Crafting an Ancient Beverage in Futuristic Breweries

Cheers to a High-Tech, Efficient Manufacturing System for Beer
Brewing beer is one of humankind’s oldest trades, with a history reaching back thousands of years. The recipe is more or less the same as it was when Mesopotamian farmers first figured it out: boil water and grains, let the wort cool, let it ferment, then raise a mug to good health. Fast forward to modern times, and the beer industry is subject to an infinite range of complex issues, including challenges of mass production, competition, international production and distribution, and unprecedented mergers and acquisitions, just to name a few.

In 2017 when Anheuser-Busch InBev acquired rival SABMiller, regulators required several Central and Eastern European breweries to be spun off. Japanese Asahi Group Holding, in business since 1889, agreed to acquire the brands.

The brands Asahi Group Holding acquired in Central and Eastern Europe, including the world-famous Czech beer Pilsner Urquell, were crafted in 10 production sites in the Czech Republic, Slovakia, Poland and Romania. All were operating on a manufacturing execution system (MES) that was close to the end of its lifecycle and no longer supported, which created gaps in user response speed and experience. In addition, the distributed architecture to production facilities did not allow version management to ensure the consistent usage across the breweries to input and track data.

Asahi’s Eastern European breweries sought a new, centralized solution so production managers would have clearer insights as well as real-time, data-driven decision-making power that could boost the breweries’ efficiency and improve their user experience. On a brewery floor, for example, operators required a simple way to make production declarations to and from multiple vessels simultaneously. They also needed to make tracking the movement of product to warehouses a time-efficient, automated process—particularly in error-prone breweries with several small production vessels to keep track of. In addition, the breweries needed to harmonize their tracking and usage of packaging equipment, as some facilities used Excel-based tracking, some sites used homegrown non-standard solutions and some used package solutions. Along with tracking data differently, the facilities were also reporting data in their own ways, even manually copying and pasting figures into spreadsheets.
Accenture started with an interactive workshop, where they worked with the Asahi’s Central and Eastern European breweries to define the problems and then create an overall roadmap toward solving them. The team also quickly developed a simple prototype to demonstrate their ability to deliver the required solution.

The focus was to build a faster and better user interface (UI) than the brewers’ legacy system. The team opted to implement SAP MII (Manufacturing Integration and Intelligence), a user-friendly application that links manufacturing with back-office business systems such as production planning, asset care and quality management. It also provides analytics and workflow enhancements to support production and improve quality-control procedures. In addition to MII, SAP PCo (Plant Connectivity) was used to collect brewing- and packaging-related information from the brewing machinery. Together, MII and PCo brought myriad immediate benefits to the party.

All in all, the new MES significantly simplified the order-management process for operators and managers on the brewery shop floor. First, it offers quick and automated order confirmation. Then, all the process steps from start to finish—as well as key operating parameters (KOPs)—are available on one screen and fed automatically from control and automation systems. The system also provides traceability in a clean, easy-to-read graphical report. The entire process is now quick and easy for facilities to perform the business process efficiently, as well as focus on the technological process. What’s more, the system was built to eliminate data recapturing.

The end users’ adoption of the new system, however, was key to its successful integration and launch. The team held demo sessions for representatives from the production sites in each country and remained in touch with them throughout the development process so they could see the progress and provide feedback.

This early user engagement also helped maintain an overall sentiment of cooperation from the project’s beginning to its end. Requests for changes to the build were therefore easier to manage and facilitate, which in turn helped the breweries envision the usability and power of the final product as it was being built.

Additionally, Accenture has a strong Industry X presence in Cluj-Napoca, Romania. So when the team hit the integration testing phase, it was able to mobilize additional, local resources to work hands-on with the breweries when and where they were needed.
A Valuable Difference

Because beer-brewing ingredients are expensive agricultural products, brewers need real-time insights into demand and production capacity, so they don’t over- or under-procure ingredients, never mind packaging materials such as bottles and cans. Additionally, beer is a perishable product, so breweries must craft the volumes the market requires and deliver the beer fresh and on time. The implemented MES solution makes all this possible—as it can keep pace with order flow.

The MES pilot project was delivered in only nine months, with the subsequent rollout to nine breweries completed in just six more months.

Critically, the new system addressed the breweries’ pain points in terms of capturing, tracking and reporting accurate data—inputs are now mostly automated in a single SAP HANA database. The time to access data and generate daily and weekly reports has been vastly reduced since there’s no more manual handling of data in spreadsheets or systems unique to each facility.

The MES solution was also enhanced with functionality that allows operators to search by batch and visualize end-to-end material flow, so batch information is now in a single system. What’s more, production declarations to and from single or multiple sources are easily accessible from the operators’ screens, so staff aren’t wasting time inputting vessel-by-vessel information. Operators can also now access a standard dashboard for the packaging equipment that displays KPIs based on the data coming from the automation layer of the system.

Creating an unplanned order in exceptional cases, sending it to ERP, then releasing the order to production was improved from about 20 minutes, under the old system, to just two minutes in the new SAP MII and PCo system. With a new feature in the system, some orders can even go from confirmation to production immediately, skipping the release phase entirely.

Most importantly, the new system set up the breweries to be flexible as their business needs change. The system also can be configured by local teams, without the need to involve an external supplier. Moreover, additional time-saving and user-experience functionality is slated for MII, including the ability to access the system from tablets and mobile devices.

Soon Asahi managers will be able to run the efficient production of an entire brewery using a smartphone, then go home and raise a mug to a job well done!
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