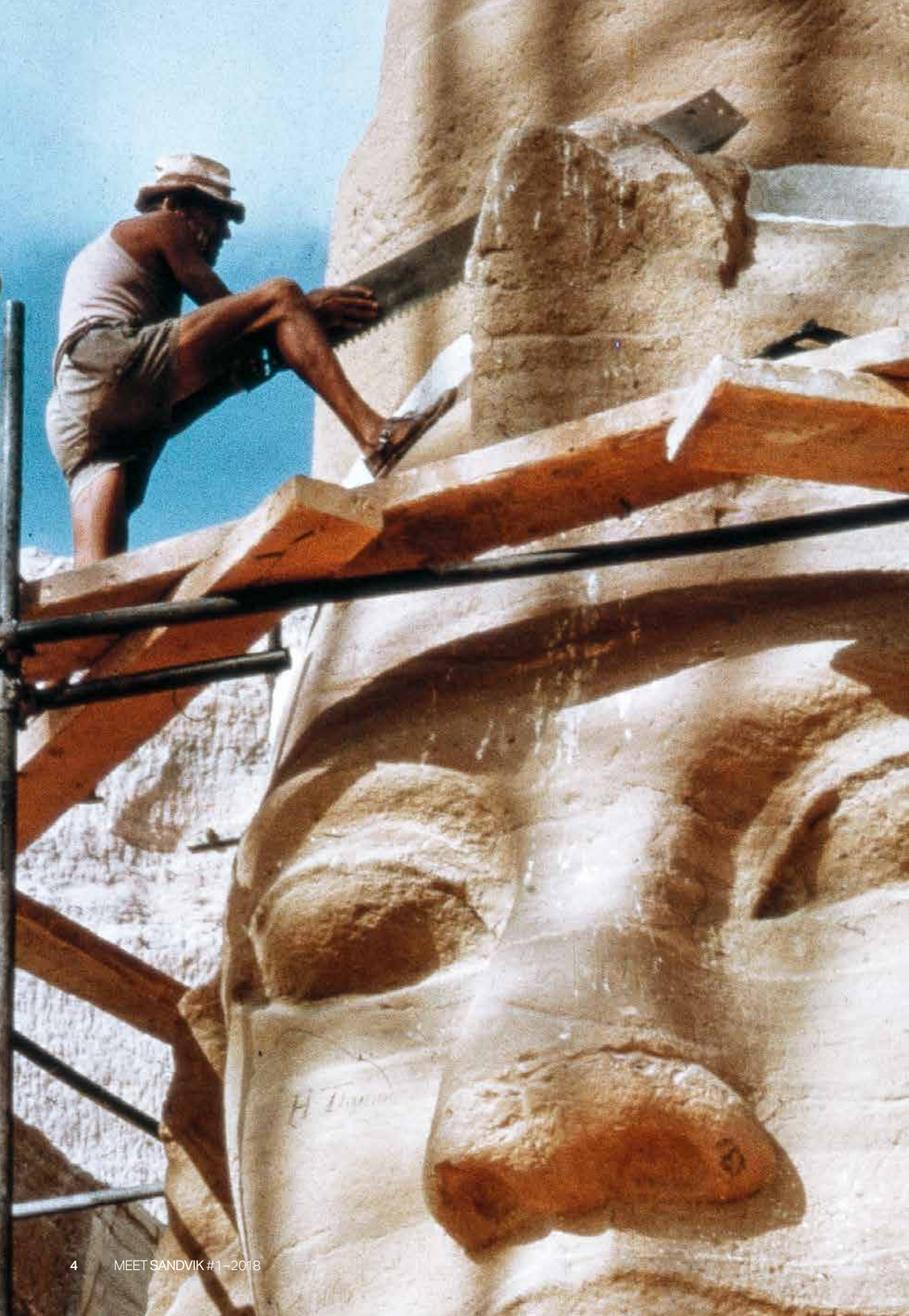
THIS ISSUE OF MEET Sandvik looks at innovation from new perspectives. Sandvik has a strong history of innovation and a culture that encourages innovative thinking and creativity. Each year we invest more than SEK 3 billion in research and development.

In the fast-paced world in which we operate, we are required to constantly develop our working practices and methods. In this issue, we bring you a few examples of how Sandvik works with innovation – how we work with our customers and other companies, our open innovation portal and the think tanks we have organized to generate new ideas.

INNOVATION IS ABOUT identifying the needs of customers and rapidly coming up with solutions that match or even exceed their expectations. At Sandvik we have reallocated research and development resources and responsibility to the business areas and product areas, to get closer to our customers and understand their needs. Increasingly, innovations make use of digital opportunities in order to provide customers with added value, such as linking a product with a service. Examples include solutions for digital tools management, automated mines and systems for intelligent tubes.

In February we released our year-end report, and we can look back on a successful 2017. We increased our operating profit by 64 percent to 18.1 billion SEK and delivered a robust cash flow. We carried out a number of successful divestments and have consolidated our business portfolio. Sandvik is now a more focused, profitable company, ready for growth.

Björn Rosengren, President and CEO



MONUMENTAL SAWING

Specially designed Sandvik saws were used in the relocation of the Great Temple in the Egyptian village of Abu Simbel when the Aswan High Dam was built in the 1960s. The aim of the dam was to prevent flooding, produce electricity and store water for use in agriculture.

The entire temple area was sawn from the surrounding rock in blocks and moved 200 meters back from the River Nile to protect it from the rising water that would result from the new dam. Each stone block weighed some 30 tons.

The Great Temple itself was 20 years in the making, completed in 1265 BC. It was dedicated to the gods Amun, Ra-Horakhty and Ptah, but it also deifies Pharaoh Ramses II. The temple was situated on the border with Nubia, in what is now Sudan. One of the aims of huge monuments such as the temple was to terrify those thinking of trying to conquer the territory.

NEWS

GLOBAL TOP PERFORMER
The U.S. business magazine Forbes ranks Sandvik as No. 64 on its list of 2,000 Global Top Performers.

