

Terreal is increasing its production capacity thanks to GE Digital.

Customer presentation

Terreal has been an expert in terracotta building materials for more than 150 years and is a key player in the creation of innovative solutions for building envelopes through four activities: roofing, structure, cladding, and decoration.

A world leader in the production of flat and roll tiles, the company has 2,700 employees at 23 industrial sites around the world.

Terreal assists its customers – project owners, advisors, contractors, distributors, and installers – in designing beautiful projects that are more accessible and functional, and respect human health and the environment.





Challenge

The first challenge facing Terreal is to master the raw material. This is because each site works with its own specific type of terracotta, so the parameter settings for each production plant are different. It is then necessary to manage the different tile models (Terreal produces more than 60 models and 300 colors) to ensure best practice every time. As Jean Sébastien Besset, Director of the historic plant in Chagny, explains: "It is essential to master the industrial process to reproduce the necessary number of actions."

This makes it possible to remain competitive and "meet high production requirements, because this is an industry that produces 35 million tiles per year" at the Chagny site.

Previously, the operational capacity of the company had been primarily based on solutions developed internally, which required a great deal of time and manpower to maintain. The work involved was frequently carried out manually. Speaking about this, Hervé Husson, Automation and Industrial IT (A2i) Manager at Terreal, emphasizes how "previously, some Terreal

sites did have an MES that had been developed internally, but that nothing whatsoever was documented in this regard. The audit that we carried out beforehand allowed us to see that a lot of maintenance time was being used to correct recurring development bugs."

Terreal not only needed to manage the obsolescence of its machines and be able to track and monitor the lines and production equipment, but also to standardize the KPIs across all sites. The Industrial Performance management team wanted therefore to implement a reliable performance measurement system, which would allow them to monitor production status in real time, detect any deviations, and make the necessary adjustments. Consequently, the management team set its sights on installing an MES (Manufacturing Executing System) solution.

Terreal opted for GE's solution, which covers the three modules required: acquisition of an Overall Equipment Effectiveness (OEE) index for each area and line, improvement in the quality of production, and optimization of energy consumption.



↑ *Hervé Husson, Automation and Industrial IT (A2i) Manager.*



Solution implemented

GE's software solution has enabled Terreal to acquire reliable technology that facilitates automatic entry and formatting of data such as downtime, waste, or quality controls. GE's "Core Model" approach was critical to the successful implementation of the multi-site solution. The first step was to define the "Core Model" by means of a functional analysis based on the Functional Design Specification (FDS) and Detailed Design Specification (DDS) documents. The "Core Model" was then configured and developed, taking into account the specific needs of each site with a view to multi-site deployment.

At the same time, all Terreal's teams were given on-the-job training. Thanks to architecture that was easy to deploy, the first step went smoothly and the machines were connected in ideal conditions.

GE's solution is based on three modules. GE's Historian module, which allows process data

to be archived, has enabled Terreal to simplify analysis of the wide range of data that comes from the machines spread across the different plants. Indeed, Hervé Husson points out that "GE Historian is the heart of the MES and has already been implemented on 16 lines across 10 sites in France. This solution allows more accurate data to be collected in real time for each machine and product."

As for GE Workflow, this has helped to organize flows full of information, based on objective data, that Terreal's teams have been able to follow to understand the situation better and respond by following specific and reproducible protocols every day.

Finally, thanks to its ability to model processes, the GE Plant Applications solution has allowed all operators at Terreal's various sites to reduce the number of defective products and digitize all production processes.



↑ GE's software solution.

Result

GE's software solution was selected in November 2012. Initiated in April 2013, the design and delivery of the pilot project was completed in less than three months. Multi-site deployment was able to start very quickly.

Thanks to this solution, operators were able to implement a process for analyzing production. Every morning in fact, a report is sent to the various production and maintenance managers. "The MES that was installed thanks to GE's solutions allows Terreal to target mechanical losses more effectively and trace back any defects identified," emphasizes Hervé Husson.

Finally, Terreal uses the reports, which are supplied as standard by the GE solution and then adapted to each site to deepen the understanding of a day's production, over a longer period of time

to identify trends and areas for improvement. For example, the report on the five main defects that stopped the lines and the five main causes of saturation for each line has facilitated the identification of bottlenecks and the causes of shortages or saturation.

With this solution, Terreal has significantly reduced its operating costs, as well as improving the set-up time for its production lines and the quality of its products.

This has already resulted in a 15% increase in production efficiency and a 1% reduction in energy consumption (which represents the second largest expense). The initial investment therefore paid for itself after 14 months. But this is just the beginning, because no less than 94% of Terreal's output will be affected by this new application in time.



About GE

GE (NYSE: GE) is the world's Digital Industrial Company, transforming industry with software-defined machines and solutions that are connected, responsive and predictive. GE is organized around a global exchange of knowledge, the "GE Store," through which each business shares and accesses the same technology, markets, structure and intellect. Each invention further fuels innovation and application across our industrial sectors. With people, services, technology and scale, GE delivers better outcomes for customers by speaking the language of industry. www.ge.com.

Contact information

Americas: 1-855-YOUR1GE (1-855-968-7143)

gedigital@ge.com

www.ge.com/digital

©2015 General Electric. All rights reserved. *Trademark of General Electric. All other brands or names are property of their respective holders. Specifications are subject to change without notice.

