



Gerdau Saves Millions Annually with GE Digital



A long history of planning for the future

For more than a century, Gerdau has enjoyed a reputation as a process innovator in the steel industry. In fact, this spirit of innovation has been hard-wired into the company culture since it was founded in 1901 by João Gerdau and his son, Hugo. Through careful process innovation, strategic acquisitions, and an unswerving dedication to “excellence through simplicity with a focus on results,” what began as a nail factory in Porto Alegre, Brazil, is now the largest producer of long steel in the Americas, with an annual capacity of more than 25 million metric tons.

From the nails, wire mesh, and framing materials used in agriculture and residential construction to the building blocks of civil infrastructure and the automotive industry, Gerdau’s steel provides the backbone for many of the structures and products people around the world use every day. But it is Gerdau’s flexibility as a steel manufacturer—and their willingness to embrace better, more efficient processes—that has allowed them to maintain their position as an industry leader for so long.

4.5 million in annual savings with a complete ROI in only **8 months.**

Minor failures, major costs

Gerdau’s operations are complex. With a workforce of more than 35,000 employees across 13 countries, keeping a tight rein on equipment costs and maintenance is critical to the company’s overall profitability. In Brazil alone, Gerdau produces steel across 11 plants and spends more than one billion reais per year (approximately \$305 million) on maintenance. When an asset fails, the company loses an average of \$12 thousand per hour in downtime.

In 2014, the company decided to turn a critical eye toward simplifying processes and embracing a more agile operating model. While Gerdau is no stranger to change, the company needed more than incremental change—they needed to transform their business. Gerdau’s goal was to reduce overall maintenance costs by 20%, no small task across an organization this large and complex. This challenge also came with the additional goal of shifting maintenance and operations from a preventive model to a more proactive approach.

The transformation Gerdau needed would take them into uncharted territory for many in the steel industry: the digital realm of the Industrial Internet of Things (IIoT). Even for a company with a century-long reputation for innovation, this was a lot to undertake as a purely internal initiative. So Gerdau decided to partner with GE Digital to help execute a robust digital industrial transformation across its enterprise.



Gerda Accelerates Digital Transformation with GE Digital:

- Savings of more than 130 hours in unplanned downtime
- Raw material inventory reduced from 3 days to 7 minutes
- 93 hours per month saved in scrap classification
- Truck driver productivity gains of more than 100% with a resulting 5% drop in freight costs
- An initial investment of \$1.5 million yields annual savings of \$4.5 million



A holistic approach to transformation

GE Digital's Customer Success Services helped ensure a successful transition by providing a complete, end-to-end pilot program that included GE Digital's Adoption Services, Managed Services, and Support & Maintenance teams. With these world-class services aligned, Gerdau could quickly and effectively deploy IIoT solutions—including GE Digital's SmartSignal and GE Digital's Historian, part of the Asset Performance Management (APM) suite—across a predetermined set of 47 mission-critical assets.

Building a path to success

Gerdau's transformation journey began with GE Digital's Customer Success Managers, who worked very closely with Gerdau early in the process to align solutions and capabilities with the company's specific needs. After uncovering the business outcomes that mattered most to Gerdau, GE Digital's Customer Success Managers helped establish an actionable roadmap that leveraged Gerdau's industrial assets and optimized multi-site operations to meet these goals—from the initial phases to completion.

Avoiding data overload

Because so much new information is gathered during transformation, the ability to track and monitor the right information—the data that can affect meaningful change—becomes increasingly important. For this, Gerdau turned to GE Digital's Managed Services. With oversight into more than \$10 billion in industrial assets worldwide, GE Digital's Managed Services team remotely monitored Gerdau's asset health and operations for even the slightest abnormalities. This ultimately reduced unplanned downtime and maintenance costs by employing a more proactive maintenance model driven by data and analytics, rather than waiting for key assets to fail before taking action.



Gerdau utilized GE Digital's solutions and services to create a holistic approach transformation:

- **Customer Success Services**
 - Adoption Services
 - Support and Maintenance
 - Managed Services
- **Asset Performance Management (APM)**
 - SmartSignal
 - Historian

World-class support and maintenance

With downtime costing up to \$12 thousand per hour, ensuring continuity of operations was an important element in the transformation process. While Gerdau's transformation was disruptive by nature, GE Digital's Support & Maintenance minimized operational impact by identifying and fixing system bugs before they could affect Gerdau's operational processes. The team also regularly updated system software to ensure that all components stay up-to-date, secure, and on the cutting-edge.

Powerful products drive meaningful change

Two GE Digital technologies also played a pivotal role in Gerdau's successful transformation: Historian and SmartSignal. Historian was deployed to capture and aggregate the time-series data needed to compile a complete picture of every asset in the pilot program. Once this data was collected, SmartSignal analyzed patterns, identified potential failures, and issued alerts to identify problems before they could have a negative impact on equipment uptime, reliability, and efficiency.

Together, Historian and SmartSignal helped reduce maintenance costs and avoid potential damage to critical machinery while driving better-informed decisions about maintenance needs across the entire system. This effectively laid the foundation for Gerdau to switch from their traditional predictive maintenance methods to a more proactive approach driven by actual machine data and next-generation analytics.

Early results lead to a larger initiative

Before partnering with GE Digital, Gerdau proposed an internal plan with an estimated return on investment of 18 months. With GE Digital, a complete ROI was realized in 8 months—less than half the time—saving \$4.5 million annually. The Managed Services team also identified two major abnormalities in the first six months, saving Gerdau more than 130 hours in unplanned downtime. Additional savings included reducing raw material inventory from 3 days to 7 minutes and decreasing scrap classification by 93 hours per month. Freight costs were also reduced by 5% due to truck driver productivity gains of more than 100%.

Gerdau's digital industrial transformation was a huge success. The effort was so successful, in fact, that the company has agreed to expand the original pilot program of 47 assets to more than 1,000 assets and 30,000 sensors by the end of 2017.





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.

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