3

Sandvik ranks third in communication. For the sixth consecutive year consulting firm Box IR has analyzed how the financial markets view the communication of listed companies.

Sandvik took a major leap forward on the list and was ranked as No. 3 in both 2017 and 2016, up from No. 56 in the 2015 ranking.

SANDVIK TO DIVEST HYPERION

SANDVIK HAS SIGNED an agreement to divest Hyperion to the U.S.-listed investment firm KKR at a price of SEK 4 billion.

Hyperion delivers advanced wear-resistant tools, applications and components in hard and super-hard materials. Hyperion, with about 1,400 employees, has in the past twelve months reported revenue of SEK 3.2 billion, representing 4 percent of Sandvik's total revenue.

"I'm pleased that we have found a new owner who will support Hyperion's continued development," says Björn Rosengren, President and CEO of Sandvik. "This agreement is an important step in focusing Sandvik on its core businesses. The divestment creates additional capacity for growth and expansion for the core business of Sandvik."

SANDVIK AMONG THE WORLD'S 100 MOST SUSTAINABLE COMPANIES

SANDVIK HAS BEEN included in the 2018 Global 100 Most Sustainable Corporations in the World (Global 100) index for the first time and ranked 65 overall. Global 100 represent the top 2 percent in most leading companies in the world on sustainability performance.

"Sustainability is an integrated part of our business. A sustainable approach to business, helping our customers become safer, more efficient and more productive, will contribute to ensuring long-term value creation for our customers, investors and employees", says Björn Rosengren, President and CEO of Sandvik.

To determine the ranking, 5,994 publicly listed companies were analyzed against global industry peers on a suite of 17 quantitative key performance indicators ranging from sustainable offerings, financial performance, human resources management, energy and water use, to sustainability leadership.

"We are very proud to be included in the Global 100 index for the first time. The indicators measured are well in line with our sustainable business strategy," says Christina Båge-Friborg, Head of Sustainable Business at Sandvik.

2018 GLOBAL100

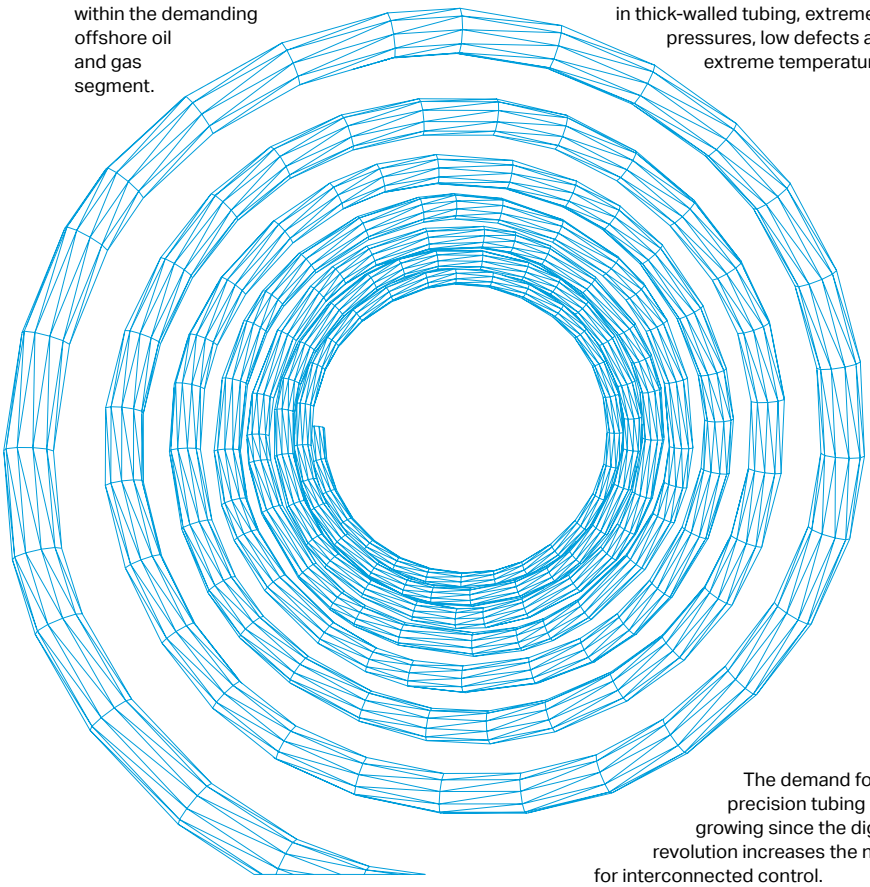
ONE KILOMETER OF STAINLESS STEEL

TO MEET A GROWING need for coiled tubing in very long lengths, Sandvik's high-precision tubing unit in Werther, Germany, has developed a breakthrough method to enable the production of stainless tubing in lengths exceeding 1,000 meters from a single 125-kilogram hollow – with zero welds.

The new production technology – a combination of sophisticated pilgering, precision drawing and proprietary processes – is expected to be highly beneficial for oil and gas and other industries.

The first 1,010 meter coiled-tube reel was delivered to a customer within the demanding offshore oil and gas segment.

Sandvik's Werther operation produced its first stainless steel tubes in 1957, specializing in thick-walled tubing, extreme pressures, low defects and extreme temperatures.



The demand for high-precision tubing is growing since the digital revolution increases the needs for interconnected control.

SANDVIK MAKES GARDENS GROW

Many gardeners and small-scale farmers would like to have a single tool for sawing, cutting and digging. A new tool from Swedish company Mojave Grönt makes this possible, using steel from Sandvik and taking inspiration from Japan.

"We work in farming and gardening and have identified tasks that could be made more efficient by developing tools and equipment for small-scale farming and gardening," says Anja Hellström at Mojave Grönt. She explains why they chose Sandvik's 12C27 steel.

