Sandvik Group Magazine
Meet Sandvik #2–2025

Meet

Unveiling the no mine car

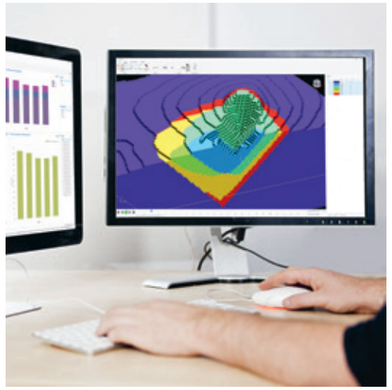
Sustainability:
Mining is key to the green transition

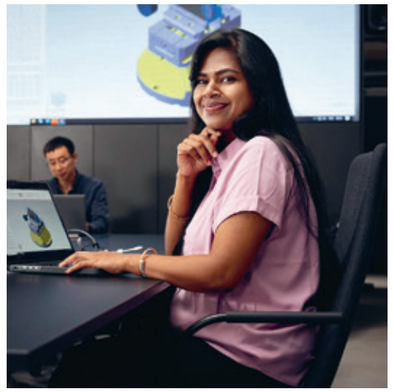
Innovation:
India hub powers efficiency

Interview:
“I help define our technological direction”

SANDVIK

In this issue:





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Why we need mining

Mining is essential for the green transition and the shift to electrification. Metals and minerals are needed for transmitting electricity, in industrial processes, batteries, electric vehicles and solar panels, for example.

Even if metals can be recycled, the current output of the global mining industry is not sufficient to meet future demands. We need to open new mines, and we also must make existing mines more productive and efficient to increase the output. This can only be achieved by new technologies.

Sandvik is the world leader in electric, automated and digitalized mining equipment, and this is how we make the industry more productive, sustainable and safer. Automation, for example, enables you to run the equipment also during shift changes, and you can extract minerals from areas in a mine that might be unsafe for people to go to. An electric machine is more productive than the equivalent combustion engine machine, and less noise, heat and emissions make huge improvements to the working environment.

In this issue of Meet Sandvik we explain why we need mining. We produced the no mine car to show what an electric car would look like without any metals or minerals. What remains is essentially nothing. It is a symbol of the importance of mining to make the transition towards electric solutions in our world, a transition we are proud to contribute to.

Stefan Widing, President and CEO

Wear protection engineered to last

Everyone wants equipment that lasts — and with Sandvik wear protection, longevity is built in. Our material expertise delivers impact and abrasion resistance, extending wear life, cutting maintenance, and boosting efficiency and sustainability.

What is wear protection?

Wear protection refers to engineered solutions – like rubber, ceramic, metallic, and composite liners – designed to shield equipment and structures such as the vibrating feeder pictured, from abrasion, impact, and material flow erosion during rock and mineral processing.

WT6000 rubber plates extend equipment life by absorbing impact, reducing vibration, and cutting noise levels by up to 50 percent compared to steel.

45

Components that once needed replacing every 45 days now last up to 10 months.

The WT9200 ceramic plates are engineered to prevent material build-up and ensure uninterrupted material flow throughout the process.

Longer service life means fewer parts produced and transported, fewer shutdowns and maintenance interventions.

100%

of the cemented carbides come from the Sandvik in-house recycling program.

The circular production process makes the composite stand out.

The HX900 cast-in-carbide is a sustainable wear material built for toughness – delivering up to 10x longer wear life compared to quenched steel, and 5x compared to white iron.

The car is called eNimon™ because it's no mine backwards.

The engineer Annukka Kokkonen next to the car.

Find out more about the car campaign.

No mining, no electric vehicles

Mining is essential for the green transition and the electrification of the world. In its latest campaign, Sandvik demonstrates what an electric car would look like without the resources accessed through mining. The company has produced a transparent electric vehicle to visualize the result when mining and minerals are removed from the equation. The message is clear: digital, autonomous and electric mining is necessary for the green transition.

"There's a misconception that mining is dirty and unsustainable. We want to change that perception," says Edvard Bergström, VP Communications at Sandvik. "To build an electrified society, we must mine metals – but do it efficiently, sustainably, and with modern technology."

Over 90 percent of the components in an electric car are derived from mining. Metals like lithium, cobalt, nickel, and copper are essential for batteries, electric motors, and power grids. Without mining, the electric car – and the future it symbolizes – wouldn't exist.

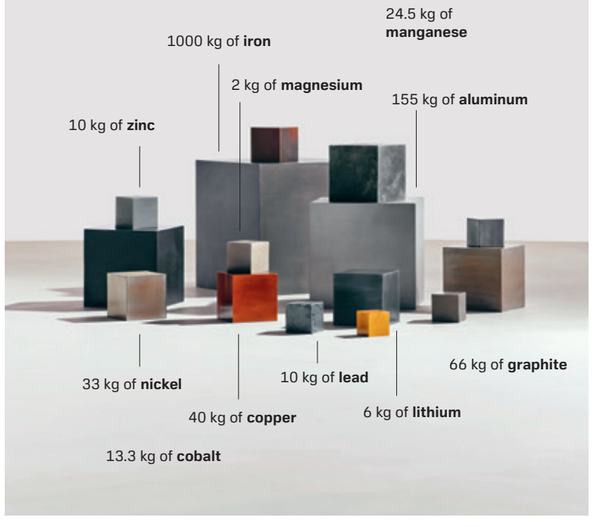
"We wanted to show the world what it would look like without mining – and to do so with something people associate with the green shift. The electric car is not just a vehicle; it's a metaphor for the broader transformation of society," says Bergström.

Beyond the car, the campaign includes films, a campaign site, a report on the future of mining and a roundtable discussion. And the car will find a home at the Swedish National Museum of Science and Technology in Stockholm where visitors can learn more about the essential role of mining.

"Despite offering exciting international opportunities and competitive salaries, the mining industry still suffers from an outdated image," Bergström explains. "Our goal is to show what mining really looks like today – and where it's headed."

Sandvik is at the forefront of automation and electrification of the mining sector. "We have the tools, the technology, and the know-how to make mining more productive and sustainable," says Bergström. "This is about transforming how people view Sandvik and how they view the entire mining industry."

