



SWAROVSKI
OPTIK

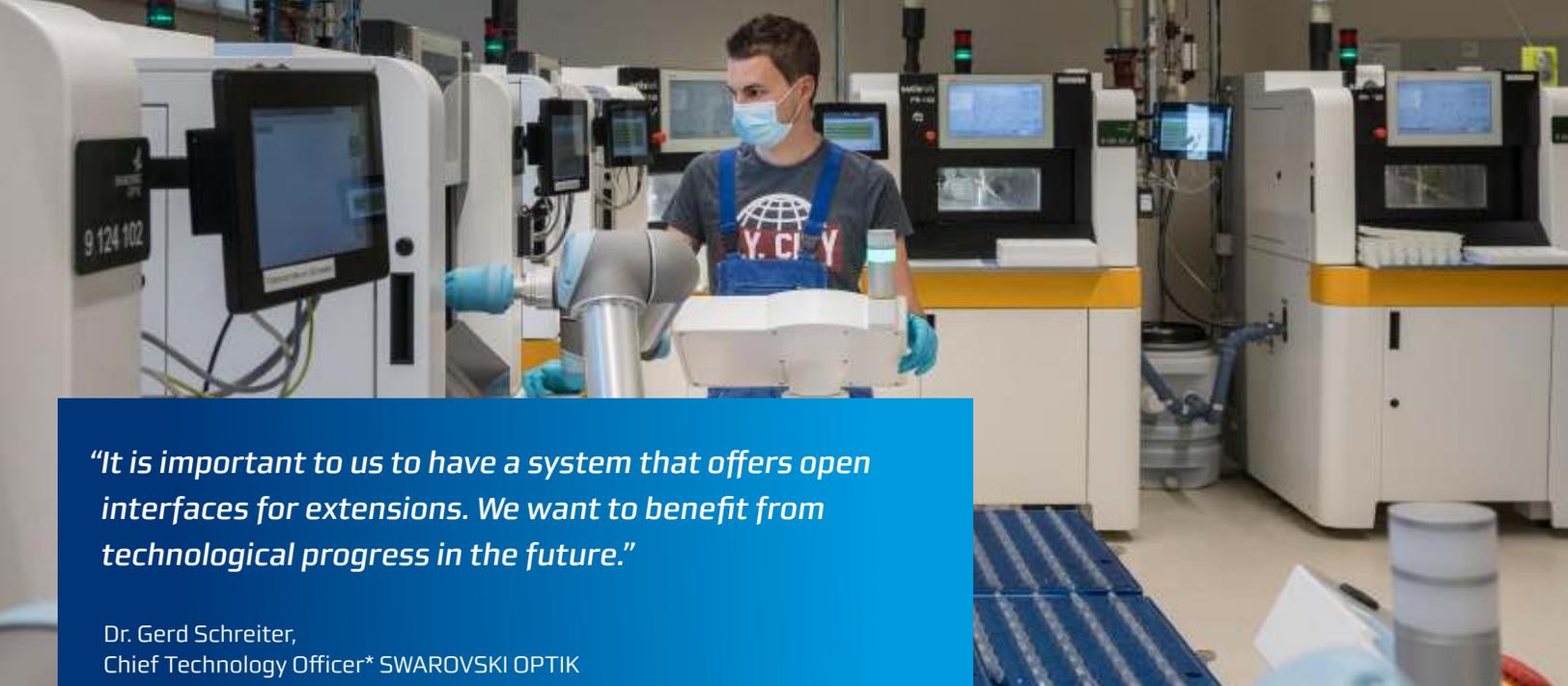
MISSION DIGITAL TWIN: A MARKET LEADER ON THE WAY TO CONNECTED MANUFACTURING

Success Story

+Interview with Dr. Gerd Schreiter, Chief Technology Officer*

SWAROVSKI OPTIK





“It is important to us to have a system that offers open interfaces for extensions. We want to benefit from technological progress in the future.”

