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Client Success Story

Danone Poland – Bieruń Factory: **Leveraging Technology for Sustainable and Efficient Production**

Executive Summary

Danone Bieruń is a plant located in Poland, Silesia that is a part of multinational Danone Group[1]. With a commitment to sustainability and social responsibility, the company (Danone Group) focuses on of fering a diverse portfolio of high-quality products which are produced – among others – at Danone's factory in Bieruń. The Bieruń factory faced challenges in aligning its operations with Danone's strategic sustainability objectives, which included implementing an online pro duction monitoring system and establishing a comprehensive report ing system.

To address these challenges, Danone approached ConnectPoint, a technology solutions provider. ConnectPoint proposed a two-part solution: implementing the Aveva PI System as a foundation for a Central Data Repository (CRD) and utilizing the Smart RDM platform for data and report management. The implementation of these solutions has enabled the Bieruń factory to optimize machine changeover processes, centralize report storage, automate report dis tribution, and provide real-time monitoring of production processes.

As a result, the factory has optimized production process, aligning with Danone's strategic objectives. The Bieruń factory's success serves as a blueprint for organizations looking to adopt environmentally-conscious practices and uphold high standards in the food and beverage industry.

Introduction

Danone Group, a multinational leader in the food and bev erage industry, has spearheaded a game-changing global factory digitalization program. This strategic initiative un derscores Danone's unwavering commitment to innovation, sustainability, and delivering high-quality products to con sumers, reinforcing its position as a frontrunner in the ever evolving landscape of modern manufacturing.

The state-of-the-art Bieruń factory plays a significant role in the production and distribution of Danone's products while exemplifying the company's dedication to environ mental responsibility and efficiency.

This case study explores the challenges faced by the Bieruń factory and the solutions implemented to enhance production processes and minimize waste and energy con sumption.

1 Challenges

In the course of its operations, the Bieruń factory encountered several challenges that prompted the need for improvements:

- The factory's performance monitoring system required updating to meet new challenges and adjust to evolving needs.
- The machine parameter recording system in place was basic and entirely manual, relying solely on operator logs. It lacked integra tion with the machines, which impeded efficiency.
- The absence of online visibility into machine and factory outcomes presented a significant obstacle.
- Operational tasks were burdened by the reliance on multiple spreadsheets and disparate systems by operators.
- The factory also lacked analytical capabilities to facilitate changeovers due to limitations within its existing system, which were at odds with the current nature of changeover processes.

In light of these challenges, the Bieruń factory aimed to align its operations with Danone's sustainability goals. To achieve this align ment, the factory identified two primary challenges:

- The need to implement an online production monitoring system ca pable of tracking various production parameters, monitoring down time, collecting and editing changeover data.
- The establishment of a comprehensive reporting system that cen tralizes data and offers varied access modes for both operators and managers.

In response to these challenges, Danone engaged ConnectPoint, a technology solutions provider, to develop a tailored solution that would effectively address these specific requirements.

2 Solution

ConnectPoint proposed a comprehensive solution following an in depth analysis of the Bieruń factory's requirements: (1) The foundation of the solution involved implementing the Aveva PI System, which would serve as the Central Data Repository (CRD). This encompassed several key steps:

- Integration of real-time process data from production lines, along with the creation of an asset model of the factory supported by the appropriate data context (AF Data Model).
- Configuration of algorithms to calculate crucial KPIs like OEE, TDT, etc. These algorithms were also responsible for generating alerts and events such as downtime, changeover occurrences, and order placements.
- Support the reference weighing process in accordance with legal requirements.

[1] Danone is the leader in terms of value share in the categories of dairy products and plant-based products. Danone sourced from NielsenIQ, Retail Audit, Total Poland incl. Discounters (Food), Value Share in X 2022 – IX 2023 in the category: Total Dairy (defined by Danone); Total Plant Based (defined by Danone) (Copyright © 2023, NielsenIQ)

- Preparation of a dedicated repository for reporting data needs, fol lowed by the integration of this repository with the AF data model.
- Delivery of Power BI reports for comprehensive insights.
- Furthermore, historical and real-time data visualizations were de fined as part of the solution.