The average electric car contains:



Updated strategy and new names

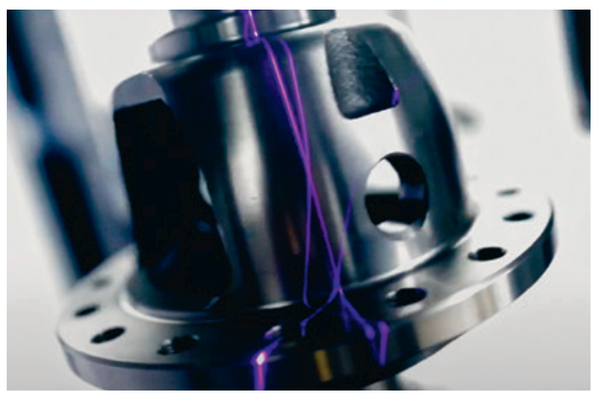
Sandvik has presented an updated Group strategy, Advancing to 2030. The strategy is built around five strategic objectives: growth, innovation, digitalization, profitability, and high-performing teams, with sustainability embedded across all operations. The new strategy will be effective as of January 2026.

Sandvik has also renamed its business areas. The three business areas are now: Mining, Rock Processing, and Machining and Intelligent Manufacturing. As of January 2026, Machining and Intelligent Manufacturing will be divided into two separate business areas: Machining and Intelligent Manufacturing.

In connection with the launch of the new strategy, Sandvik introduced revised core values: Winning together, Curiosity, Responsibility, and Customer focus.

Award for 3D stator inspection

ZeroTouch Metrology has received a prestigious award from Ford Motor Company. The recognition honors its innovative use of laser-line sensor technology for 3D inspection of both in-process and finished stators. This cutting-edge approach significantly enhances quality control and precision in manufacturing, demonstrating ZeroTouch's commitment to advancing automotive production standards.



Certified circularity at Sandvik foundry

At the Svedala foundry, worn-out crusher components like mantles and concaves are recycled into new ones in a certified circular process. Sandvik is first in the industry to achieve circularity certification for key crushing components, using over 90 percent recycled steel and cutting 16,000+ tons of CO_2 emissions annually.

This closed-loop system, over 15 years in the making, combines innovation with sustainability: re-melting chips, analyzing scrap, and fine-tuning alloys to ensure top-quality, low-impact parts.

90%

Sandvik uses more than 90 percent recycled steel in its production.

Sandvik is the first company in its industry to achieve circularity certification.

News orders

Botswana
Sandvik has secured a major order for underground mining equipment from China-based global contractor JCHX Mining Management Co., Ltd., for use at the Khoemacau Copper Mine (KCM) in Botswana. The order includes drill rigs, trucks and loaders, along with digital monitoring tools such as Remote Monitoring Service.

Zimbabwe
A major underground mining equipment order has been placed by Zimplats, the largest platinum group metals producer in Zimbabwe, for use at the Ngezi mines complex. The order includes underground loaders, trucks, and drill rigs from Sandvik.

Mongolia
Sandvik has received a major underground mining equipment order from Oyu Tolgoi LLC, to be used at the Oyu Tolgoi copper-gold mine in Mongolia's South Gobi Desert. The order includes loaders and trucks.

Mexico
Sandvik has been awarded a large underground mining equipment order from La Cantera Desarrollos Mineros, one of Mexico's leading underground mining contractors. The order includes amongst others, loaders, drill rigs and rock bolters.

Additive Industries is a new partner

Sandvik and system developer Additive Industries have announced a partnership to provide metal powder supply in a sealed environment for additive manufacturing. This collaboration enables users of Additive Industries' systems to seamlessly access Sandvik Osprey® metal powders, ensuring controlled, safe, and contamination-free powder handling.

Sandvik and Additive Industries partner to ensure safe, controlled metal powder supply.

News in brief

Surface drilling capacity grows in Tampere
Surface drilling is a strategic focus area for Sandvik. In June, a new surface production line was introduced at the factory in Tampere, Finland. The new line will increase production capacity by up to 30 percent and shorten lead times for customers. It will also create around 100 new production jobs in Tampere.

Sandvik Coromant center opens in Orléans
In Orléans, France, a new Sandvik Coromant Center was inaugurated in June. The centers serve as hubs for training, support, and innovation in machining and digital manufacturing.
Around 90 customers, partners, media representatives, and members of the local community took part in the celebrations.

First CO_2 reporting in mining equipment
Sandvik is the first company in the mining industry to report CO_2 emissions from its equipment. Data has initially been introduced for selected models, with plans to expand coverage across the entire product range. Providing verified emissions data enhances transparency and supports customers in achieving their own sustainability goals.

Q+A: Tove Jensen

The circularity expert at Machining explains why Sandvik is recycling, refurbishing and reusing materials and products.

"Circularity is a game changer," says Tove Jensen.

Watch the video and read an article where Tove talks more circularity.

Why is circularity important for Sandvik?
"Circularity is a game changer. It allows Sandvik to drive sustainability and build supply chain resilience. By preserving the value of products and materials through reuse, reconditioning, and closed-loop systems, Sandvik optimizes resource use, minimizes waste, reduces costs, and unlocks new business opportunities. Circularity keeps Sandvik competitive, efficient, and future-ready."

How is Sandvik working with circularity?
"We are building circularity and resource efficiency into our business in many ways and helping customers and suppliers do the same. With reconditioning, for example, we bring our tools back to their original quality several times, thereby extending our products' lifecycle before recovering the material. Traceability is an important enabler to reduce underutilized tool capacity and maximize tool life. We are also exchanging the material in our product packaging, from virgin to recycled and recyclable material."

Where does circularity begin?
"Circularity begins at the design stage. How do we design our products to last as long as possible and contain more recycled content? And how do we guide users to optimize the use of our products to reduce energy consumption and improve resource efficiency. We need to design for durability, refurbishment and reuse."

Mining for the green transition

By Jonas Rehnberg

The transition to clean energy is essential to fight global warming — and it hinges on metals and minerals. Mining, therefore, is indispensable. “Net zero will not happen without mining,” says scientist Benjamin Wilson.

An AI illustration of a rechargeable future.

Copper is an essential component in today's energy technologies.

Benjamin Wilson is a Senior Scientist and metallurgical engineering expert.