Dr. Gerd Schreiter,
Chief Technology Officer* SWAROVSKI OPTIK

SWAROVSKI OPTIK AT A GLANCE

Industry: Premium class sports optics

Location: Absam, Tyrol (Austria)

Production sites: 3

Product range: binoculars, spotting scopes, rifle scopes and accessories

Turnover: €163.5 million (2020)

Employees: >1,000 (2020)

www.swarovskioptik.com

“We want to realize a digital twin of manufacturing, with which we can completely simulate the production and logistics processes.”

Dr. Gerd Schreiter

The company

SWAROVSKI OPTIK, headquartered in Absam, Tyrol (Austria), is part of the SWAROVSKI group. The company was founded in 1949 and is specialized in the development and manufacture of high-precision optical devices. The company’s success is based on its innovative strength, the quality and value of its products, and its functional and aesthetic design. Concern for the environment is an essential part of the company’s philosophy. It is addressed through environmentally friendly production processes and a commitment to sustainability within the framework of selected projects.

The goals

Sustainability as a path: The company’s goals are to increase the value of the company and its brand through sustainability along the entire value chain, expand the global market leadership, and ensure economically sustainable growth and secure jobs. To this end, digitization runs through all business processes: customer care, products, production, service.

The project

Mission Digital Twin: In manufacturing, the goal is to completely simulate all production and logistics processes of an internationally networked manufacturing federation through a digital twin. To achieve this, SWAROVSKI OPTIK is gradually expanding production at three sites into a uniform manufacturing network - and relies on FORCAM technology with Manufacturing Execution Services.

On the one hand, precise key figures such as the overall equipment effectiveness (OEE) are required. To obtain live data, the teams connect all machines and manual workstations to FORCAM technology. Around 200 workstations are networked. In addition, collaborative robots are in use at selected workstations. The use of AI applications is planned.

In order to also be able to network all locations and integrate smart planning and control methods, the company is switching to Infor’s cloud-based ERP system. The go-live is planned for 2022. All processes at all sites will be adapted and connected to the new ERP system – during ongoing operations with increasing sales figures and production requirements.

*until September 30, 2021



“Despite strong growth in production, our energy requirements have not increased – we can reduce production costs.”

Dr. Gerd Schreiter,
Chief Technology Officer* SWAROVSKI OPTIK

SUMMARY

SWAROVSKI OPTIK adds significant value by manufacturing digitally. The teams control the production in real-time because they have precise answers to key questions at any time:

1. What are the quantities?
2. How much has been processed?
3. What is reported as good, what as bad?

“We can reduce production costs because the machines have a high availability, and we have to buy in fewer resources.”

Dr. Gerd Schreiter

The results

Sustainability: For energy consumption, the responsible persons have precise key figures at their fingertips in real-time. As a result, SWAROVSKI OPTIK has been able to achieve constant energy consumption despite increasing production volumes. Quality, environmental and energy management have been ISO-certified for years.

Quality: The best quality is ensured at all times. Open, collaborative systems optimize throughput times - currently in three-shift operation, six days a week.

Efficiency: Real-time control continuously optimizes production by shortening throughput times and reducing inventories. The result is that the company conserves resources and costs.

Machine downtime: SWAROVSKI OPTIK manufactures at a world-class level. This has been the result of an independent analysis of machine downtimes. Dr. Gerd Schreiter: “We know when which machine comes to a standstill and when the next machine has to be ready for the setup. We can reduce production costs because the machines are highly available and we have to buy fewer resources.”

Working 4.0: Teams work together more efficiently in the overall process because they have access to reliable figures during shift handovers, team leaders, and management meetings.

Flexibility: Production remains flexible because new IT systems, such as additional collaborative robots can be seamlessly integrated. This is ensured by the open interfaces of the FORCAM solution. Dr. Gerd Schreiter: “For us, it is important to have a system that offers open interfaces for extensions. We want to benefit from technological progress in the future.”



Are you looking for an IIoT Solution?

