

connectpoint

Success Story

Twinings' Digital Transformation: Streamlining Manufacturing Processes and Enhancing Decision-Making

Executive Summary

This case study highlights Twinings Swarzędz's successful implementation of a Digital Transformation program to overcome challenges in managing manufacturing processes. Twinings faced issues related to manual data handling, the lack of a centralized platform for tracking KPIs, and data quality concerns. Twinings adopted the Smart RDM platform, integrated with existing systems to address these challenges. The program resulted in improved access to real-time KPIs, enhanced data accuracy, and empowered decision-makers with reliable information. The automation of reporting processes reduced errors and identified areas for improvement. Twinings' Digital Transformation created a strong foundation for future development, with plans to implement new KPIs and leverage the platform for additional functionalities. Overall, Twinings' strategic shift towards technology optimization facilitated data-driven decision-making and operational efficiency throughout the organization.

About Twinings

Twinings is a tea company with tradition, founded in 1706 in London. Associated British Foods (ABF) owned The company since 1964, and it is one of the largest food concerns in Europe. In 2011, Twinings started production in its factory in Swarzędz (Poland), which is currently the largest production plant in the entire group, producing 250–300 tons of blended tea during the week, which translates to about 120 million bags and 160–200 thousand cartons or tea cans sent to customers.

1 Challenges

Twinings Swarzędz encountered several challenges in managing their manufacturing processes, resulting primarily from manual handling of data, the absence of a centralized platform for tracking key performance indicators (KPIs), and issues with the quality and completeness of input data from the production hall. These challenges necessitated the initiation of a Digital Transformation program aimed at overcoming these obstacles and improving decision-making within the organization.

- Twinings heavily relied on manual processes for data management, mainly through Excel files. This manual approach introduced inefficiencies, increased the risk of errors, and impeded the organization's ability to process and analyze data efficiently. The company faced difficulties in consolidating data from various sources, resulting in delays in decision-making and potentially inaccurate insights.
- Twinings also lacked a tool for tracking KPIs, creating challenges in monitoring and measuring performance across different timeframes and organizational levels. The absence of a unified system hindered real-time visibility into critical metrics, making it difficult to identify bottlenecks, inefficiencies, or areas for improvement. The lack of a centralized platform also limited the organization's ability to generate comprehensive reports and provide quick access to KPIs for decision-making purposes.
- Another significant challenge Twinings faced was the quality and completeness of input data from the production hall. Frequently, the data provided by responsible individuals was incomplete or based on their knowledge and experience rather than objective measurements. This subjective approach introduced potential biases, inaccuracies, and inconsistencies, compromising the reliability and validity of the insights derived from the data. Twinings recognized the importance of accurate and reliable data to drive informed decision-making and improve operational efficiency.

In facing the challenges of growing production demand, our primary aim was to augment the capacity of our current machinery park. Our approach was two-pronged; firstly, we wanted to streamline operations by enhancing the Overall Equipment Effectiveness (OEE), thereby maximizing the utility of our machinery without the need for new capital investments. Secondly, we sought to systematically improve our cost efficiency by minimizing production losses. Balancing these two objectives proved to be a crucial task in maintaining our competitive edge while meeting the escalating demands of production. – said Marcin Gad, Plant Manager at R. Twining and Company Sp. z o. o.

2 Solution

To address the challenges, Twinings initiated a Digital Transformation program to streamline manufacturing processes and automate reporting. The program's first stage focused on automating the reporting of KPIs, specifically the OEE indicator for selected production levels in selected settlement periods and Waste, which were previously managed manually through Excel spreadsheets. To achieve this goal, Twinings deployed the Smart RDM platform. Collaborating closely with the IT team at Twinings, ConnectPoint, a provider of:

technology solutions, facilitated the integration of Smart RDM into the company's existing systems, among them the OSIsoft PI System (previously implementet by ConnectPoint). This integration enabled a smooth shift from manual operations to new digital procedures. The platform effectively bridged the gap between IT and OT systems. The architecture of the Smart RDM platform is based on the Azure cloud environment. It employed cloud-based reporting using the Azure SQL reporting database, SSIS ETL processes, and the Azure Power BI reporting tool. All reports showcasing historical data were compiled using these tools.