Facts:
18 materials needed for the energy transition:

- aluminum
- cobalt
- copper
- dysprosium
- electrical steel
- fluorine
- gallium
- iridium
- lithium
- magnesium
- natural graphite
- neodymium
- nickel
- platinum
- praseodymium
- silicon
- silicon carbide
- terbium

Source: The US Department of Energy

It may sound like a paradox that solving the problems caused by one commodity found underground (oil) requires increased drilling for other resources (minerals). But the fact remains, according to Benjamin Wilson, Senior Scientist and metallurgical engineering expert at Aalto University in Espoo, Finland:

"Minerals such as copper, lithium, nickel, and cobalt are essential components in today's rapidly growing clean energy technologies, from wind turbines and solar panels to electric vehicles. To meet the demand for critical raw materials, mining activities worldwide need to increase by as much as 15 to 20 times."

Electricity networks account for 70 percent of today's mineral need and constitute a major driving force behind the skyrocketing demand. The International Energy Agency (IEA) forecasts that the global need for critical minerals will triple by 2030 and quadruple by 2040 to meet the needs of the energy transition towards net-zero emissions. To meet the Paris Agreement goals, more than three billion tons of energy transition minerals and metals are needed to deploy wind, solar and energy storage.

> "Mining activities worldwide need to increase by as much as 15 to 20 times."

The US Department of Energy lists a total of 54 critical minerals, while the European Union focuses on 34. The IEA's list of the most widely used elements includes lithium, nickel, cobalt, manganese and graphite, which are typically used in batteries. Minerals like platinum, iridium and palladium are among the rarest elements on Earth, while aluminum and silicon are among the most abundant elements on Earth.

But, just because they are abundant does not mean they are easy to access. For example, while copper is not a rare element, the typical lead time for a new mine to start delivering copper to the market is about 20 years, according to the International Renewable Energy Agency (IRENA). According to Benchmark Mineral Intelligence, just meeting global battery demand by 2030 would require 293 new mines.

51 times higher lithium demands

Another driver behind the soaring demand for metals and minerals comes from consumer electronics and the fact that a growing number of household appliances are battery operated. "Nickel, manganese and cobalt (NMC), and lithium iron phosphate (LFP) are key in today's battery technologies, not just for electric vehicles (EV) but for consumer electronics and household appliances as well. Building an EV typically requires between six and eight times as much copper as a car powered by a combustion engine," says Wilson.

Since 2015, EVs and battery storage have surpassed consumer electronics to become the largest consumers of lithium, together

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accounting for 30 percent of total current demand. Lithium demand in 2040 may be up to 51 times higher than today's levels, according to IEA. Cobalt and graphite may see up to 30 times higher demand than today depending on the direction of battery chemistry evolution.

According to the United Nations Environment Program (UNEP), the growth of mineral supply plays a vital role in enabling a clean energy transition. However, UNEP also warns that challenges in supply could slow down the transition or make it more costly and unequal. These challenges are contributing to high and volatile prices for critical materials needed for the energy transition, increasing geopolitical tensions over resource control, market interference, and mounting political pressure to expand mining – even into areas that are environmentally and socially sensitive.

Accelerate licensing

As countries step up their climate ambitions, clean energy technologies are set to become the fastest-growing segment of demand for most minerals. In addition, as more households participate in the production of clean energy, such as through solar panels, more metal is needed.

To meet the massive increase in demand for some metals and minerals, the mining industry needs a few things to happen. "As the EU states in its Critical Raw Materials Act, we need to accelerate and streamline permitting and licensing to speed up mining activities. Also, national governments, local councils and environmental agencies need to work together to reduce the number of hurdles involved in opening a new mine," says Wilson.

And there is no time to waste, since it takes at least a decade from discovering an ore body to the first delivery of pure metal. "Net zero by 2040 will not happen without increased mining," concludes Wilson.

Battery-electric loaders from Sandvik have zero underground diesel emissions.

Facts:
Important to grow recycling

→ Battery and metal recycling have grown rapidly in recent years, and while mining will still need to expand to meet rising demand, developing efficient and scalable recycling solutions is essential.

→ Recycling alone will not be enough in the coming years to satisfy the increasing global demand for critical raw materials like lithium, nickel, graphite, cobalt, and copper.

Source: Aalto University

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According to Benchmark Mineral Intelligence, just meeting global battery demand by 2030 would require 293 new mines.

51

Lithium demand in 2040 may be up to 51 times higher than today's levels, according to IEA.

"Net zero by 2040 will not happen without increased mining."

Mining is essential for developing wind turbines.

How to mine smart and efficiently

The skyrocketing demand for electrification metals requires intelligent mining. Sandvik delivers technologies that help the world reach net zero.

Mining has been around since the birth of human civilization – and most likely helped build it. Today, the industry has the power to save civilization from the dire climate effects of burning too much carbon. Mats Eriksson, President of business area Mining at Sandvik is certain. “There wouldn’t be a green transition without mining. We want to electrify the world because it makes the world more sustainable and mining is essential to this effort,” he says and continues: “The new technologies behind more efficient machines and cars, batteries and chargers, solar panels, renewable energy transmission – in fact, most technologies that help make the world greener rely on raw materials provided by mining.”

Even without the need to reach net zero, more mining would be needed just to satisfy the demands of an increasing population and economic growth. The mine of the future, however, needs to be eco-efficient and completely aligned with sustainability goals. Fortunately, it already is, says Eriksson: “One of the big misconceptions about mining is that it is not environmentally friendly. But Sandvik can help with this.”

In explaining how that’s possible, Eriksson describes the operations of a modern underground mine. “It is invisible, autonomous, electrified, digitalized and optimizes itself in real time with continuous data collection. Automated battery-electric vehicles and software remove the need for people underground, and we’re on a completely different level compared to just ten years ago in terms of technology.

What about recycling? “Recycling is necessary but not sufficient to supply all the raw material needed for the energy transition.”

Declining ore grades

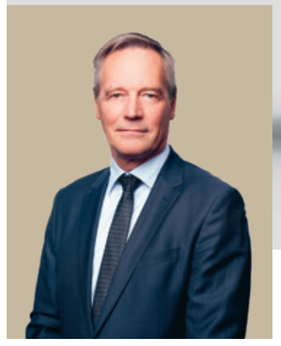
Another reason why mining needs to become more efficient is that many existing ore deposits are becoming depleted after sometimes more than a century of extraction. “The declining ore grades are a result of having already extracted the more easily retrievable deposits.”

As Marcus Johansson, Global Application Development Manager at Rock Processing, puts it: “The days of picking low-hanging fruit are over.”

The earliest deposits harvested by man were found on or near the surface and comparatively easy to retrieve without sophisticated instruments and powerful equipment. As the richest ore bodies become depleted, we need to utilize more lower-grade ore – ore with lower concentrations of the desired resource.