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“Digitization needs a mission”

Interview with Dr. Gerd Schreiter,
Chief Technology Officer* of SWAROVSKI OPTIK



Dr. Gerd Schreiter, CTO* SWAROVSKI OPTIK

Dr. Schreiter, how important is digitization in Austria's industry?

Dr. Gerd Schreiter: The situation in Austria is comparable to Germany. Many companies are digitally advanced and work internationally networked. Some companies, such as Magna in the automotive industry, are advanced and already using digital processes across the board. Also, we at Swarovski Optik have already come a very long way.

Does digitization help high-wage countries to secure their locations?

Dr. Gerd Schreiter: I think so. When I look at the German-speaking countries, our exemplary training of skilled workers sets us apart from other areas. We have excellent skills potential, on which we can build on. It is precisely these highly qualified skilled workers that we need to drive digitization further and to implement the most modern processes. If we succeed in making good use of this, we will definitely have a competitive advantage.

In which areas is digitization particularly important for you?

Dr. Gerd Schreiter: If you want to digitize, you have to have a mission. Because it's not just about realizing technological progress, but ultimately about economic goals, digitization runs through the entire business process – from the digitized customer approach to the networking of the manufacturing sites to digitizing the products. If I focus on production, then our mission is a digital twin of manufacturing. We want to realize a digital twin of manufacturing to simulate the production and logistics processes completely.



SWAROVSKI OPTIK Headquarters in Absam, Tyrol

“Our goal is to create a unified, international production network.”

What does your digital roadmap in manufacturing look like?

Dr. Gerd Schreiter: We are busy connecting all machines to FORCAM to obtain live data on the status of our production processes. Furthermore, we are also in the process of using collaborative robots at selected workstations. And we are networking our international production sites with FORCAM and Infor. We aim to ensure that the sites take the step from international sites to networked sites and create a uniform, international production network.

You have 125 machines in operation. How have you been going since the starter kit in 2016?

Dr. Gerd Schreiter: We have proceeded in stages with the machine workstations. In 2017 there were 40, in 2018, another 40, and so on. We are currently in the final stage of expansion, primarily in the connection of assembly workstations and unique machine workstations. In the end, we will have 200 workstations equipped with FORCAM MES technology.

Why did you choose FORCAM?

Dr. Gerd Schreiter: We need to have a system that offers open interfaces for extensions. We want to benefit from technological progress in the future. The system must enable us to add further modules and to realize compositions. We know how fast technological development is progressing. We need a stable basic system that can be expanded accordingly. FORCAM offers us all this: remaining flexible, even in the future.

Will digitization enable factory teams to work in a more value-adding way?

Dr. Gerd Schreiter: Yes, definitely. The teams work together more efficiently in the overall process because they have access to reliable figures. Ultimately, we support the improvement process in the company in two ways: by providing facts and through shop floor 2.0-measures - i.e., the regular exchange between teams on improvement measures. Both contribute significantly to the consistency of the improvement processes. I can recall the statement of a manager: “If I had known earlier that there would be so many hours of downtime a week, I could have acted very differently.”



Dr. Gerd Schreiter, in production at the headquarters in Absam, Tyrol

Tidy up, plan, implement: “My advice is to proceed in three phases when transformation in three phases.”

How important is it to communicate early?

Dr. Gerd Schreiter: Communication is critical to success, starting with the pilot project we decided on in 2016. The aim here is to evaluate what we can achieve, what the whole thing looks like in concrete terms. That communication creates trust. And that also creates security and stability for us in management to make the right decisions. When we were able to show with our pilot project what data was being collected, the obstacles to motivation in the workforce were overcome.

How do you communicate the digital transformation today?

