“The solution we chose delivered consistent value-added benefits, especially thanks to the ability to differentiate. It has enabled us to fully monitor the entire manufacturing process, with data available at our enterprise system. As a result, despite our complex range of products, real operating data enabled us to maintain our competitive advantage.”

Marco Carlon, Systems Engineer, Elledi

Wonderware, a valuable choice in a Biscuit and Bread Plant’s Traceability System
by Wonderware Italy

Goals:
• Increase competitive advantage by improving process quality and reliability.

Challenges:
• Increased complexity of production lines;
• Compliance with product traceability regulations;
• Reduce operator interactions.

Wonderware Solution:
• ActiveFactory software;
• InTouch HMI;
• Wonderware Equipment Operations Module;
• Wonderware System Platform.

Results:
• Competitive advantage thanks to the availability of complete information supporting decision making processes at all enterprise levels;
• Reduce production costs (reduce operators working on production lines);
• Higher product quality (reduce operator interactions and improve process hygiene);
• Full product genealogy;
• Data availability to optimize maintenance scheduling.
Galliera Veneta (PD), Italy – Elledi was founded in Galliera Veneta, a small municipality of 6,800 people in the province of Padua in 1968. Its wafer biscuits immediately found success thanks to the company’s high standards of manufacturing and ingredient selection. New lines for the production of lady finger biscuits and shortbreads were added in 1988, supplementing the original plant. A new plant was opened in 1995, alongside the historical headquarters, to produce a whole new range of pastry delicacies, that includes tarts, tartlets, doughnuts and soft cakes.

Elledi currently manufactures its products - nine wafer biscuits production lines - in 13 plants, covering an area of 25,000 m². The company employs more than 130 people who produce an average daily output of around 800 tons of product. Elledi has remained competitive by keeping an assortment of products available in various sizes, placing special emphasis on packaging that ensures longer product preservation. To keep pace with the increasingly demanding market, Elledi focused on improving the general automation of its production processes by carefully choosing solutions to adopt and working with technological partners.

Automatize to Optimize

Elledi decided to build a new Wafer Cream plant, alongside an existing facility producing batter. The increased complexity of the production lines required the deployment of consistent and repeatable processes that provide quick and easy control over the lines. Product traceability was also a very important requirement and Elledi required a complete monitoring of the whole production process, in order to track information about the products, including its history and genealogy. To solve these requirements, Elledi chose a Wonderware software solution. Wonderware Italy supported Autoware, the first Wonderware ArchestrA-certified system integrator in Italy, to create the solution that would satisfy the monitoring and traceability requirements of the new plant.

The installed solution consists of the Wonderware System Platform, InTouch HMI (Human Machine Interface), Wonderware Historian, ActiveFactory software and Wonderware Equipment Operations Module. The Wonderware System Platform is the heart of the solution. Its easy-to-use object-based features have enabled Elledi to reduce development time. Wonderware System Platform’s common-layer foundation enables different components of the manufacturing system to communicate. This includes the integration to Elledi’s business system and all the devices in the plant floor.

“Using the Equipment Operations Module enabled us to reduce our engineering and development times and it has given us excellent results. The object-oriented programming and the genealogy functions are incredibly effective!” said Eng. Federico Di Prima, Autoware. The ability to analyze field data, making them available to the highest enterprise levels, has been crucial for the creation of a really smart decision support system.

A Winning Approach

Wonderware InTouch HMI software provides monitoring of all manufacturing information and control of the plant floor. Everything is constantly monitored by operators so that problems are easily detected. ActiveFactory enables Elledi’s plant personnel to analyze and report on historical information. At any moment it is possible to view production trends and this enables operators to proactively intervene in case of alarms. On the other hand, ActiveFactory web portal software enables visualization of reports and inventory stocks.

Every person in the plant is provided with most useful and relevant information. The high level of
control and access to information is a competitive advantage that enables faster decision making.

**From the Ingredients to the Recipe**

The production process involves different phases that includes ingredient storage, dosing, mixing and production. The production process starts when the ingredients are received and stored. In order to maintain high product quality, the ingredients must be mixed according to precise doses. Every work order is made of subrecipes - one for every machine or plant involved in the production process - contained in electronic records. The Wonderware Historian software records all variables involved in the process (weight, time and material selection) and creates a centralized recipe database. This enables all production managers to set machine set-points according to consistent and standardized metrics. The Wonderware solution developed by Autoware controls the mixing, refining and cream production, tank storage and dispatching to the respective lines. Data on ingredients used in every batch necessary for traceability are automatically collected by oil and powder dosing systems. The Wonderware software solution supervises the manufacturing at the wafer batter plant. Recipe storage and recall for batch coordination is provided by the Wonderware Historian software. The supervision and control system of the manufacturing facility directly communicates with the MES system, exchanging information on food production lines at every given moment. This enables the MES system to monitor the traceability of semifinished products, up to the manufacturing processes.

**Traceability Means Quality**

The capability to control the whole production process in real time offers many advantages. Every deviation from pre-set values is immediately detected, enabling timely actions at the exact point where the alarm occurred. The production-line monitoring enables total food traceability, helping to facilitate regulation compliance. All production phases and metrics are stored, providing full product genealogy. This includes the identification of single components, with the ability to trace back suppliers, batches and manufacturing date. In today’s competitive and evolving market, even maintenance management has strategic relevance in the success of every business. All shutdowns needs to be planned in advance in order to minimize the impact on productivity. The Wonderware System Platform enables constant reconciliation of production values with stored and field data, preventing sudden interruptions in production and any situation that could negatively affect product quality.

“*The solution we chose delivered consistent value-added benefits, especially thanks to the ability to differentiate. It has enabled us to fully monitor the entire manufacturing process, with data available at our enterprise system. As a result, despite our complex range of products, real operating data enabled us to maintain our competitive advantage,“* commented Marco Carlon, Elledi System Engineer. Today quality is not only measured on finished products. It is measured on a company’s ability to choose solutions and technology partners able to create value.