“Declining ore grades means more rock needs to be processed to recover a given amount of metals and minerals, let alone satisfy the needs of a growing population,” Johansson points out.

To solve the challenge and render mining more eco-efficient, Sandvik has developed new methods for crushing and screening excavated rock. “Our solutions make processes more efficient and enable the recovery of more ore with less waste, using less energy.”



Mats Eriksson, President of business area Mining.

Marcus Johansson, PhD and Global Application Development Manager at Sandvik.

Facts:

Crushing beats grinding for energy efficiency

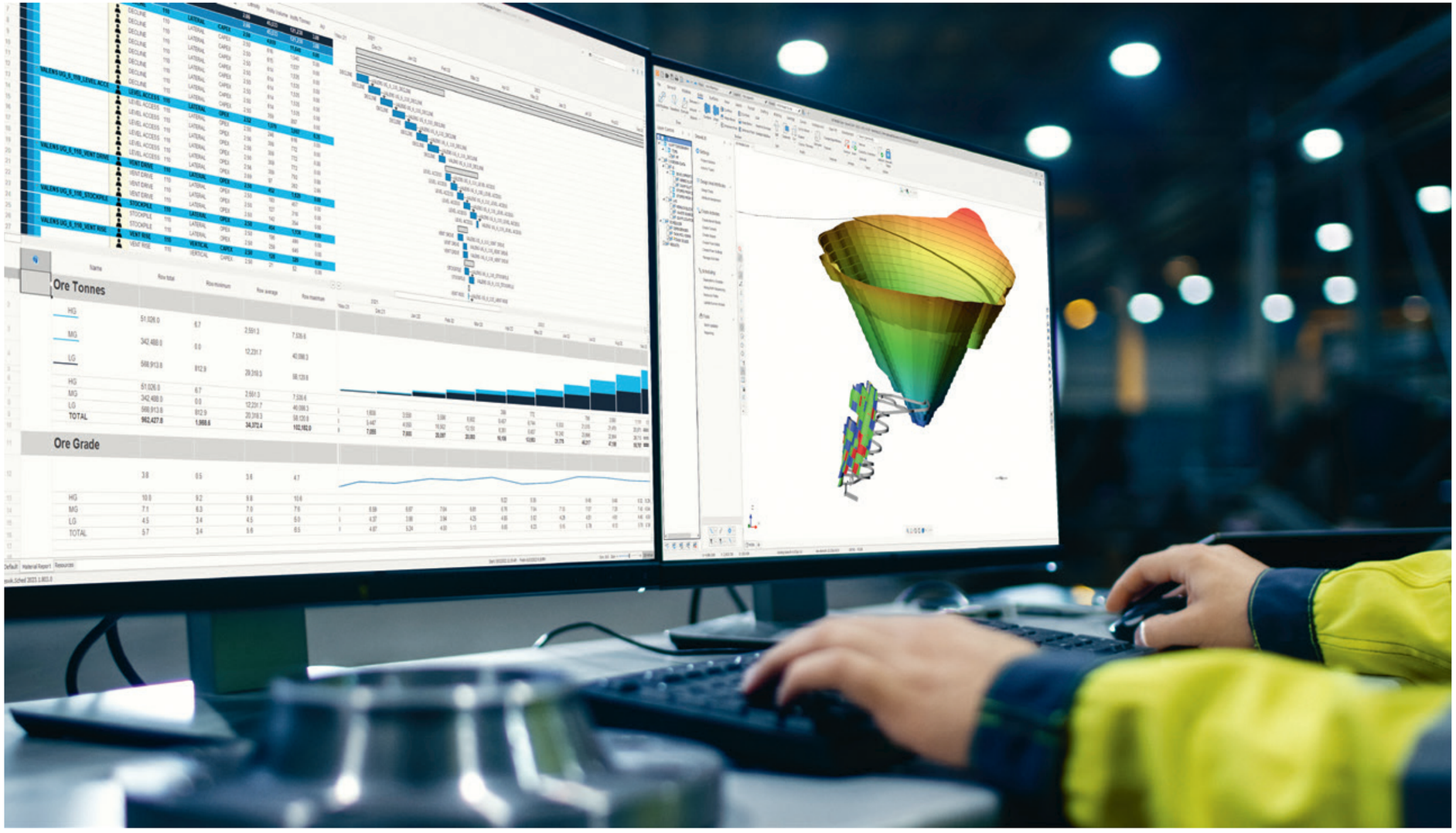
→ Grinding accounts for some 40 percent of the energy used in mining, although crushing is up to 10 times more efficient than conventional grinding. So, crushing more at an early stage of the rock processing saves energy further down the line, and extending the crushing process into smaller-sized rocks also has a significant, energy-saving impact.

Optimizing treatment of excavated rock

The processing of excavated rock normally takes place in three stages to arrive at the enriched concentrate used to produce pure metal or mineral. This is called comminution, which for industrial applications normally entails multiple stages of crushing and grinding, alongside screening and other means of classification to control the material size.

Johansson explains how Sandvik combines crushing and screening in a way that optimizes treatment of extracted rock material. “Our equipment is able to process more rock earlier in the enrichment process. The way you split rock matters greatly to both energy efficiency and the amount of metal recovered.”

Rock processing requires time, energy and manpower. Even getting just a few percentage more metal from every piece of rock has a direct effect on the bottom line of the mining operator, Johansson adds. “Mines represent huge investments at the front end, while the payoff and cashflow may take time. Adding more crushing and screening to the process shortens the payback period of a mining investment.”



Mine design and schedule from Deswik.

Riku Pulli, President of Digital Mining Technologies at Sandvik.

Elen Toodu, Business Development Director at Sandvik.

Making the most of scarce assets

Advanced digital mine planning tools from Sandvik allow mining companies to maximize the recovery of metals and minerals in a sustainable way. Here's how.

The shift to renewable energy sources and electric transportation are cornerstones in the global energy transition. The technologies behind the shift, however, rest on a handful of minerals and metals for which exploration and extraction need to increase rapidly. Consequently, new ore bodies must be discovered, while production in existing mines needs to become more efficient and sustainable given the declining ore grades of deposits that have been mined for decades.

Digital mining supports increased extraction of the metals required for the green transition and Sandvik offers a wide selection of digital tools that make exploration and mine planning more efficient.

