

Case study

STIWA Group enables new insights and production optimization with Pentaho.

Challenge: Streamline operations by providing comprehensive and intuitive insights into complex manufacturing data.

Solution: Enhance the user experience with flexible visualizations using Pentaho Business Analytics, integrated into the STIWA Software AMS Analysis-CI.

Challenge: Improving production excellence at scale

STIWA GROUP is a specialist manufacturer of high-performance automation solutions headquartered in Attnang-Puchheim, Austria. The company develops turnkey solutions, components and software to support manufacturing automation and optimization. Employing 2,225 people, STIWA serves leading companies from around the world in the automotive, medical technology, furniture fitting and building automation industries among others. The group generates annual revenues of around EUR 260 million.

STIWA sees software innovation as a key factor in its continued success, supporting deeper integration of IT with operational technology (OT). The Manufacturing Software division was looking for ways to enable comprehensive, quick and intuitive data analysis for customers across real-time and historic data within a simple, unified web-based application.

Martin Schwarzenberger, Team Leader, Development Software-Products (Analysis) at STIWA Group, comments: "We needed a future-proof analytics tool that we could customize flexibly and tailor to meet our customers' complex requirements. As a systems integrator supporting global manufacturing processes, our goal is to provide an intuitive overview of machine, plant, process, quality and energy data to efficiently manage fully or partially automated production facilities."



STIWA Group

Industry: Manufacturing

Solutions: Data Management & Analytics

Software: Pentaho Business Analytics, part of Lumada DataOps Suite

Services: OEM Support Services

Outcomes

- Increases overall efficiency by 15 percent.
- Reduces ramp-up times by 30 percent.
- Adds value for customers by integrating flexible analytics features.
- Enables creation of data-rich, custom reports on-the-fly instead of putting them together from different data sources.
- Allows seamless integration of cutting-edge artificial intelligence features.
- Supports flexible deployment models.

As highly automated manufacturing capabilities are in demand worldwide and sales are picking up, STIWA is keen to continuously improve and expand its offering and reach new customer segments. "We wanted to capitalize on the current trend and take advantage of new business opportunities," says Martin Schwarzenberger. "We have been a pioneer in the field that is now called Industry 4.0 – we were developing industrial Internet of Things applications long before it became a hot topic. So we're now in a prime position to leverage our experience in machine data analysis to help our customers move from diagnostic analysis towards predictive analytics with artificial intelligence (AI) and machine learning (ML)."

STIWA's customers need an integrated overview of their operations to stay ahead of their competition. In a typical production plant, countless sensors constantly monitor a wide variety of operating conditions. Some customers run more than 200 machines that produce over 6 million parts and can generate 40 Terabytes of data in a single year. Managing and visualizing production data at this scale is becoming a massive challenge.

"Our focus is on production excellence at scale by generating actionable insights based on vast volumes of data," explains Martin Schwarzenberger. "Our AMS ZPoint-CI manufacturing software runs on 2,500 machines around the world. About 200 key users rely on AMS Analysis-CI, our visualization and reporting solution, to ensure the smooth operation of their machines, production lines and entire plants. And over 1,000 people use our dashboards and analytics on a daily basis to keep on top of production targets."

Solution: embedding intuitive analytics with Lumada DataOps Suite.

After evaluating different solutions, STIWA worked with Hitachi Vantara to integrate Pentaho Business Analytics (part of the Lumada DataOps Suite), into its AMS Analysis-CI software. The partnership with Hitachi Vantara started when STIWA wanted to gain a competitive advantage by consolidating data from multiple machines across multiple factories in a central dashboard.

"Pentaho Business Analytics allows us to expand the analytics capabilities of our solution and substantially improve the user experience," remarks Martin Schwarzenberger. "Using built-in features including the analyzer and the interactive reports, we can provide advanced analytics tools that add real value. Combined with a large variety of STIWA dashboards that come with the AMS Analysis-CI, our customers can flexibly configure the visualizations of machine, production, and quality data to create their own personalized reports. As a result, they can easily turn data into tangible insights to support data-driven decision-making and digital innovation at all levels."

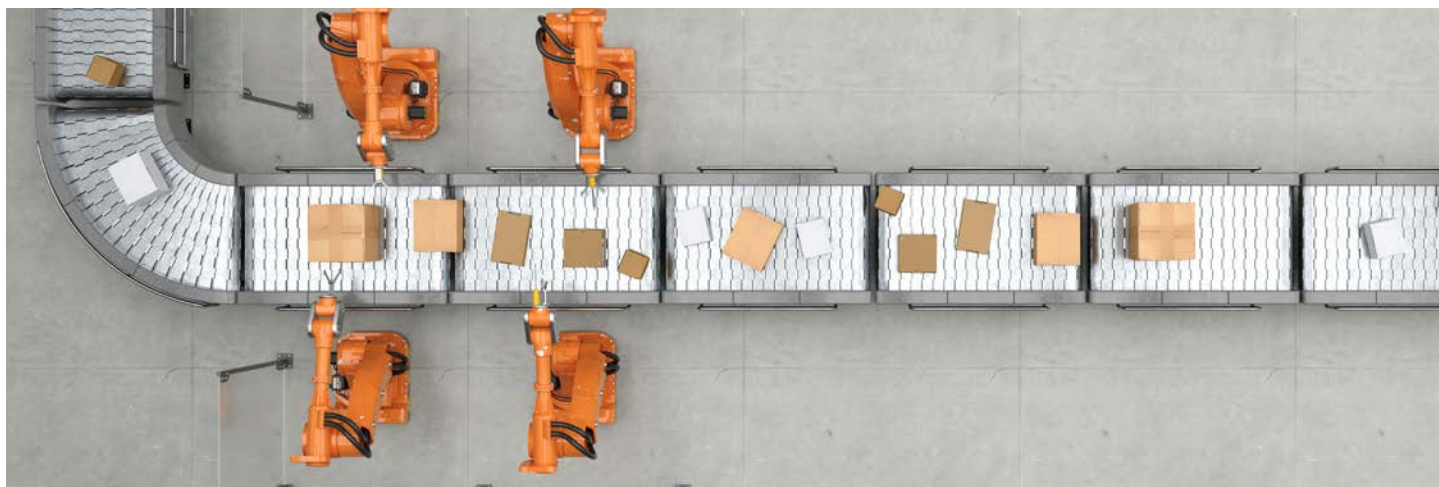
STIWA has successfully built this solution using Pentaho Business Analytics. The company uses the embedded analytics functionality, and has extended the platform to add new, powerful and highly specialized analytics features. Predefined standard reports cover key metrics such as Overall Equipment Effectiveness (OEE) and Total Effective Equipment Performance (TEEP) to measure plant productivity and utilization.