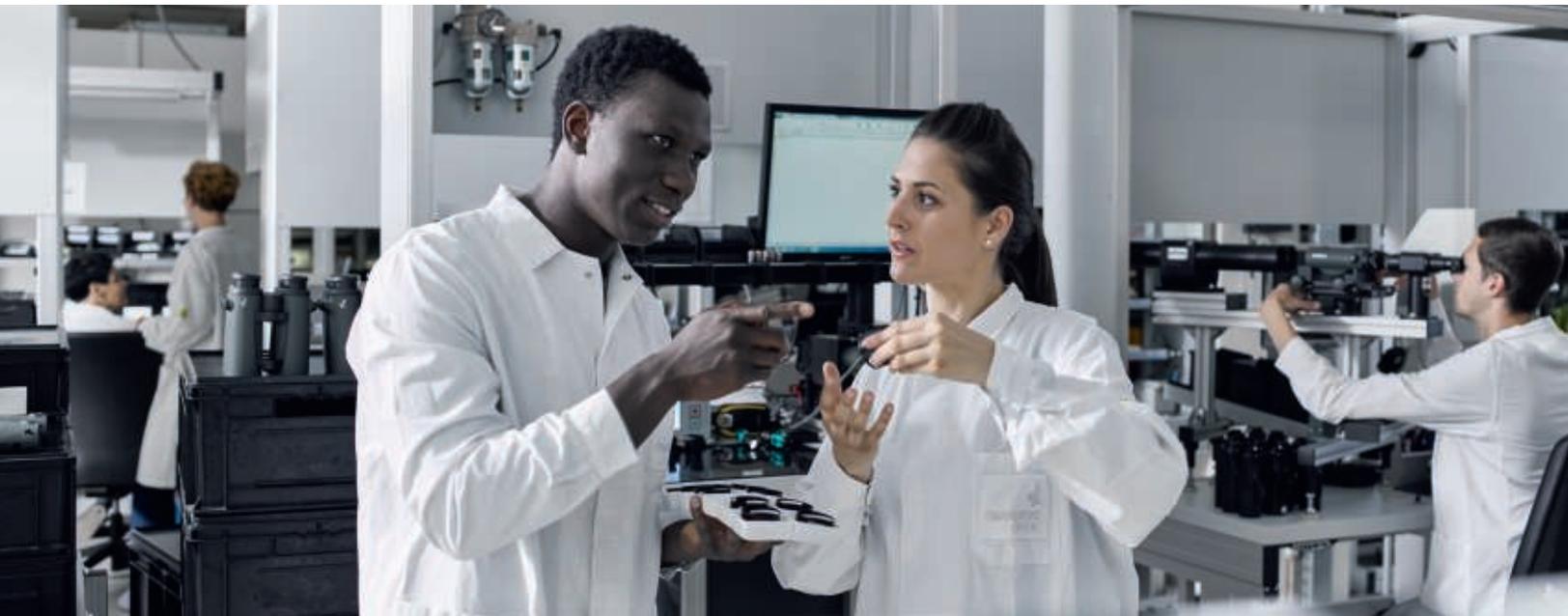
Dr. Gerd Schreiter: We communicate as regularly as possible. We are deliberately proceeding in stages: first connecting the mechanical machines, then the optical machines, then the manual workplaces, then the complex machines, and then we network the sites. After each step, we try to become aware of and communicate what we have achieved together, what we have gained.

In this way, individual projects do not remain a flash in the pan. Everyone in the company feels the added value after each step. That's the only way to get everyone in the company behind it.

What advice do you have for companies that are still hesitant about digitization?

Dr. Gerd Schreiter: My advice with digital transformation is to proceed in three phases: Phase 1 is all about cleaning up and structure. It's all about a ruthless analysis paired with a toolbox of methods, from lean management, for example. At this stage, I'm still not very much involved with technology. Step 1 is important: The attempt to digitize untidy processes leads to chaos. In phase 2, I develop a roadmap: What do I want to digitize in which steps? Then comes phase 3: the implementation in stages, starting with the pilot project. This is where the technology comes into play because the actual connection of the machines is started.

Thank you very much for the interview!



Employees in the production of SWAROVSKI OPTIK