"All ore bodies are unique and to make the most of each one you need a detailed plan for how to develop the mine and run the operation over a decade or more," says Riku Pulli, President of Digital Mining Technologies at Sandvik. To this end, Deswik, a Sandvik company, has developed 3D mine design and planning tools that assist in creating a model of the mine and help decide exactly where tunnels and production areas should be located.

"Digital mining removes the lid of a mine to provide an overview in real time of what's really going on down there, which was not possible before. You can react quicker and undertake process optimization," adds Pulli.

"The objective of digital mine planning is to maximize the use of natural resources in the most efficient and sustainable manner," says Elen Toodu, Business Development Director at Sandvik. "Digital mining enables mining of deposits that would not have been economically viable or even dangerous in the past. Digital input from the extraction process is used to continuously optimize mine planning."

> "You need a detailed plan for how to develop the mine and run the operation."

Sandvik tools help design the mines from the start to be as efficient and environmentally sustainable as possible. "In addition, digital tools enable autonomous equipment such as AutoMine®, which let you run mines more efficiently and minimize waste and machine downtime," says Toodu. "You can be much more accurate in deciding where to mine, and adjust and optimize in real time."

A safer workplace

Digital tools and autonomous mining also lead to a safer workplace. "They make it possible to go deeper and operate in hazardous

environments without exposing humans," says Toodu. Increased safety also comes from the ability to install collision avoidance systems. "One of the most common types of injuries in underground mining are actually related to traffic accidents," says Pulli. "Miners can be fitted with technology warning them when they come too close to a vehicle and the equipment automatically slows down or stops when approaching a person."

The payoff comes quickly

Digitalizing a mining operation is obviously easier with greenfield operations, but even mines that have been worked for over a century stand to gain from the introduction of new technology. "We recommend a gradual approach, since there is a lot of change management involved," says Toodu. "Running a mine without any people underground is indeed a big shift."

She reports that some miners claim to miss the sound of drilling in the beginning. "But once they learn to trust the automation and sensors doing their job, they get to appreciate working in a clean environment and getting a fresh cup of coffee whenever they feel like it."

To the mining operators, the payoff from digital investments comes quickly. One Sandvik customer in Australia reports that installing new software to monitor and optimize fleet dispatching brought a 20 percent increase in productivity and a 70 percent increase in compliance to plan.

"That's a lot, given that they produce 20 million tons a year," says Pulli. "The gains in workplace safety alone, however, is reason enough for many customers."

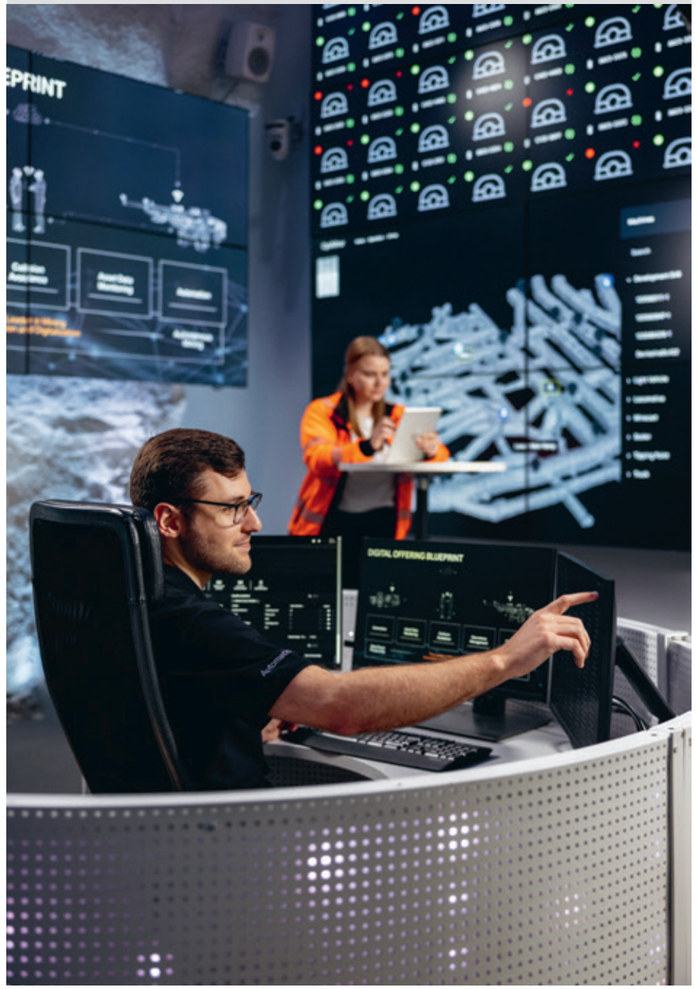
"Running a mine without any people underground is indeed a big shift."

Digital digs deeper

Sandvik-owned Deswik is a leading provider of mine planning solutions, with a portfolio including software for computer-aided 3D mine design, scheduling, operations planning, mining data management and geological mapping. Deswik software is used by mining professionals, including mining engineers, geologists, surveyors and operational personnel for a range of tasks throughout the mine planning process.

"Our solutions free up our users' time and give them the tools they need to create better plans, examine more scenarios, and consequently drive value," says Calliope Lalousis, COO at Deswik.

Deswik's integrated solution seamlessly links mine design and scheduling tasks. Data and workflows are streamlined across teams and systems, enabling management of design solids in the CAD platform. Any changes are dynamically reflected in their associated scheduling tasks in real-time. "Our software solutions aim to help mining operators improve their efficiency, minimize waste, and improve sustainability," adds Lalousis.



71 percent of mining executives say talent shortages are limiting them to achieve their targets.

Who will do the work?

Demand for critical minerals is soaring, but enrollment in mining studies is declining and young people are hesitant to join the sector. How can the industry attract talent and shift perceptions?"

→

Carly Leonida, Founder and Director of online publication The Intelligent Miner.

A skyrocketing demand for minerals necessary to replace fossil fuels with clean energy technology – versus a plummeting interest in mining studies. Observers point out that this mismatch could threaten our ability to reach the net-zero goals stated by the UN, most nations, and many companies.

"Mining couldn't be more relevant to the challenges we are facing and there is a strong connection between mining and a more sustainable future for the planet," says Carly Leonida, Founder and Director of online publication *The Intelligent Miner*. "Mining underpins 50 percent of the global economy and neither tech nor agriculture could exist without mining. In fact, very few industries could exist without mining."