"It's stainless steel, which is important in gardening, and it's made from recycled material," she says. "We want to make products using sustainable production methods and materials. We also believe in conscious and sustainable consumption. Being a small company allows us to communicate directly with end users and encourage consumers' understanding of the value of products, and why it's important to choose responsibly manufactured materials."

UNIVERSITY COLLABORATION

THE DOCTORAL SCHOOL of Industry Innovations (DSII) at Tampere University of Technology in Finland employs the latest innovation methods and fosters active university-industry collaboration. Sandvik's partnership with DSII builds a unique bridge between academia and industry.

On December 1, 2017, Tuomo Kivelä became the first "Sandvik" doctoral graduate to present his Ph.D. thesis. Kivelä, who has an M.Sc. (Tech), wrote his thesis on the topic "Increasing the Automation Level of Serial Robotic Manipulators with Optimal Kinematic Design and Collision-free Path Control." Kivelä developed algorithms and simulation models that can considerably boost drill rig development.

Tuomo Kivelä is the first "Sandvik" graduate at the Doctoral School of Industry Innovations.

Kivelä's Ph.D. thesis supports Sandvik's digital strategy, and thesis results will be utilized in future research and development work. Mining is experiencing a digital revolution, and fully automated mines are not far away.

RESEARCH DEVELOPS ADDITIVE MANUFACTURING

SANDVIK IS participating in a three-year research collaboration, initiated by the University West in Trollhättan, Sweden, that focuses on additive manufacturing and creating cutting-edge knowledge of high-temperature materials.

"There are already exciting results on both processes and material impact, and I am convinced that the project will help the position of additive manufacturing to move forward," says Peter Harlin at Sandvik.

The project aims to create a basic understanding of the relationship between process, material structure and material properties. The research at University West focuses on metallic materials. Sandvik is a world-leading supplier of metal powder for additive manufacturing, giving the company a platform that covers the entire value chain.

FOCUS

THE CHALLENGING ART OF DRIVING INNOVATION

Guiding and leading innovation is about managing uncertainty rather than reducing it. So says professor Sofia Börjesson, who is researching how major industrial companies organize their innovation.

Over the past ten years, the concept of innovation has broadened and today there are many more ways in which to be innovative than by developing new technology, experts say.

A Google search of the word "innovation" produces more than 2 billion hits. There is much talk about the importance of being innovative as an individual, leader, company and industry, but fewer people have actually come to grips with the complex driving forces that determine how successful an organization is at driving innovation.

One person who has spent many years researching this area is Sofia Börjesson, Professor of Innovation at the Department of Technology Management and Economics at Chalmers University of Technology in Sweden. Börjesson points out that despite all the talk, this field of research is relatively new. When she gained her Ph.D. in work science some 20 years ago, innovation barely existed as a concept within the academic world.

"Back then the focus was on product development and how to create conditions for applying new technology," Börjesson says. "But innovation is something different – it's about creating something new. Over the past ten years, the concept has broadened and the focus has shifted toward customers and customer value. This means that there are many more ways in which to be innovative than by developing new technology."

BÖRJESSON EXPLAINS THAT business model innovation, for example, is about generating value for a company in entirely new ways. It can be achieved by using existing technology and capabilities, combined in a way that has not been tried before. This represents a huge challenge for many companies, particularly heavy

"There is no blueprint to help established companies successfully integrate innovation into their ordinary business activities."

industrial companies whose core expertise is built on developing, manufacturing and selling products. Although the original business concept will often be based around a technical innovation, over the years the company will have established its processes logically and rationally in order to repeat the same actions over and over again.

"In order to be innovative, you have to break this pattern," Börjesson says. "Innovation challenges existing structures which, in established companies, are usually based on the need to secure and maintain the company's current business operations." Börjesson has conducted much of her research in collaboration with major companies in sectors such as pharmaceuticals and the machinery, automotive and paper and pulp industries.

MEET SANDVIK ASKED Börjesson how one knows whether a new idea has commercial potential.

"That," she says, "is of course impossible to predict. It's about identifying leadership strategies in an uncertain scenario – preparing for change and being bold about experimenting without putting the entire company at risk. Pharmaceutical companies have generally been quite good at this. They often make substantial investments in the early phase, but only allow a select few ideas through to the testing phase and then development into a product. The principle is based on taking a broad approach and shutting down while the risks remain low." ■

INNOVATION TRADITION GENERATES GROUNDBREAKING SOLUTIONS

- Sandvik was founded on the basis of a patent that in many ways revolutionized modern society, and we have continued to push the boundaries in the hunt for the next discovery.
- Each year we invest about SEK 3 billion in research and development.
- We have about 2,600 employees working in the area and often collaborate closely with customers on R&D activities.
- We have various types of exchange programs with leading research institutes and universities all over the world.
- Sandvik has around 7,300 active patents and other intellectual property rights. We take environmental aspects into consideration when developing new products.

A commercialized product is not the sole output of innovation work. The company also benefits from increased knowledge and information about the market and its own organization, says Professor Sofia Börjesson.

Börjesson emphasizes that a project that does not lead to commercialization should not by definition be regarded as a failure. "A commercialized product is not the sole output of innovation work," she says. "The company also benefits from increased knowledge and information about the market and its own organization."

OF COURSE THESE benefits are harder to measure than, for example, the number of patents and other quantifiable results, but they're just as important in creating conditions for successful innovation in the longer term, Börjesson explains. "The number of patents is partly a reflection of a company's innovative strength, but you also have to do something with that patent," she says. "Then it's interesting to examine the organization's adaptability, rather than the technology itself. The rapid changes we're seeing in the world today, resulting from strong trends such as digitalization and globalization, make it increasingly important to be able to adapt your business – not just once, but several times as part of a continual process."

Börjesson stresses that there is no blueprint to help established companies successfully integrate innovation into their ordinary business activities. It involves a combination of both knowledge and expertise, as well as corporate culture, reward systems and approaches.

"Ten years ago, innovation was regarded as the research and development team's area. Today it concerns many skills."

