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Using tech *to reduce friction*

A conversation with
Annika Ölme
Chief Technology Officer, SKF Group

Conversations
FOR TOMORROW

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USING TECH TO REDUCE FRICTION

Annika Ölme is Chief Technology Officer and Senior Vice-President Technology Development for the SKF Group. Annika is responsible for research, Technology Development, product development, and technology strategy globally. She is a member of group management at SKF; a board member at Denmark-based GRUNDFOS, the largest pump manufacturer in the world; and Chair of the Jacob Wallenberg Foundation, which supports research in material science. In 2024 Fortune named Annika as one of Europe's 20 most influential Women in Tech. She is based in Gothenburg, Sweden.

Can you help us give an overview of SKF?

Founded in 1907, SKF is a world-leading provider of innovative solutions that help industries become more competitive and sustainable. Reducing friction is the core of what we do. Our offering around the rotating shaft includes bearings, seals, lubrication management, condition monitoring, and services. By making products lighter, more efficient, more durable, and more easily repaired, we help our customers improve their rotating equipment performance and reduce their environmental impact. We operate in around 40 different industries across 130 countries, ranging from wind power and gearboxes to pulp and paper and metals. Increasingly, we focus on intelligent solutions that combine our expertise in rotating equipment with data and AI to predict and prevent failures, improving both performance and sustainability.

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Chief Technology Officer
SKF Group

As CTO, what is your role in transforming SKF with technology?

As CTO, my role includes defining and delivering the overall technology strategy and our digital transformation. We want to reimagine rotation for a better tomorrow, and this is intertwined with our 'intelligent and clean' strategy. Apart from resolving our customers' issues, and continuing to grow our capabilities, I spend a lot of my time on building a tech-fueled future that will set us apart from the competition. A key aspect of my role is fostering a culture of innovation and collaboration, both internally and with external partners.

SKF AND EMERGING TECH

When it comes to emerging technologies, what do you see are the top technologies that organizations should watch out for?

Clearly, technological disruptions, climate change, and economic instability are shaping the business environment in 2025. From a technological standpoint, four trends stand out. First, organizations will continue to focus on digitalization to drive operational efficiency and transform the customer experience. Second, AI continues to be front and center, with organizations looking beyond high-risk 'moonshot' projects to more pragmatic, scalable applications, underpinned by robust AI infrastructure.

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Within this AI landscape, quantum-inspired techniques, while still nascent, hold promise for long-term advanced simulations and optimization. Finally, sustainability remains a defining driver of business strategy, as clients increasingly demand energy-efficient, circular solutions that reduce environmental impact. Taken together, these trends emphasize the need for a flexible innovation strategy to help companies remain competitive in a rapidly shifting landscape. Let me expand on some of the key technology trends.

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Artificial intelligence and Generative AI

Artificial intelligence (AI) is transforming our daily lives. Generative AI (Gen AI) is becoming an essential tool for organizations looking to thrive in an increasingly complex and fast-paced world. In 2025, organizations will focus more on adopting and integrating AI-enabled technology into their operations, as well as intensifying training to develop AI-ready employees. With technology touching so many different parts of the business, a clear understanding of the evolving AI landscape – including robust AI infrastructure – will be the key for organizations to explore its full potential and identify new revenue sources.

Transition to smart manufacturing

Advancements in Industry 4.0 technologies, the Industrial Internet of Things (IIoT), and continued progress in faster computing power will accelerate the shift towards smart manufacturing. This means more AI, better data governance, and an intensified focus on security, offering advantages in terms of optimizing production schedules, reducing downtime, and driving operational efficiencies. Such benefits resonate strongly across manufacturing and industrial sectors.

Cleaner data will be the new gold standard.

Today, organizations use data insights in near real time to improve operational and financial performance and gain a competitive edge. The path to smart manufacturing begins with harvesting high-quality, accurate, and reliable real-time data from a wide range of IoT devices for quick processing. Organizations must prioritize data quality and invest in robust data management practices to drive growth and improve digital customer experiences, further underlining the need for secure, well-managed data pipelines.

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> **Increasing regulatory pressure and greater customer awareness keep sustainability at the forefront of corporate agendas in 2025. "**

Sustainability front and center

Increasing **regulatory pressure and** greater **customer awareness** keep sustainability at the forefront of corporate agendas in 2025. Customers will look for partners who can implement technologies that support progress toward their net-zero and sustainability goals. Organizations that prioritize energy-efficient products and circular business models – emphasizing resource reuse and recycling – are more likely to gain a competitive advantage, while focusing on value creation.

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What is the role of startups and academia in your technology strategy?

While we maintain robust in-house R&D capabilities, **collaborations with startups and academic** institutions are critical to expanding our innovation pipeline. Universities provide specialized expertise in areas such as **advanced materials research, sensor technologies**, and data analytics, enabling us to explore cutting-edge solutions that complement our own development work. By partnering with these academic teams, often through joint research projects, we can refine product performance, gain deeper insights into emerging trends, and accelerate the **proof-of-concept** (PoC) stage for new applications.