A 2023 study from management consultancy McKinsey found that 71 percent of mining executives feel the talent shortage is already holding them back from delivering on production targets and strategic objectives. 86 percent of the respondents said that it's harder to recruit and retain talent versus only two years ago, particularly in mine planning, process engineering and digital fields.

Metals crucial for sustainable future

In another global survey by McKinsey, 70 percent of the 15- to 30-year-old respondents said that they "definitely wouldn't" or "probably wouldn't" work in mining. These numbers correlate with low enrollment and graduation figures for mining courses across the globe.

And the negative trend is expected to continue, says Leonida. "Mining is not currently an aspirational industry for young technical talent to join. There has been around a 63 percent drop in mining engineering enrollment in Australia since 2014, and a 39 percent drop in mining graduations in the United States since 2016."

The lack of appeal is partly based on deeply rooted misconceptions and attitudes that go back to the days when mining was a dirty and dangerous business. "The industry suffers from an image problem, partly because it is too removed from most people's lives for reality to close this gap," Leonida believes. "Even though consumers rely on metals for their lifestyle, nobody buys metal from a mining company to build their own car or iPhone. The distance between producer and user has created a big misunderstanding of what the industry does and how it does it."

The link between mining and the energy transition needs to be explained better too, she adds and the industry needs to show future talent how forward-thinking it is.

"Mining companies are leading the way in autonomous, remote operations that allow people to work on mine sites thousands of miles away. We need to explain how data analytics and AI are used to support exploration and sustainable excavation in order to attract talent that otherwise would go to big tech. On its own, tech is not going to save the world – but mining probably could."

For those who want to travel and see the world, mining offers great opportunities. "Plus, it pays well," Leonida adds.

Digitalization, automation and electrification

Further exacerbating the problem of staff shortages is the fact that a generation of seasoned mining staffers are about to retire but there is no new generation coming in. To handle this, a lot of companies are starting to hire based on skills rather than roles, which was traditionally the case, says Leonida. "They [mining companies] are looking outside the industry to adjacent sectors, hiring heavy equipment operators and other specialists from the oil and gas industry, manufacturing and pulp and paper."

In addition, young people need to realize that today's mining has less to do with picks and shovels, and more to do with data. "Digitalization, automation and electrification have transformed the industry," says Leonida. "We need to evolve curriculums to include data sciences, social sciences and environmental and social governance as well. Digitalization is breaking down a lot of the silos in traditional operations and we need an understanding and an ability to work with people in other departments and functions."

Core disciplines such as engineering and geology and heavy truck operators are still needed however. "At the same time, we need to focus on fostering these traditional disciplines and making sure we have a pipeline of talent coming up through the ranks," Leonida concludes.

Opportunities to attract talent

Sandvik has released a new report highlighting challenges and opportunities facing the global mining industry in attracting engineering talent. The report is based on a survey of 824 STEM (Science, Technology, Engineering, and Mathematics) students and graduates across nine countries.

Some key findings:

→ Only half of STEM students view the mining industry favorably

→ Over 90 percent could consider a mining career if convinced the industry contributes to climate change solutions

→ Motivators for young engineers include high salary potential, use of advanced technologies, and complex engineering challenges.

You find the full report on *home.sandvik/nominecar*

Having a blast in mining

Annukka Kokkonen has always been interested in technology and engineering, but it was mining that really attracted her attention – and eventually led her to Sandvik.

By Cari Simmons

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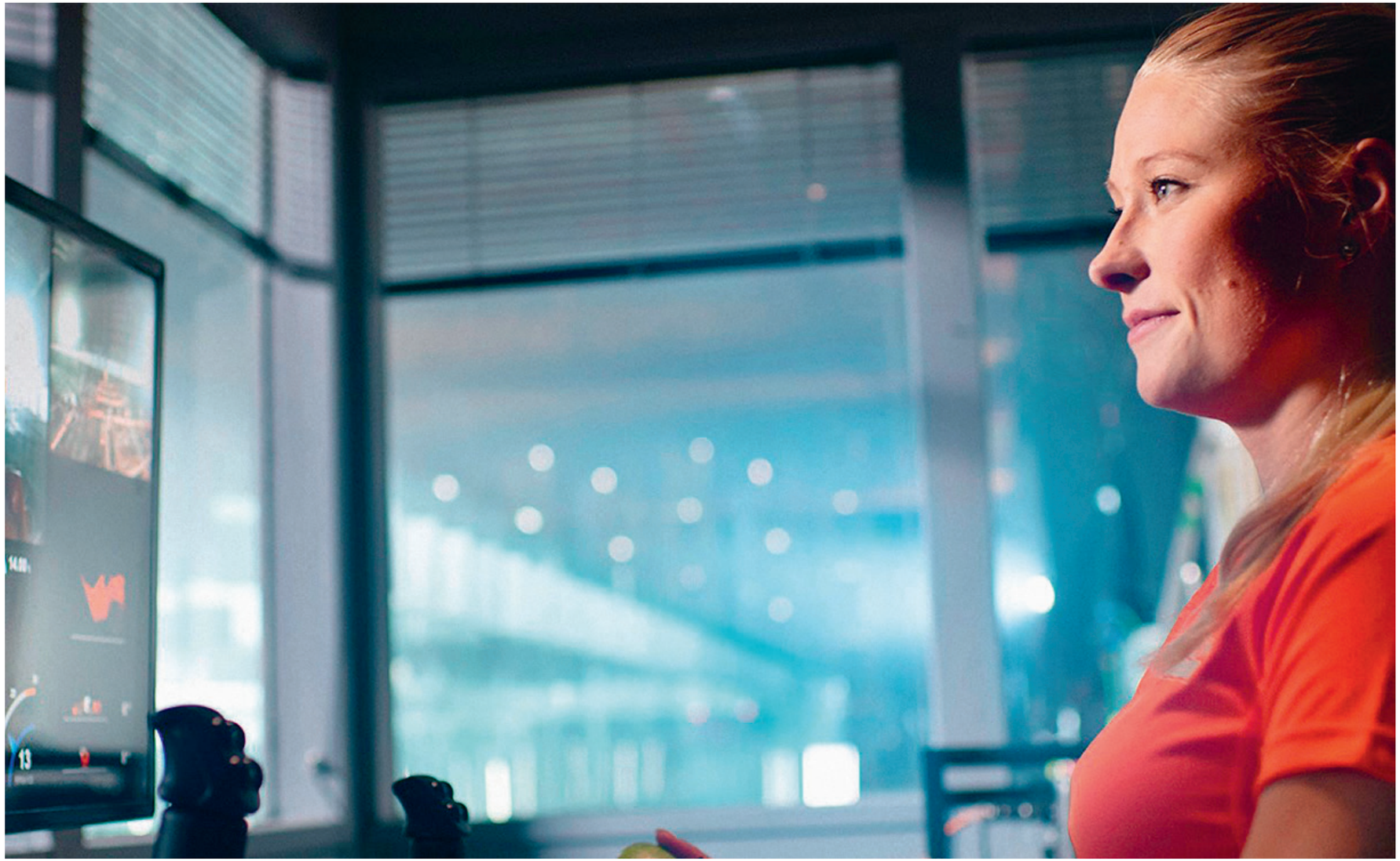