"It's also really important for senior management to be committed and to take on the challenge of innovation," she says. "It may seem obvious, but actually it often takes several years for the issue to reach a strategic level. Ten years ago, innovation was regarded as the research and development team's area. Today it concerns – and requires – many skills, particularly within marketing."

Börjesson highlights the importance of building networks both internally and outside the organization, in order to establish what she terms "an ecosystem for innovation."

"Getting a broad group of stakeholders on board, from employees to customers and suppliers, enables different parts of the value chain to work together and find new ways of pursuing concept development," Börjesson says. "It requires bold leadership that demands more than a business case or calculation to show when an investment in a new product will pay off in a familiar market. Working with innovation is about looking for potential value as well. ■

SANDVIK FIRST TO COMMERCIALIZE INNOVATION IN STEEL MANUFACTURE

The Bessemer process is a method of manufacturing steel, patented by English engineer Henry Bessemer in 1855. By blowing air through the molten iron, the carbon, manganese and silicon is oxidized along with parts of the iron. The carbon is released as carbon monoxide and carbon dioxide, while manganese and silicon float up to the surface of the iron as slag. The method made it possible to produce higher-quality steel at a lower cost in a significantly shorter time, and is considered to have been crucial to the Industrial Revolution.

The founder of Sandvik, Göran Fredrik Göransson, bought Bessemer's patent in 1857 and began experimenting with the method at the Edsken blast furnace, which belonged to Högbo Bruk ironworks (Sandvik's predecessor).

Sandvik has been working with mining customers on mine automation and remote monitoring of machines for more than 20 years.

DIGITAL DEPLOYMENT CREATES USD 100 BILLION IN VALUE

Sandvik and IBM are collaborating to develop new data-driven productivity and predictive maintenance offerings for the mining and rock excavation industry.

THE GROWTH IN onboard instrumentation and data gathering capabilities in heavy equipment are presenting natural resource industries with opportunities to employ advanced analytics and models to identify and resolve productivity issues and improve process optimization and performance. Deployment of digital technologies is expected to create as much as USD 100 billion value to resource-producing companies by 2035, according to

"It is a natural step for us to collaborate with a company like IBM."

a report from analyst firm McKinsey.

Sandvik's business area Mining and Rock Technology has teamed up with IBM to jointly develop new offerings in data-driven productivity and predictive maintenance services for the mining industry. The first wave of work has been done on loaders and trucks, connecting up to 15 units and integrating live data from multiple on- and off-board systems to run the analytic algorithms.

"Sandvik has been working with mining customers on mine automation and remote monitoring of machines for more than 20 years. Our OptiMine® and AutoMine® solutions are also important systems for data collection and consolidation that provide us with a great platform to get off to a flying start with IBM analytics solutions. So it is a natural step for us to collaborate with a company like IBM – experts in advanced analytics cognitive computing and modeling – to create even more value to our customers," says Lars Engström, President, Sandvik Mining and Rock Technology. "This collaboration fits well with our service portfolio, which is based on traditional life-cycle, enhanced technical, and business services, all of which are aligned to improve safety, secure competences for mine operations and increase our customers' productivity."

Lars Engström
President,
Sandvik Mining and
Rock Technology.

THE COMBINATION OF information services, remote data collection and data analysis will enable increased effectiveness by improving productivity, saving cost and reducing time wastage. It helps mining and rock excavation companies make well-informed decisions regarding production plans and maintenance schedules, and provides the opportunity to monitor and improve upon the general utilization levels of their equipment. This will lead to higher yield at lower cost of ore per ton. Sandvik have already seen cost per ton decreases of 20-50 percent with some of the latest digital technologies, and aim to push that even further with this new analytical capability.

"We look forward to taking our expertise in Internet of Things, advanced analytics and asset management and combining that with Sandvik's years of experience in developing mining processes and machine technology to build a collaboration around innovation and delivery of smarter digital services offerings for natural resource companies around the globe," says Anders Fredholm at IBM Europe. ■

HUNGRY FOR INNOVATION

With its early-adopter philosophy regarding new technology, French company SMPL has become an invaluable product-testing partner for Sandvik's innovations in tooling.

SMPL (La Société de Mécanique du Pays de Lanvaux) near the French village of Rochefort-en-Terre is a regional success story. In the past decade, the metalworking business has doubled its revenue, tripled its staff and quadrupled its workspace. It now serves as a test pilot for Sandvik Coromant's latest tools and makes customized machine pieces for everything from the agricultural industry to the aeronautics sector. And it has gone from being a local market in Brittany to a company with its sights on the world, shipping to such countries as China, Brazil and South Africa.

The transformation can be credited to Olivier Goëtnick, a dynamic young entrepreneur from a nearby village. Goëtnick knew about mechanical workshops. He bought his first one when he was 32. SMPL was his second, bought two years later. He incorporated a third shortly afterward.

"When I came along, SMPL was

just a cutting workshop with 12 staff," recalls Goëtnick, now director as well as owner. "The owners were retiring, and the company wasn't growing anymore, or renewing. If we had continued in the same way, we wouldn't be here today."

SMPL's turnaround began with a risk. "I've always taken risks and it's paid off," Goëtnick explains. "If you don't take them, you won't get anywhere." But in this case the risk almost backfired.

ABOUT FIVE YEARS ago, a company that specialized in robot cells, and one of the market leaders in deburring cast parts for world-famous automobile brands such as Renault and Peugeot, offered SMPL a major deal. SMPL accepted – the company was eager to break into a new market – but things soon got complicated.

"It was so much work," recalls Gérard Jobin, Goëtnick's right-hand man and technical chief. "We were losing rather than making money because we were spending at least 15 man-hours on each piece. It was hopeless."

Not wanting to walk out of the deal, the SMPL team turned to Sandvik Coromant, a brand name they had heard buzzing among competitors, and invested in the group's Silent Tools range.