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"Pentaho Business Analytics is a great foundation for our AMS Analysis-CI solution," confirms Martin Schwarzenberger. "The ease of use and flexibility of Pentaho Business Analytics are outstanding, and we extended our initial collaboration with Hitachi Vantara by another five years."

What sets STIWA apart from other machine manufacturers and software vendors is that the company gains deep insights from working across disciplines and subsidiaries. Working closely with teams who develop machines and the teams who run the group's 12 plants across Austria, Germany, the US and China gives STIWA a unique understanding of machine and plant operations.



“Our wide portfolio of solutions, including our own manufacturing facilities as well as software and consulting services, helps us to identify what customers really need,” adds Martin Schwarzenberger. “Our internal customers are often the most critical ones. Rightly so, because this rapid knowledge exchange means that we can work together to develop best practices and boost the quality of our manufacturing software even further.”

Outcome: reducing costs and increasing productivity with data analytics

By offering its manufacturing software as a stand-alone solution that can integrate with a wide range of machines, STIWA has created new business opportunities.

“Thanks to Pentaho Business Analytics, we built a more comprehensive solution and manufacturing software has become a quickly growing business area for us,” says Martin Schwarzenberger. “The strategic decision to offer our manufacturing software independently of our highly automated machines is paying off because it means we can reach new customer segments. Today, about 70 percent of our software deployments are running on third-party manufacturing machines from around 50 different manufacturers.”

STIWA has also optimized its product pricing with a tailored partnership agreement that allows the company to take advantage of different licensing terms for different customers.

“As an original equipment manufacturer and independent software vendor, our flexible OEM partnership with Hitachi Vantara gives us a lot of benefits,” remarks Martin Schwarzenberger.

The AMS Analysis-CI (with the Pentaho solution built in) supports a wide range of deployment models. “Many of our customers want to keep their sensitive production data on-site,” explains Martin Schwarzenberger. “With Pentaho Business Analytics, we can support on-premises deployments, and we can easily offer extended cloud services in the future, when customers ask for it.”

Building on the flexible and intuitive analytics features, customers can combine data in new ways and create their own reports and dashboards more easily and ‘on-the-fly’, reducing associated development costs



by 35 percent. For example, the solution supports reporting on historical data, allowing plant managers to identify long-term trends and seasonal patterns. Shift supervisors and planners can also use weekly and daily analyses to optimize daily schedules and maximize output.

“Our solution adapts to the needs of different users,” says Martin Schwarzenberger. “Business executives can analyze high-level performance indicators and plant managers get an overview of their production outputs. Furthermore, shift supervisors can optimize short-term planning based on consistent data to meet ambitious production targets across production lines.”

Moreover, with AMS Analysis-CI, the ramp-up phase to put new machines into operation is often 30 percent shorter. Once the machines are running, smart use of AMS Analysis-CI can help to increase overall equipment efficiency by 15 percent.

The ability to flexibly integrate different data sources helps to adapt the self-service reporting for different customers, and the new AMS Analysis-CI Compute feature enables customers to go one step further when customizing their data analytics. Within AMS Analysis-CI, customers can upload advanced scripts and calculations written in the Python or R programming

languages and then access the results directly through the embedded Pentaho Business Analytics solution.

“We have seamlessly integrated AMS Analysis-CI Compute with Pentaho Business Analytics,” says Martin Schwarzenberger.

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“Now, users can simplify processes and save time by moving analytics tasks directly into AMS Analysis-CI. As a result, customers can replace time-consuming and manual spreadsheet analysis with fully automated calculations. The customized data cubes enable new insights through complex analytics and flexible visualizations.”

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STIWA already plans to futureproof its offering and extend its data analytics features further, taking advantage of the flexibility of Pentaho Business Analytics. As a first step, the company wants to start storing all events as they come in from the IoT sensors and production machines. While this will increase data volumes, it will also open up new possibilities to optimize machine operations and allow users to drill down all the way from aggregated views to the original events using AMS Analysis-CI. By integrating historic raw data into the analytics platform, STIWA's customers can re-analyze data with newer algorithms and technologies. This approach will unlock optimizations and savings that might have been difficult to identify before.

For more details visit:



Martin Schwarzenberger concludes: “We are convinced that artificial intelligence will significantly influence production in the future. That’s why we are hiring data scientists and engaging with universities to explore what we can do with AI, data science and machine learning today.

Our goal is to use the data that is already available and apply sophisticated analytics techniques and tools to generate more proactive insights and data visualizations for our customers. Plus we are always looking to expand our data acquisition.”

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