

Adding Data to the Mix Increases Productivity by 8%

Cleca's Recipe for Ready-Made Broth Tweaked by i-BELT to Improve Efficiency

Cleca, the San Martino-based company known for its sweets mix and savory dishes, chose OMRON and its new IoT data analysis service to optimize the efficiency of its ready-made broth line, which was considered insufficient to meet current demand. The upgrade, performed without installing new machinery, has enabled the Mantuan brand to take over 800,000 cartons off its line per month.

Cleca is a company known to the large-scale retail trade, both within Italy and internationally, for its wide range of food products—including sweets mix and savory dishes, seasonings and bouillon cubes—distributed under various brands and united by the demand for high certification standards.

In recent years, the company's business has adapted to new market trends and, in particular, to the high demand for ready-made products, which have become incredibly popular all over the world, especially in large cities, because of their convenience. The focus was mainly on ready-to-use broth, a product with double-digit growth factors that prompted the Mantuan company to review its technological infrastructure.

Assisting Cleca on its quest for technological modernization was the OMRON team and, in particular, the task force that for several years has been overseeing i-BELT, a service that uses the principles of the Internet of Things (IoT) and data analysis to improve the efficiency of automated systems.



Swapping Investment in Machinery for Data Analysis

Cleca's objective for revamping its ready-to-use broth line was to achieve an increase of at least 3–4 percentage points compared to the first line launched in 2018, which was considered insufficient to meet growing market demand. In the initial phase, two options were considered: either overhaul the entire line by investing in new machinery or optimize the performance of the existing system through targeted improvements.

"Thanks to OMRON's assurances, we went for the second option straight away, and not just because of the cost," explains Michele Franceschini, Chief Information Officer and Bakery General Manager at Cleca. "Right from the outset, we were aware we were losing efficiency due to the complexity of the line, which has six substations and a whole host of components from various brands, all of which need to be able to communicate with each other. We therefore called on OMRON to determine which parts of the line were being underutilized or misused in order to boost efficiency."

"In response to Cleca's request, we evaluated every aspect of the line as if it were a chain made up of several links," explains Paolo Cavallanti, i-BELT Project Manager at OMRON. "We have a good understanding when it comes to the processes of the various machines and substations, but the only way to truly pinpoint the weak link in the chain is to analyze its strength and performance. However, while this step is key, it's still not enough to go ahead and make adjustments to the line's operation. The other factor to consider is how the individual elements are interconnected. Any corrective action could in fact negatively impact the outcome or even the operation of the line itself. This led us to see the process not so much as a linear path from

input A to output B, but as a result of a complex network of several inputs and outputs, all of which determine the resilience of the line."

From Data to Manufacturing: How i-BELT Revolutionized Efficiency

The Cleca line is the first of its kind in Europe to use i-BELT, the OMRON service that leverages IoT solutions to gather, view and analyze data on site in order to optimize the manufacturing process. This represents a paradigm shift, which, combined with OMRON automation, serves to make projects scalable, replicable and above all consistent.

The engineers focused on the various stages of the complex line, which consists of six substations—pasteurization, filling, capping, X-ray checks, packaging and palletization—and is equipped with multiple automation components on the Sysmac platform, including NX1 controller machines and OMRON 1S Series servo motors.

The work plan specifically offered the possibility of analyzing the performance of each individual station in order to determine which one was negatively impacting the overall efficiency of production. The decision was therefore made to install continuous monitoring tools—in this case, a series of smart sensors based on protocols native to the IoT world—to analyze the system 24 hours a day, collect data from each individual station and study it in real time using the MQTT protocol.

Analysis of the data revealed one key issue in particular: a major bottleneck at the second station — the filling machine. Targeted improvements were therefore made at task level, without affecting subsequent stations.





“The challenge with implementing these types of measures is to avoid causing jams or creating choke points at stations downstream,” explains Andrea Stefani, OMRON Automation Product Engineer. “When there are so many processing stages and machines from different suppliers, as in the case of Cleca’s ready-to-use broth line, there’s a tendency to overlook the bigger picture and examine each individual process rather than the line as a whole. However, the i-BELT philosophy is about having a comprehensive overview and holistic approach to managing the line, in the same way as a conductor might lead an orchestra.”

Results beyond Expectations

The analysis conducted by OMRON in accordance with the i-BELT framework enabled staff at Cleca to gradually improve the filling machine’s performance, eventually achieving an 8% increase in productivity. As a result, the San Martino-based company is now able to take around 2 cartons of ready-made broth off the line every second, totaling more than 800,000 each month.

“The involvement of OMRON and the team working on i-BELT was crucial to establishing communication between the system’s existing components and all of the devices used to collect data,” says Michele Franceschini. “By using this approach, we’ve managed to make our line incredibly granular, dividing it into separate blocks to analyze them individually and correlate them with subsequent blocks. We could almost say the dynamics of a line like ours aren’t too dissimilar to those that govern a queue of traffic: When traffic stops and starts unexpectedly rather than flowing steadily, congestion occurs, which cascades down and slows the process downstream.”

“OMRON was particularly motivated by the prospect of an entirely new challenge, for the European market at least,” concludes Paolo Cavallanti. “This is the first time we’ve seen a shift toward what we like to call tomorrow’s automation. For us, automation in the future will encourage more and more companies to add value to the intangible part of a project, i.e. the data, in order to achieve the more tangible part: the outcome.”



About Cleca

Cleca is a leader within the food industry thanks to the quality of its product range, which has always been the key to its success, as well as its mix of innovative products and old favorites, such as the S.Martino pudding. Back in the 1930s, the founder began working in a small store where he helped to prepare breads and desserts. It was there that he discovered his talent and passion for cooking, which eventually led him to found Cleca. Today, with its focus on training, research, professional development, and its integrated quality and control system, Cleca continues to bring creativity to Italian homes, transforming even the most innovative ideas into delicious dishes that are easy to make. For more information, visit www.cleca.com.

About OMRON Corporation

OMRON Corporation is one of the world's leading organizations in the field of automation. Its work is based on core Sensing & Control + Think technology. OMRON operates in various sectors, including industrial automation, electronic components, systems for social infrastructures and solutions for healthcare and the environment. Established in 1933, OMRON has around 30,000 employees worldwide, offering products and services in approximately 120 different countries and regions. In the field of industrial automation, OMRON supports innovation within the manufacturing sector by proposing advanced automation products and technologies, as well as through widespread customer support, with the aim of contributing toward societal improvement. For more information, visit the OMRON website at industrial.omron.eu.