"It changed everything," Jobin says. "All of a sudden we spent just 10 hours on each piece, and the finish was perfect – to the micron."

THE EXPERIENCE MARKED the start of a significant collaboration between SMPL and Sandvik Coromant. SMPL's eagerness to try new tools, along with its "early adopter" profile, would eventually result in it becoming a Sandvik Coromant product-testing partner, including for the tooling systems CoroCut® QD, CoroTurn® 300, CoroTurn® Prime and, most recently, CoroCut® QD for Y-axis parting off, which hit the market on October 1, 2017.

"I couldn't believe it when I first saw the CoroTurn® Prime at work," Jobin says, describing its capacity to turn in all directions. He was so impressed, in fact, that he made a video and posted it online two weeks before the tool's official launch. By launch day it had garnered more than 11,000 views.

Josselin Blanchet, of Sandvik Coromant in France, says the SMPL-Sandvik Coromant collaboration has been invaluable. "Our partnership is based on a huge amount of confidence and a real exchange of expertise," Blanchet says. "We're extremely lucky". ■

Gérard Jobin

Olivier Goëtnick

Josselin Blanchet

Computer-game developers have skills that can help in creating user-friendly interfaces for certain applications in real-world mining.

A GOLDMINE FOR IDEAS

In a time of increasingly rapid development, companies are seeking new sources of innovation. Suddenly, computer-game developers can become relevant to Sandvik.

DIGITALIZATION IS transforming industries and societies around the world, and the mining sector is no exception. New technologies, including electrified vehicles and Wi-Fi-enabled equipment, are unlocking new ways of conducting exploration and extraction, and in the process boosting safety, productivity and sustainability.

Making the most of the opportunities presented by digitalization, however, may require skills and competencies found in unexpected places, notes Miika Kaski, who works with research and technology development at business area Sandvik Mining and Rock Technology. "We are seeing a digitalization wave sweeping across a traditional machine-building industry," he says. "Mining is an old craft, where digitalization may require a whole new mindset."

KASKI SAYS MINING has traditionally been a conservative business characterized by a slow pace of innovation and change. "Suddenly, computer-game developers become highly relevant to us," he says. "They can, for example, create user-friendly interfaces for certain functionalities. This is a competence we need going forward."

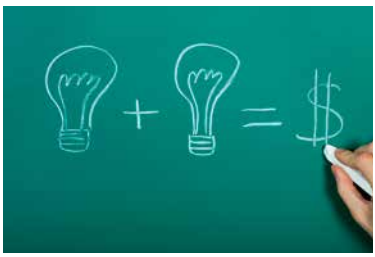
In some ways, innovation as such remains essentially the same, he explains, adding, "It's about getting smart people together to develop their ideas."

So how do you attract people whose ideas may help take the art of mining one step

further with the help of digital concepts? You can arrange a think tank event, which is what Sandvik did recently in Tampere, Finland.

"The purpose of the event was to bring together small startups and midsized companies to help shape our future in the field of digitalization," says Kaski. "They were invited to come up with new thinking in areas of connected equipment, data analytics and process optimization, all in accordance with our digital strategy."

The invitation attracted more followers than Sandvik could accommodate and all presentations had to be pre-screened to select the final 26 entries. Kaski says he's pleased with the quality of the submissions. "The contributions varied in terms of relevance to us," he recalls, "but each one certainly provided us with food for thought and helped update us on what's happening in other industries in terms of digitalization."



Connecting innovation to commercialization is a cornerstone for Sandvik.

Besides events such as the think tank, Sandvik relies on cooperation with universities and external research facilities across the world to supplement and cross-fertilize in-house R&D efforts.

"Sandvik cannot produce everything in-house, and therefore we need to become even more co-creative," Kaski says. "We must decide what to do in-house and what to source elsewhere. We need to establish what we aim to develop in terms of innovation, and then create appropriate ecosystems and networks around these topics.

"We obviously know our core business and possess certain types of resources and competence in-house. Increasingly, though, noncore skills need to be part of our innovation ecosystem and networks."

EDUCATING THE EXTERNAL partners is an integral component in producing relevant and desirable innovation results, Kaski notes. "We need to educate our external partners in the field and make them contribute," he says. "They need background information to understand our needs, applications and customer processes. They can't propose a better solution to something if they don't know what the present solution looks like."

In inviting external parties to share in innovation and research, Sandvik has to offer complete confidentiality in creating an honest and open cooperation climate, Kaski adds. And while innovation may seem like a worthwhile endeavor in itself, to a company it also has to be worth its while in commercial terms:

"Connecting innovation to commercialization is a cornerstone," Kaski says, explaining that Sandvik applies a technology readiness level to rate ongoing innovation projects. "It is a scale with different numbers and levels annotating technological maturity," he says. "We use it to mitigate the technology risk and to allocate capital properly."

The scale goes from 1 to 10, and levels 7 and above equal a go-ahead to the incorporation of the new technology into actual products and components, Kaski explains.

"We were putting something on the market that underlined Sandvik's technology leadership."

The scale ensures that technology and commercial readiness are accounted for and secures a low risk of failing, he says. "It is a very solid process that Sandvik can be proud of."

AT SANDVIK, INNOVATION has remained a key success factor ever since the company was founded 156 years ago. "Technology leadership and to be No. 1 or No. 2 in our chosen markets are pillars of our strategy, and continuous innovation is key to technology leadership," Kaski says.

Being recognized as a technology leader and truly innovative strengthens Sandvik's credibility and allows the company to "push" new technology and not merely wait for the "pull" from customers demanding new solutions. Kaski mentions Apple's iPad as an example of a successful push. "Nobody knew they wanted an iPad until it was out there," he points out. "Sandvik is also able to 'push' innovations to customers that they did not know they needed. And we have the credibility to succeed."

Being recognized as technology leader and truly innovative strengthens Sandvik's credibility.