(2) Additionally, the Smart RDM platform, a web application with functions encompassing data storage, report generation, and distri bution, was employed. This platform allowed online access to vi sual representations and efficiently managed events. Collaborating closely with Danone, ConnectPoint tailored the platform's modules and developed forms for manual data input into the Aveva PI System. The Smart RDM platform featured both operator and manager views, ensuring customized access to information for specific roles.

From the client's perspective, ConnectPoint orchestrated the suc cessful integration of a system interfacing with machines and assist ing operators. The outcome included the ability to:

- Centralize the compilation of production data from various ma chines into a unified system.
- Establish events that facilitated the monitoring of changeovers.
- Disseminate insightful reports through the Power BI platform.
- Offer real-time access to the system, effectively supporting ongoing monitoring endeavors.

Incorporating OsiSoft, Smart RDM, and Power BI into our system has been transformative, allowing us to tailor the platform to evolving business needs. With an automated and unified reporting system, we now efficiently track ma chine downtimes, enabling comprehensive downtime an alytics. The system seamlessly adapts KPI calculations to Danone's standards and ensures online accessibility, ensuring a robust foundation for our operations. – said Magdalena Soból, Digital Technology Manager at Danone Bieruń

3 Benefits

The integration of the Aveva PI System and the Smart RDM plat form at Danone Poland's Bieruń factory has yielded notable benefits, markedly enhancing operational efficiency and advancing sustainable production practices. The primary advantages derived from these im plemented solutions are as follows:

- Streamlined Machine Changeover Processes: Leveraging advanced technology, the changeover procedures have been optimized, re sulting in reduced reliance on operators input, eradication of com mon issues, more accurate and real time data of downtime and losses that allows deeper analysis and problem solving.
- Real-time Monitoring: The inherent real-time monitoring capa bilities of these solutions provide instant insight into production processes and machine status. This expedites the identification and resolution of irregularities, effectively minimizing disruptions in the production line.
- Event-driven Irregularity Presentation: The system effectively presents anomalies as events, enabling operators and managers to monitor and promptly address these issues in real-time.

By harnessing the capabilities of advanced technology solutions, the Bieruń factory has already significantly elevated its operational per formance and reinforced its dedication to paperless production and efficiency. The principal benefits encompass:

- Efficient Time Utilization for Operators: Enabling operators to di rect their focus towards production activities instead of adminis trative tasks.
- Comprehensive Machine Uptime Tracking: Ensuring the complete identification of machine operational times.
- Enhanced Data Precision: Resulting in well-informed decision making due to the improved accuracy of collected data.

The ongoing deployment of the Aveva PI System and the Smart RDM platform serves as a compelling demonstration of the potential for other organizations to embrace similar practices and uphold elevated standards within the food and beverage sector.

4 Conclusion

In summary, the successful integration of the Aveva PI System and Smart RDM platform at Danone Poland's Bieruń factory highlights a transformative shift towards sustainable and efficient production. This case study underscores the power of technology to enhance op erational excellence and environmentally-conscious practices in the food and beverage industry.

Through collaboration with ConnectPoint, Danone Poland over came challenges and realized substantial benefits. Optimized changeover processes allowed closer monitoring to act faster, real time monitoring improved oversight, and event-driven anomaly han dling streamlined operations.

These solutions not only boosted the factory's performance but also aligned it with Danone's sustainability objectives. The Bieruń factory's success offers a roadmap for other organizations to elevate their practices, reduce waste, and uphold industry standards.

In addition, the delivered solution is open to integration with other business systems and will enable future coverage of more ar eas related to the production process.

As the Aveva PI System and Smart RDM platform continue to deliver results, they exemplify how innovation can reshape manufac turing for a more sustainable and efficient future.

The added value of implementing the system is the live view of productivity, the status of machines and the reasons of stoppages. Even being outside the production area, I can check the situation on the shop floor and react accordingly. In addition, the current calculation of all KPIs allows me to fully understand the current status. – concluded Paweł Matyasik, Shift Manager at Danone Bieru

About Smart RDM

The Smart RDM platform aims to improve production processes efficiency and visibility by centralizing and organizing production data. With quick and intuitive access to information, employees at all levels of the organization can make informed decisions and respond to any issues promptly. This will lead to better production planning, reduced downtime, and improved productivity. Additionally, having all production data in one place can help identify trends, patterns, and opportunities for improvement, further streamlining the production process.