Similarly, startups play a crucial role, particularly outside our traditional core areas. Through targeted programs and alliances, we gain early access to **disruptive technologies** and innovative business models, allowing us to test and scale new solutions rapidly. This not only **broadens** our perspective on emerging markets but also enables faster growth in fields where agility and external expertise are paramount. Collectively, these partnerships with **startups and academia** ensure our technology strategy remains innovative, adaptable, and closely aligned with evolving industry demands.

THE RISE OF AI AND GEN AI

How is SKF using AI and Gen AI at SKF?

At SKF, we use AI and Gen AI to enhance both our digital products and tools for the customer and improve operational efficiency across various domains. Our initiatives include the development of AI-driven tools for predictive maintenance, quality control, and customer service automation where we do our own development. We also work with our suppliers and partners to integrate Gen AI into our digital workplace with the launch of the Github copilot for software developers and Microsoft Copilot for specific areas of the business, which helps streamline workflows and improve productivity. Additionally, we have implemented vision-based solutions to identify bearing failure modes, which assist our customers and application engineers in making better decisions for remanufacturing opportunities and striving toward our sustainability goals.

> **"Our initiatives include the development of AI-driven tools for predictive maintenance, quality control, and customer service automation."**

How has your recently launched Gen AI-enabled product assistant been received?

The early response to our Gen AI-enabled product assistant has been positive. The SKF Product assistant, which uses large language models (LLMs) and our extensive proprietary product data, has been well-received by users for its ability to provide accurate, reliable answers. However, we know that Gen AI will be a supporting tool, rather than the one and only answer to our engineering questions. The main challenge now is to support our users in writing questions (as opposed to the key word search model) to see what full capability looks like. We are also adding more data into the solution to cover our full product offering.

THE SKF PRODUCT ASSISTANT, WHICH USES LARGE LANGUAGE MODELS (LLMS) AND OUR EXTENSIVE PROPRIETARY PRODUCT DATA, HAS BEEN WELL-RECEIVED BY USERS FOR ITS ABILITY TO PROVIDE ACCURATE, RELIABLE ANSWERS.

How important is data in achieving AI's full potential?

High-quality, clean, and comprehensive data is the foundation of effective AI models. Our AI strategy focuses on using data to drive decisionmaking and improve operational efficiency. We use AI to optimize inventory levels, enhance logistics, and implement smart manufacturing processes. At the same time, we cannot wait for the perfect data setup to come

> **"High-quality, clean, and comprehensive data is the foundation of effective AI models."**

along. We need to explore solutions but, in the long run, the output – and, above all, scalability – will require an ongoing effort on the data side. We recognize that data is a strategic asset, and we are investing in the infrastructure and expertise needed to unlock its full potential. We are also exploring techniques like synthetic data generation to augment our existing datasets and improve the robustness of our AI models.

How are you managing the AI talent shortage?

SKF has implemented several initiatives. We have launched an AI Ambassador Program to upskill our employees and create a network of AI ambassadors who can educate their colleagues on entering the AI domain. We also provide digital content via our learning platform. Additionally, we are investing in formal training, community learning, and hands-on experimentation to boost AI competencies across the organization. We also collaborate with external partners and academic institutions to secure the necessary resources and expertise to build and scale AI applications. For an industrial organization like ours, it is important to continue to upskill our current workforce while ensuring an inflow of new and relevant competencies from the market. We have also launched a PhD program in AI, demonstrating our commitment to developing deep internal expertise in this critical area.

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MANUFACTURING IN THE 2020s

How do you assess the new technologies you are working with?

Technologies such as AI, IoT, 3D printing, and big data analytics are powering everything from predictive maintenance and rapid prototyping to real-time monitoring and quality control. Robotics is becoming more sophisticated, moving beyond simple repetitive tasks to collaborating with humans. Automation has been key in SKF for decades, and for a long time we have run manufacturing operations with very limited human intervention. One of the key growing uses of tech in the factory is in inspection and product quality assurance. We can embed the tribal knowledge of our people, accumulated over decades, into tools that can then make informed and consistent decisions. We are also able to collect that information to refine the models and our product digital twin and are seeing the increasing influence of additive manufacturing technologies, such as laser cladding, which offers new possibilities for remanufacturing and repairing bearings. I think we're at an exciting time in manufacturing, where these technologies are starting to truly transform organizations.

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"We can embed the tribal knowledge of our people, accumulated over decades, into tools that can then make informed and consistent decisions."

How critical is cybersecurity for large manufacturing companies such as SKF?