Pursuing a "push" position is also based on other reasons, he adds. "In areas of safety and productivity we feel it is our responsibility to convince customers of the value of innovations and provide a business case," Kaski says. "One example is the introduction of our battery-powered electrified mining equipment in Las Vegas in 2016, an innovation that was met with some suspicion at the time."

But Sandvik pushed ahead.

"We were putting something on the market that underlined Sandvik's technology leadership," Kaski says. "A year later, demand has picked up momentum and the market is finally ready for something that we have researched for a number of years."

Kaski says a factor that unites the world's most innovative companies is the degree to which they are able to convince their customers of the value of their innovations. "They are not necessarily the biggest in terms of R&D spending," he explains, "but they are the best in connecting innovation with corporate strategy, because innovation is closely linked to the business strategy." ■

NEW PORTAL FOR OPEN INNOVATION

In a world where speed to market is becoming increasingly critical, new ways of working and collaboration are essential to achieve success.

SANDVIK HAS LAUNCHED a web-based portal for open innovation, where individual inventors, experts as well as small businesses and major companies are invited to share their ideas in areas that are relevant to Sandvik's challenges.

The central idea behind open innovation is that, in a world of widely distributed knowledge, companies cannot afford to rely solely on their own research. They should also benefit from external knowledge by integrating, for example, external inventors, research teams, companies and potential partners in their own development process.

While Sandvik is home to world-leading competence in materials, external input may sometimes help push innovation further. Fields like digitalization, sensor technology and big data capture, for example, hold enormous potential coupled with materials technology.

The innovation portal is an important tool to further evaluate and develop Sandvik's open innovation concept, which will be crucial to continuously be able to deliver new innovative solutions to the market. ■

For more information visit
https://www.materials.sandvik/en/open-innovation/

SANDVIK INVESTS IN METAL POWDER PLANT

Sandvik will invest about 200 million SEK in a new plant for manufacturing of titanium and nickel fine metal powders. The investment will complement the existing powder offering and strengthen Sandvik's position in the rapidly growing markets for metal powder and metal additive manufacturing.

The demand for metal powder for additive manufacturing is expected to increase significantly in the coming years. Titanium and nickel based alloys are key growth areas in the field of additive manufacturing, accounting for a significant portion of the metal powder market.

"The metal powder segment and the additive manufacturing business are of increasingly strategic importance to us. This investment should be viewed as the latest evidence of our commitment to an area that we believe strongly in", says Göran Björkman, President of Sandvik Materials Technology.

The facility will be located to Sandviken, Sweden, near in-house titanium raw material supply and Sandvik's center for additive manufacturing. It is expected to be operational during 2020. ■

NEED FOR SPEED

Nadine Crauwels is set to take Sandvik Coromant into the digitalized world of manufacturing, and she is impatient. She sees the need to move quickly, to be creative and to think outside the box to be successful.

"I will never let our size and history be an excuse to slow things down."

Nadine Crauwels became the new president of Sandvik Coromant, Sandvik's largest product area, in May 2017.

FOR THOSE WHO DO NOT KNOW YOU, CAN YOU PLEASE SHARE A BIT ABOUT YOUR BACKGROUND?

I was born and raised in Belgium, where I gained a master of science degree in mechanical engineering. I have worked in the manufacturing industry for 22 years, 17 of which have been at Sandvik Coromant, in different roles and locations. I live with my family: my husband and two children – a daughter, 17, who goes to high school and a son, 19, who is studying in Florida in the USA. I spend my free time outdoors as much as possible with my husband, running, skiing, hiking and supporting our children's activities and interests.

HOW WOULD YOU DESCRIBE YOUR LEADERSHIP STYLE?

I love to see people grow, and I strongly believe that people excel if you give them opportunities. I am a demanding person when it comes both to myself and to others. We are a team of extremely talented people, and we need to utilize this power. I feel a sense of urgency when it comes to speed. This is a challenge, but I will never let our size and history be an excuse to slow things down. Being an engineer, I have a strong awareness of the fact that we need to do things right, but we also need to move forward, push ourselves out of our comfort zone a bit, be creative and dare to fail.

SO WHAT DOES SANDVIK COROMANT DO TO PUSH BOUNDARIES?

We operate in a time of rapid change. We are used to understanding exactly how we can increase our customers' productivity, and we are used to having a fairly static set of competitors. With digitalization, this arena has changed. New technology continually opens up new ways of providing value for our customers. This gives us several opportunities to widen our scope. Digitalization also opens up new competitors, such as companies that are good at analyzing data. You don't need to be a metal-cutting company to do that. Here too we need to challenge ourselves, be creative and think outside the box to be successful.

WHAT MAKES SANDVIK COROMANT UNIQUE IN THIS NEW ENVIRONMENT?

Apart from innovative world-class tools, our brand is built on trust, close relationships and manufacturing knowledge. Everything we do going forward is based on these values, but in new ways. We are broadening our offering into new parts of the customer value chain, providing digital solutions and finding ways to communicate with the customer, not necessarily through a personal meeting with a sales person. By sticking closely to our brand on our journey into the digital world, our concept will continue to be really difficult to copy.

WHAT SYNERGIES DO YOU SEE BETWEEN SANDVIK COROMANT AND OTHER PARTS OF SANDVIK?

We can benefit from common-ground research, and digitalization really opens up new opportunities when it comes to synergies and collaboration on neutral platforms. Additive manufacturing is a good example, where one business area is driving the platform, another one is providing unique material insights and raw material, and the product areas contribute with customer needs and market trends. ■

Nadine Crauwels
Bor: 1971 in Antwerp, Belgium.
Education Master of science in mechanical engineering, production.
Family Husband, daughter, 17, and son, 19.
Hobbies Outdoor activities such as running, hiking, skiing and following and supporting her children's activities.
Hidden talent Can write with both left and right hand.

The Sandvik School on Wheels program complements the Every Child Counts campaign by providing education in sites where there is no school.

SUPPORTING EDUCATION IN INDIA

Going to school is the best start in life there is. Sandvik India, with the help of volunteers and staffers, ensures that more children are given such a start.