Annukka Kokkonen

Location: Tampere, Finland
Role: Manager, Excavation and Research and Technology Development Projects
Hobbies: Winter swimming and organizing themed parties for both children and adults.
My motto is: Nothing store-bought should be used as-is. Everything gets a creative twist or is made from scratch.
Surprising tidbit: A university certificate in Kung Fu from China.
Languages: Finnish, English, and some Swedish, Chinese and Sámi.

When she's not deep in the Sandvik test mine, you are likely to find Annukka Kokkonen taking a plunge in an icy Finnish lake. "That moment when the cold takes your breath away is incredibly refreshing," says the Manager for Excavation and Research and Technology Development Projects at business area Mining, adding that cold water swimming is the best way to clear her mind.

Kokkonen leads a team of 10 research engineers and project managers at the Sandvik site in Tampere, Finland. Her responsibilities include managing the research portfolio and driving technology development in the areas of excavation and drilling. "Our mission is to validate new technologies in our test mines before these innovations move into product development and eventually become part of our offering," she says.

In addition to overseeing the excavation and drilling portfolio, she is also responsible for managing the broader Research and Technology Development (RTD) portfolio.

"What makes my role unique is the combination of deep technical work and creative, people-focused responsibilities. I have the rare opportunity to see game-changing technologies evolve from ideas on paper into real, functional demonstrators. I'm among the first to witness and help define our technological direction and to see those visions come to life."

An unexpected turn

With the aim of acquiring competence in mining equipment, Kokkonen began working at Sandvik in Tampere in 2013 as a trainee, while working on her master's thesis for Oulu University where she graduated in process engineering, specializing in mining. "I had become increasingly curious about how valuable materials actually form inside rock and how we manage to extract them for use in everyday devices. That fascination with both the natural processes and the practical technologies involved has continued to drive my passion for mining," says Kokkonen who, as a child, enjoyed taking apart old Nokia phones, which she received from her uncle who worked in the industry. Now, years later, she's working with the technologies that enable the extraction of the metals in those phones.

Kokkonen, who had moved 350 kilometers away from home at the age of 15 to study at upper secondary school, had always planned to return home to the northern mining town of Sodankylä upon graduation and work as a mining engineer.

"But once I started working at Sandvik, I realized just how large the Tampere factory is and how extensive Sandvik operations truly are," she says. "The real turning point came when I discovered that there's a test mine located right beneath the factory. For a mining engineer, it was like stepping into a playground. It was a unique opportunity to help shape a world-class facility for competence development, innovation, testing and technology development."

Innovation at the forefront

Over the years, Kokkonen's career has developed through a variety of roles and opportunities at Sandvik. "Innovation is truly valued here. We're encouraged to develop and showcase new ideas to bring value to the customer. One of the most rewarding aspects is being able to respond to real customer needs through technology," says Kokkonen. "And the fact that we have our own test mines, both underground and surface, keeps us grounded in reality – it's a constant reminder that our work is about practical solutions that make a difference in the field."

> "What makes my role unique is the combination of deep technical work and creative, people-focused responsibilities."

Kokkonen played a key role in transforming the underground test mine into a state-of-the-art environment for product and technology development. "It's now a world-class facility where we can test innovations in realistic conditions and push the boundaries of mining technology. I'm proud of the work I've done to improve the experience for the thousands of visitors who visit the test mine each year," she says.

A dynamic and international industry

The test mine attracts customers from around the world, and when Chinese customers visit, Kokkonen surprises them with a few phrases in Mandarin that she remembers from her days as an exchange student in Jiangxi, China.

"Chinese customers have been genuinely delighted when I've greeted them with a few phrases while guiding them through our test mine. It's a small gesture, but it helps build connection and trust. During the exchange I also learned a bit about international trade and gained a deeper understanding of Chinese culture, which has definitely been useful at Sandvik."

As the need to access critical materials becomes more urgent, and the world transitions to digital and electrical solutions for better efficiency, safety and sustainability, mining has become a very dynamic and exciting field, she points out.

"Sandvik innovations can help shape the future of mining. It's rewarding to know that our efforts can contribute to the green transition at a global level."

India hub powers efficiency

A Sandvik India innovation hub will contribute to accelerated innovation within digital manufacturing as well as growing the business in one of the world's biggest economies.

The existing facility already has a strong team of engineers and developers dedicated to digital manufacturing innovation.

By Cari Simmons

With India expected to become the world's third-largest economy by 2030, Sandvik sees huge potential for growth. In line with the company's 2030 strategy, which includes strengthening its presence in high-growth markets, Sandvik is currently transforming its Intelligent Manufacturing technology site in Pune into an Innovation Hub. This not only reinforces India's strategic importance, but will also support regional growth, accelerate innovation in digital thread and AI, and contribute to global product development.

The existing facility, which primarily hosts Cimatron®, Mastercam® and SigmaNEST®, three Sandvik CAD/CAM software brands, already has a strong team of engineers and developers dedicated to digital manufacturing innovation. It is now being expanded both physically and through a larger engineering footprint in R&D, software, AI, and customer support. Recruitment and workspace redesign are already in progress, with the innovation hub expected to be fully operational early 2026.

"The transformation into an innovation hub reflects our strong commitment to future-proofing our business and accelerating technology development," says Magnus Malmström, Chief Technology Officer for Intelligent Manufacturing. "Our goal is to foster cross-functional collaboration, strengthen R&D capabilities, and drive a shift in AI-infused customer experience to simplify manufacturing."

The recently recruited managing director for the India innovation hub, Anil Ghegade, brings extensive experience from leadership roles in manufacturing, industrial products, and off-highway machinery, along with a proven track record of establishing and scaling innovation centers, both in India and globally.