From individuals to multinational enterprises, in today's hyper-connected world, cybersecurity is critical. In manufacturing, the additional risk to manage is in information technology/operational technology (IT/OT) convergence, which makes security in the physical world an integral part of our cybersecurity. Moreover, as operations become more dependent on digital availability, protection of those digital systems becomes even more business-critical. Cybersecurity is no longer just a nice-to-have, it's a fundamental imperative for ensuring business continuity, a competitive differentiator, and the key to building trust with customers and partners.

How does tech support the launch of new products and services?

Technology is a great enabler in bringing new products to the market. Firstly, the ability to refine designs and conduct virtual validation reduces the need to prototype and re-prototype. New processes, more suited to smaller-scale manufacturing, allow more rapid prototyping. As the product moves into manufacturing, we can simulate process flows, using things like automation and robotics to minimize downtime. Then, manufacturing data becomes valuable in the digital twin as a part of moving downstream and to the customer - things like product tolerances at the individual bearing level, calculations of embedded CO2, etc., allowing matching of bearings, better forecasts of downstream environmental impacts, and enabling re-manufacturing. Essentially, a whole circular service business, enabled by technology.

> **"Going forward, our services and intelligent solutions will be key differentiators in building customer relationships and strengthening our position in the aftermarket. It's a whole new way of doing business, and it's super-exciting!"**

But here's the best part: we're not just selling products anymore. We're offering a broad portfolio of products, services, and solutions for numerous industries. Our intelligent solutions enable many of our more advanced service offerings. Going forward, our services and intelligent solutions will be key differentiators in building customer relationships and strengthening our position in the aftermarket. It's a whole new way of doing business, and it's super-exciting!

How is technology enabling your sustainability journey?

Technology is a powerful ally in our sustainability journey, making our ambitious targets realistic. We aim to decarbonize our operations by 2030 and reach net-zero emissions in the supply chain by 2050. We develop products and solutions that enable clean technology industries, such as renewable energy generation. By making our products lighter, more efficient, and recyclable, we help customers reduce friction and extend service life, among other sustainability benefits.

Also, remanufacturing is not just about traceability, but the analysis of used components to assess feasibility of remanufacturing. Traditionally, the inspection was conducted entirely manually by experts. Now, people in the field can use digital tools developed on mobile platforms and embedded with SKF knowledge and AI analytics, meaning more bearings can be assessed for remanufacture-ability, and fewer will be shipped out, only to be rejected at on-site inspection.

Furthermore, technology is enabling us to optimize our operations, from reducing energy consumption in our factories to minimizing environmental footprint across the supply chain. Technology, along with ecosystemic collaboration, empowers us to develop more sustainable products, optimize our operations, and help our customers achieve their own sustainability goals.

WE AIM TO DECARBONIZE OUR OPERATIONS BY 2030 AND REACH NET-ZERO EMISSIONS IN THE SUPPLY CHAIN BY 2050.

ESTABLISHING A TECH MINDSET

How can we encourage more women into technology?

We need to start early. Women must be exposed to STEM [Science, Technology, Engineering and Mathematics] subjects from a young age. And we need to make sure they are aware of the amazing women role models in tech for them to look up to! Scholarships, support programs, and creating a welcoming environment in schools and workplaces are all key. We also need to make sure everyone feels included and has equal opportunities. At SKF, we know that diversity and inclusion are not just nice-to-haves – they're essential to our success. We're taking positive steps to make sure everyone has the chance to succeed. As a female CTO, I'm in a minority. My goal is that this should not be the case for the next generation of female executives.

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In a large organization, how can you drive a culture that embraces tech?

It starts at the top. Leaders are crucial to getting everyone on board with new technology. They need to set a clear vision for how specific tech will help the organization achieve its goals and then make sure we have the budget and resources to make it happen. But it's not just about throwing money at the problem. Leaders need to lead by example, show they are excited about new tools, and make sure everyone feels comfortable using them. We need to create a space where people feel safe to try new things and learn from their mistakes. And, let's be honest, the pace of change is crazy these days. Leaders need to stay on top of AI and all the other new technologies that are popping up. We can't afford to get left behind.

With more and more competition out there, it's clear that organizations that can use technology effectively are going to come out on top in 2025. It's up to us as leaders to empower our teams to embrace technology and use it to their advantage.

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Chief Technology Officer
SKF Group

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About Capgemini

Capgemini is a global business and technology transformation partner, helping organizations to accelerate their dual transition to a digital and sustainable world, while creating tangible impact for enterprises and society. It is a responsible and diverse group of 340,000 team members in more than 50 countries. With its strong over 55-year heritage, Capgemini is trusted by its clients to unlock the value of technology to address the entire breadth of their business needs. It delivers end-to-end services and solutions leveraging strengths from strategy and design to engineering, all fueled by its market leading capabilities in AI, generative AI, cloud and data, combined with its deep industry expertise and partner ecosystem. The Group reported 2024 global revenues of €22.1 billion

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