"EVERY CHILD COUNTS" is an umbrella concept used by UNICEF as well as various local organizations around the globe that share the common goal of improving conditions facing the world's children. The United Nations' Sustainable Development Goal No. 4, for example, advocates inclusive, free, equitable and good-quality primary education.

In support of this goal, Sandvik India has launched the initiative "Sandvik Every Child Counts," in cooperation with the NGO Doorstep. It is a project that aims to boost primary school enrollment among underprivileged children and prevent them from being used as child labor.

"The initiative involves Sandvik staff as well as external volunteers, and reaches out to children of marginalized communities such as rag pickers, roadside sellers, street dwellers and migrant laborers," says Saharsh David, Head of CSR at Sandvik India. "Our goal is to encourage the parents to educate their children and prevent them from falling into the trap of child labor."

SANDVIK INDIA'S HEADQUARTERS are based in Pune, one of the fastest-growing cities in the country in terms of economic growth, and consequently home to a steady influx of migrant laborers from across the subcontinent in search of new opportunities.

Since migrant families who live in temporary camps often have to travel a long way to reach the nearest school facility, the Sandvik

initiative includes a mobile solution. "The Sandvik School on Wheels program complements the Every Child Counts campaign by providing education at the doorstep in sites where there is no school," David explains. "It is a refurbished bus equipped with classroom supplies and staff who conduct classes across the different sites."

The Sandvik initiative puts special emphasis on ensuring that more girls enroll in primary school. Literacy rates are generally lower among girls than boys in India, and girls also face the prospect of being married off at an early age, particularly if they come from a poor background and lack schooling.

In 2009, the Indian parliament passed a bill to provide universal, free and compulsory education for all children aged between 6 and 14.

"Passing a bill is one easy thing to do. What is important is to make parents, particularly in rural areas, aware of the benefits of education and to encourage them to send their children to school, said Thomas Chandy, chief executive of Save the Children India. "This change has to come at the community level and also make people at the helm of affairs accountable." ■

SANDVIK EVERY CHILD COUNTS – RESULTS SO FAR:

Since 2014, the initiative has identified a total of 6,393 children not attending school. Of these, 3,335 have been enrolled in mainstream schools and 1,305 have continued their education in 45 schools across the metropolitan region of Pune.

Payal Balu Lokhande attended the School on Wheels in 2015-16. She is currently continuing her education in the 7th standard form.

SANDVIK COMPLETES DIVESTMENTS

Sandvik has completed the divestment of Sandvik Process Systems, resulting in a pretax capital gain of about SEK 4 billion, which had a positive impact on the operating profit in the fourth quarter of 2017. Sandvik Process Systems has been reported in Other Operations and will now be deconsolidated from Sandvik's financial statements.

In addition, Sandvik has completed the divestment of its welding wire business to ESAB. The business generated revenues of approximately 500 million SEK in the twelve months to September 30th, 2017. The deal includes the production units in Sandviken, Sweden and Scranton, US as well as the global sales and product management organization; in total approximately 100 employees.

The divestment will have a positive cash flow impact of about 260 million SEK upon closing.

SANDVIK RECEIVES BRONZE CLASS DISTINCTION

Every year since 2004, The Sustainability Yearbook has listed the world's most sustainable companies in each industry as determined by their score in the RobecoSAM annual Corporate Sustainability Assessment (CSA). Over 2,400 of the world's largest companies in 60 industries are invited to participate in the CSA each year. For the ninth consecutive year, Sandvik has been included and has received the Bronze Class distinction for its excellent sustainability performance.

ROBECOSAM
Sustainability Award
Bronze Class 2018

Eligibility for inclusion in The Sustainability Yearbook is determined by two parameters. Firstly, the sustainability scores derived from the CSA, and secondly, a qualitative screen based on RobecoSAM's Media & Stakeholder Analysis which evaluates a company's response to critical sustainability issues that may arise during the measured year.

RobecoSAM is an investment specialist focused on sustainability investing which also publishes the Dow Jones Sustainability Indices (DJSI).

SANDVIK UPGRADED TO BBB+

ON DECEMBER 4, 2017, Standard & Poor's Global Ratings upgraded its credit rating on Sandvik AB from BBB to BBB+ (stable outlook). The main reasons for the upgraded rating are that Sandvik's performance has been strengthened, supported by a market recovery, cost-saving measures and reduced debt as a result of divestments.

"The improved credit rating recognizes the positive effects of our strategy and shows improved confidence in a continued strong development of our operations," says Tomas Eliasson, Executive Vice President Finance, Sandvik Group.

"The stable outlook reflects our expectation that the company will continue its deleveraging efforts, while maintaining EBITDA (Earnings before interest, taxes, depreciation and amortization) margins above 18 percent and funds from operations to debt at above 45 percent," says Standard & Poor's.

STRONG FINISH TO A RECORD YEAR

THE YEAR OF 2017 was a strong period for Sandvik with significant increase in customer activity as well as delivery on internal efficiencies.

This resulted in record-high adjusted operating profit of 14.6 billion SEK (11.0), a significant improvement in adjusted operating margin to 16.1 percent (13.5) and a record high operating cash flow of 14.7 billion SEK (12.5).

Demand improved in all customer segments and in all geographical regions. We have consolidated the business portfolio as we concluded the divestments of Sandvik Process Systems and Mining Systems (discontinued operations) and have announced a new owner for Hyperion.

In January, after the close of 2017, we completed the divestment of the welding wire business to ESAB. In total these businesses account for some 10 percent of Group revenues. The divestments create additional balance sheet capacity to grow the core business of Sandvik.

The Board of Directors has proposed a dividend of 3.50 SEK per share (2.75). This represents a year-on-year increase of 27 percent. The dividend proposal represents 44 percent (63) of adjusted earnings per share for the Sandvik Group in total.