"With the scaling up of operations, Sandvik also aims to accelerate commercial growth in the local market and better support the company's global technology roadmap," says Ghegade.

Pune, India was selected as the hub due to its abundance of engineering talent, proximity to academic institutions and its thriving tech community. "We already have a well-established presence here within Machining and our existing teams, and expanding in Pune allows us to build on our existing strengths, enable synergies, maintain continuity, and tap into India's growing pool of digital expertise," Ghegade explains.

Bringing together top talent, cutting-edge tools, and a culture of innovation through the innovation hub will enhance the ability to develop smarter, more efficient solutions. It will also improve agility and responsiveness to market demands, ensuring that Sandvik customers benefit from faster time-to-market, better support, and more customized solutions.

"This is not just an infrastructure investment but a statement of intent. It shows our belief in the talent here in India and our commitment to building future-ready capabilities," says Ghegade. "For investors, customers, and employees alike, it signals a bold step toward sustained innovation and global competitiveness."

> "Sandvik also aims to accelerate commercial growth in the local market."

And although it's located in India, the innovation hub will function as a central competence and resource center, to serve Intelligent Manufacturing business units globally.

"With this new space, we will enable our teams to work more closely, creatively, and efficiently together," says Ghegade. "I'm most excited about the collaborative energy and synergy impacts the hub will bring. I look forward to seeing new ideas take shape faster and to simplify manufacturing."

Anil Ghegade, the managing director for the India innovation hub.

Sandvik secures tungsten

Wolfram Bergbau und Hütten is one of the world's most sustainable tungsten mines. The mine, in addition to strategic supply alliances, helps maintain a steady supply of material regardless of shifts and volatility in the market.

By Cari Simmons

Crushing and screening are fully automated at the Wolfram mine.

Tungsten is a critical material that is used for industrial tooling, mining, electronics, aerospace, defense and more. The demand for this finite material is expected to increase, driven largely by the growth of electronics, green technologies and defense.*

Tungsten, in the form of tungsten carbide, offers exceptional hardness, heat resistance, and durability, which is why Sandvik uses tungsten carbide in its cutting tools for the metal cutting industry, as well as in robust tools for demanding mining and construction operations. However, it is a finite material, with a supply that remains vulnerable to geopolitical disruptions.

China dominates global tungsten mine production today, accounting for 80 percent of the supply. As export volumes into the global market can vary and recent adjustments to mineral export policies have introduced new dynamics, finding alternative ways to source this valuable resource is becoming increasingly critical, and producers are facing supply issues.

Sandvik continues to secure a reliable, long-term supply of high-quality tungsten due to its resilient and strategically managed supply chain. This is thanks to its legacy of working with multiple strategic sourcing partners, flexibility within its own production, recycling – and its very own tungsten mine.

Sandvik mine in Europe

The Wolfram Bergbau und Hütten (Wolfram) mine has been in operation since 1975 and is the only fully integrated tungsten smelting operation outside of Asia and Russia. Sandvik purchased the operations in 2009.

Wolfram, located in Austria, manages the entire production chain, from mining scheelite ore, to refining and recycling materials containing tungsten. This integration allows Sandvik to maintain consistent quality, optimize costs, and reduce reliance on external suppliers.

Wolfram is an underground mine that includes a new state-of-the-art processing plant, fully automated crushing, screening and conveying systems, and the latest equipment, including Sandvik® CJ815 jaw crusher and CS840i cone crusher for precision particle reduction. AI-powered ore sorting is in place to detect tungsten-bearing inclusions invisible to traditional systems.

Tungsten is a critical material that is used in many applications.

"We have 50 years of mining experience, and we've developed a strong capability to operate both efficiently and sustainably," says Annegret Bicherl, Vice President Operations, at Wolfram, adding that in addition to having its own mine and in-house experts, the company also collaborates with external tungsten mines and recycles to secure a stable and resilient supply of tungsten.

Reuse and recycle

Through Wolfram, Sandvik operates recycling facilities in Austria and India that recycle used tungsten tools into high-quality tungsten powder. "Tungsten is a critical and finite material so it's important to recycle it," says Bicherl. "However, we will always need to mine a certain proportion due to losses in the applications, but with our customer buy-back program we close a significant loop and enable circularity."

Sandvik has an ambition to achieve 90 percent circularity by 2030 and an increased share of recycled tungsten will reduce the need for virgin material.

Getting material back into the system for recycling is crucial for circularity and supply says Gary Tully, Vice President Supply Chain at Wolfram. "We appreciate all the material we get from customers. The more material the customers send back to us, the more we can recycle and secure their supply chain."

Sandvik implements an optimized and balanced raw material strategy that enhances supply chain agility, adds Tully. In addition to recycling and operating its own mine, Sandvik balances the supply risk by having numerous channels of supply and continuously working with new mines that are also fully compliant with the EU Conflict Minerals Regulation and the OECD Due Diligence Guidance. "We always strive to align our supply chain with market forces and the changing situation. We achieve that by having long-term partnerships and quickly adapting our supply strategy," he says.

This approach has proven to be a reliable one for Sandvik, which had a robust tungsten supply even during the Covid-19 pandemic, Tully points out. "We were able to move supply better and had more options than most others because we have our own mine, recycling capacity and flexibility in our supply chain."

In addition to its fully integrated tungsten supply chain, from mining to refining and recycling, Sandvik also strengthened its presence in North America, with the 2023 acquisition of Buffalo Tungsten Inc., a manufacturer and supplier of tungsten powders.

With these multiple efforts to ensure the tungsten supply, Sandvik customers can feel confident that their requirements will be met for many more years to come.

"Tungsten is a critical and finite material so it's important to recycle it."

* Source: ~2.1% CAGR through 2025–2030 based on volume according to End use study of tungsten, sponsored by International Tungsten Industry Association -ITIA

Christobal Alessandro Giordano and son.

It's a wrap!

Global parental leave is here to stay!

Sandvik began rolling out its global parental leave program last year, offering 14 weeks of leave with 90 percent of base pay to all employees. The benefit has become a success and is now implemented in 54 countries.

Sandvik launched this gender-neutral benefit to offer new parents the opportunity to bond with their baby, and to promote work life balance and employee well-being.

"Being able to be truly present during the first three months of my son's life was wonderful. I will 100 percent recommend it to others," says Christobal Alessandro Giordano, Parts & Pricing Planner, Chile.