The solution to the challenge lies in building and developing the competencies of our Production Teams towards a culture of continuous improvement based on the identification and elimination of losses and main constraints in the process. A key element of this process is the real-time monitoring system for key production process parameters, along with advanced historical data analysis. This system enables the rapid identification and visualization of losses, facilitating the initiation of effective actions aimed at improving the OEE.

3 Benefits

The Digital Transformation program has brought numerous significant advantages to Twinings Swarzędz. Integrating the Smart RDM platform with the existing OSIsoft PI System improved data management and analysis capabilities considerably. This enabled a smooth data flow from the production floor, providing reliable and accurate information crucial for informed decision-making. In addition, aligning the platform with existing systems simplified data integration, offering a comprehensive view of the organization's performance. The platform also successfully bridged IT and OT systems. The primary value lies in integrating the production process (machines with business systems, thus opening up the potential for analyzing correlations between business (orders from SAP, for instance) and operational data.

Marcin Gad emphasized the major time-saving benefit resulting from real-time reporting: Before the Digital Transformation program, data collection was manual and time-consuming, taking around 90 minutes per shift. Real-time PLC machine data reporting has made results immediately available online, facilitating quick identification of significant losses and constraints and freeing up crucial time for actionable improvements. Automating reporting processes through Smart RDM has also curtailed manual effort, reducing potential errors inherent in manual data handling. Previously, generating reports, ranging from daily to annual, required data to be manually entered from paper forms into Excel — a process taking about 30–45 minutes per shift. The implementation of Smart RDM, however, has automated this process, saving time and enhancing the structure of the reports

This improved accuracy and reliability in data has led to more precise insights and analysis, enabling proactive identification of inefficiencies within the manufacturing processes. Reports generated are visualized in a structure and aggregation modeled according to user needs (directly at the operator's workstation by the machine, in a visible location in the production hall, on a computer screen in the office), enabling a drill-down overview of results (from general to specific) and significantly enhancing the quality of historical analyses as well as streamlining the identification of major limitations significant in the medium and long term.

Concurrently, these analyses serve as a foundation for the work of problem-solving production teams, focusing on systematic improvements in performance using lean manufacturing tools and techniques. Twinings Swarzędz also experienced an uplift in OEE, estimated at 1.5%–2.0%.

Operating at an OEE level of 78%–80%, this improvement provides crucial support in our journey towards achieving a world-class OEE level of 85%, Marcin Gad explained. Lastly, a significant reduction in Waste was another key benefit. Given our usual operational waste range of 1.8% to 2%, the estimated Waste reduction of 0.1%–0.15% is substantial. It has not only helped in mitigating losses but also played a pivotal role in bolstering our cost efficiency.



4 Conclusion

Twinings Swarzędz effectively addressed their obstacles by implementing a Digital Transformation program. Incorporating the Smart RDM platform facilitated real-time access to key performance indicators like OEE and Waste, equipping decision-makers with timely and accurate data for informed choices. This amplified transparency into performance metrics, enabling Twinings Swarzędz to spot and tackle bottlenecks and inefficiencies in their manufacturing processes. The platform's alignment with the data sources of the production hall guarantees the acquisition of unbiased and trustworthy data, enhancing analysis accuracy and decision-making. Automated report generation diminished manual intervention, thus reducing error probability linked to manual data handling. In the future, Twinings intends to introduce additional KPIs, boosting their monitoring and measurement capabilities and offering a complete picture of their manufacturing activities. Moreover, the functionality of the Smart RDM platform will be further utilized to aid operational processes in Maintenance Management (CMMS) and other areas, assisting Twinings Swarzędz in enhancing their overall operational productivity and fostering an environment of continuous improvement.

OEE	Waste	Data collection	Manual data enty
78%–80%	1.8%–2.0%	90 min/shift	**30–45 min/shift**
↑ 1.5%–2.0%	**↓ 0.1%–0.15%**	**0 mins/shift**	**0 mins/shift**

About ConnectPoint

ConnectPoint is a technology company supporting digitization processes in industry, energy and utilities. It specializes in IT/OT systems integration, combining industry expertise with Big Data, GIS, Business Intelligence and Machine Learning technologies. It creates systems that facilitate the collaboration of operations, IT and business, supporting accurate decision-making and improving organizational efficiency.