For more information, please visit home.sandvik/investors

MARKET DEVELOPMENT Q4

	% of group revenue FY 2017	Y/Y order intake Q4 2017/ Q4 2016	Mining	Engineering	Energy	Construction	Automotive	Aerospace	Sequential underlying demand trend Q4 2017/ Q3 2017
EUROPE	39%	+16	↗	↗	↗	↗	↗	↗	↗
NORTH AMERICA	21%	+17	↗	↗	→	↗	↗	↗	↗
ASIA	20%	+12	↗	↗	↗	↗	↗	↗	↗
AFRICA/MIDDLE EAST	9%	–2	↗	↗					↗
AUSTRALIA	6%	+32	↗						↗
SOUTH AMERICA	5%	+19	↗						↗

SUMMARY Q4

ROBUST DEMAND

- Order intake +15%
- Large order received in Sandvik Materials Technology
- Positive development in all business areas, regions and segments

STRONG ADJUSTED EARNINGS AND MARGIN

- Supported primarily by strong revenue growth

DIVIDEND PROPOSAL

- 3.5 SEK

ADDITIONAL STRENGTH TO BALANCE SHEET FROM DISPOSAL

- Net gearing at low level of 0.33
- Record-high free cash flow at 5.1 billion SEK
- Divestement of Sandvik Process Systems generated 4.7 billion SEK in cash flow

VALUE-CREATING OFFERING

Sandvik is a high-tech and global engineering group offering products and services that enhance customer productivity, profitability and safety. In 2017, the Group had approximately 43,000 employees and sales of 91 billion SEK in more than 150 countries.

BUSINESS AREAS

SANDVIK MACHINING SOLUTIONS

A market-leading manufacturer of tools and tooling systems for advanced metal cutting.

SHARE OF REVENUES **39%**
SHARE OF ADJUSTED OPERATING PROFIT **55%**

SANDVIK MINING AND ROCK TECHNOLOGY

A leading supplier in equipment and tools, service and technical solutions for the mining industry and rock excavation within the construction industry.

SHARE OF REVENUES **40%**
SHARE OF ADJUSTED OPERATING PROFIT **38%**

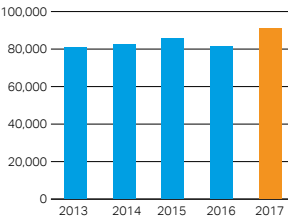
SANDVIK MATERIALS TECHNOLOGY

A leading developer and manufacturer of advanced stainless steels, powderbased alloys and special alloys for the most demanding industries.

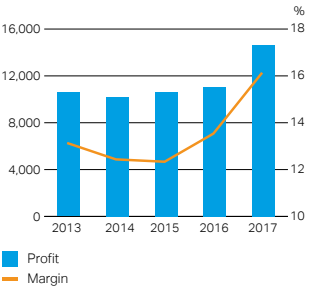
SHARE OF REVENUES **15%**
SHARE OF ADJUSTED OPERATING PROFIT **4%**

THE GROUP

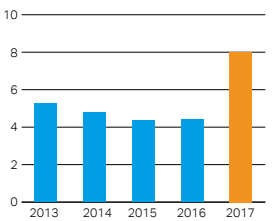
REVENUES, MSEK



ADJUSTED OPERATING PROFIT, MSEK AND ADJUSTED OPERATING MARGIN, %[1]



ADJUSTED EARNINGS PER SHARE, GROUP TOTAL, SEK[1]



RECOGNITION AND MEMBERSHIPS

GLOBAL100

MEMBER OF Dow Jones Sustainability Indices In Collaboration with RobecoSAM

ROBECOSAM Sustainability Award Bronze Class 2018

FTSE4Good

THE GLOBAL COMPACT WE SUPPORT

1) Adjusted for items affecting comparability of -450 million SEK in Q2 2017 and +3,910 million SEK in Q4 2017

MAIN CUSTOMER SEGMENTS

MINING

We deliver drill rigs, rock-drilling tools and systems, mobile and stationary crushers, load and haul machines, tunneling equipment, continuous mining and mechanical cutting equipment, as well as various solutions to increase automation, safety and customer productivity.

SHARE OF REVENUES **31%**

ENGINEERING

Our tools and tooling systems for metal cutting as well as advanced materials and components are used in engineering industries worldwide, improving productivity, profitability, quality, output, safety and environment. Sandvik is also a global leader in high-alloy metal powder for different applications.

SHARE OF REVENUES **24%**

AUTOMOTIVE

Our tools and tooling systems for turning, milling and drilling in metals raise productivity when manufacturing e.g. engines and transmissions. Our stainless and high-alloy products are found in, for example, safety belts, airbags, brakes, air conditioning and various instruments.

SHARE OF REVENUES **13%**

ENERGY

Sandvik offers solutions for all forms of energy production, including clean and renewable energy. We supply high-alloy products, such as seamless stainless steel tubes as well as tools and tooling systems to satisfy the industry's metal-cutting needs.

SHARE OF REVENUES **11%**

CONSTRUCTION

We offer products and services that increase safety and customer productivity in the breaking, drilling, tunneling, crushing and screening niches of the construction industry.

SHARE OF REVENUES **11%**

AEROSPACE

Sandvik works closely with the world's aerospace companies. As they apply new materials to manufacture airplanes that are lighter, safer and more fuel efficient, advanced tooling solutions and light-weight materials from the Group are critical.

SHARE OF REVENUES **6%**

THE OBJECT | Time for Sandvik

Bravur, based in Båstad in southwestern Sweden, produces its mechanical wristwatches by hand under the slogan "Swedish Soul – Swiss Heart." Each watchmaker adds his or her personal signature to the inside of each case. To maintain a link with traditional Swedish craftsmanship, the latest BW003 model uses Sandvik steel for all its case components. The United States is the company's most important market, and Swedish steel is a key element of the brand there.

Bravur is now offering the BW003 at a special price to all Meet Sandvik readers. Visit http://bravurwatches.com/ and enter the code SANDVIK for a 20 percent discount.