Recycle steel with Gerdau.

Sustainable transformation of an intelligent enterprise.

Whitepaper

GeneXus™

With more than 100 years in the steel market, the Brazilian company Gerdau is the leading producer of long steels in Latin America and North America, and one of the largest suppliers of specialty long steels. It has 45,000 employees and industrial operations in 14 countries across Latin America, North America, Europe, and Asia.

Gerdau is the largest recycling company in Latin America, annually transforming millions of tons of steel scrap worldwide.

From metal transformation to digital transformation

The transformation process begins with the scrap metal that is selected and melted. Then comes the stage of continuous ingot molding –the process by which the melted metal solidifies into plates– for subsequent rolling and generation of steel bars, wires, meshes and so on. In the recycling process, several collateral actions are involved beyond the recycling itself: the selection of the waste is fundamental because it allows the final product to be reinserted back into the market as quality steel.

Some years ago, when Gerdau focused on new technologies that could assist in optimizing these processes even more in an intelligent manner, it explored the solutions available in the market and found GeneXus for SAP Systems.

Together with Simplifica Software, a GeneXus Gold Solution Partner, it developed two solutions that took a 180-degree turn in the way the different critical aspects of the steel company are managed.

The first solution was made from scratch and proved to be an important step towards digital transformation. It is the consignment management system that is currently operating in Argentina. The se-

cond solution is an ecommerce platform called e-Gerdau which has been customized for the steel industry.

Consignment management system

This system controls how consignments are handled between consignee and consignor, i.e. the transfer of goods, the delivery of iron goods to their consignees and payments for their sale.

It consists of two parts:

1. The frontend for consignees, in which they can place all orders, pay for the merchandise they have, analyze the financial aspects, the products that have been delivered to them, and the next invoices that they should pay based on the sales that have been made.

2. The backend, from where Gerdau controls the merchandise delivered to each consignee, and payments and accounting closings are made once the sale of that merchandise that was delivered on consignment is declared.

This system was an extension of the **SAP ERP** itself supported with Ignia Framework for the interface, with the flexibility and features provided by GeneXus for SAP Systems that make it possible to also use the look&feel of SAP FIORI.

Operation of a complete and integrated ecommerce system: e-Gerdau

The second system that is already operational in Uruguay and is currently being implemented in Argentina is called e-Gerdau, an e-commerce platform for customers to order steel and other various products.

This e-commerce system replaced another system that was already developed with automation and new functionalities to integrate and encompass the processes of steel purchases and other products marketed.

This platform in which Gerdau customers make steel purchases goes beyond the traditional e-commerce system. Like most of these solutions, it processes the online order request and the account statement query, but the additional advantage is that each customer has a finance module where they can see the outstanding invoices, orders and their status; in short, it provides all the information in real time.

The operation of e-Gerdau can be divided into three major steps:

- The first step is to select a product from the family of products.

- The second step is to confirm the purchased quantity, like in any shopping cart, with the only difference that this purchase involves tons of steel. At this stage, the platform also allows defining the payment method for that purchase order. Then, this purchase order will be registered using the GeneXus ERP Connector SAP as a SAP purchase order.

- The third and final step is to define the delivery address for that order. Many times the delivery address is a work site and not the offices of the customer who is making the order; also, for each customer there can be different addresses. Everything can be parameterized to make it as flexible as possible, with a simple and user-friendly interface.

Integration of technology and Artificial Intelligence as a recipe for success in optimizing functionalities

The architecture of the consignment management system and e-Gerdau is characterized by the integration of different technology solutions. **Interaction with SAP ERP has been achieved using the ERP Connector module with** [GeneXus for SAP Systems.](#) In addition, Gerdau has an electronic invoicing module with another Uruguayan company, and has interacted with Amazon's cloud using the platform as a service. These systems were developed with **GeneXus** using **Java** and **mySQL.**

As for projects that will be implemented soon, Gerdau is currently developing – co-innovating with GeneXus – a project to bring Artificial Intelligence to scrap metal analysis.
The purchase of scrap for Gerdau is an essential input. Almost 80% of the acquisition is composed of steel.

It's also important to note that the price of the scrap is based on its composition, and that this evaluation is currently done by operators. Once a truck with scrap arrives and unloads it, the operator classifies its content according to a subjective criteria based on personal experience. For inserting the information to the company's system, operators take a picture, and insert a purchase order with the defined contents and the assessed degree of impurity.

In a market that moves more than US$277 billion annually, according to data from IHS Markit's Global Trade Atlas, the purchase and sale of scrap metal still depends on a highly subjective classification system. Very soon, thanks to GeneXus and SAP Leonardo services for image recognition, this will be made automatically. This will solve one of the main problems faced by buyers using the current method: qualitative classification of scrap based on visual evaluations by inspectors; lack of standardization in scrap yards; large variety of pollutants; unknown chemical composition of scrap metal; unpredictability of the market and accumulation of residual elements (copper, zinc, tin and soil).
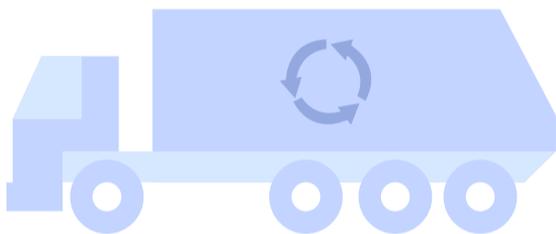
«The challenges that we developers face to move forward and make simpler solutions are solved with GeneXus because we don't need to know how to develop in all the technologies available; for example, I don't know all those technologies and with GeneXus we were able to successfully create these tools».

Gabriel Campbell. Gerdau.

This article is based on the presentation given by our client at the GeneXus GX28 Meeting.
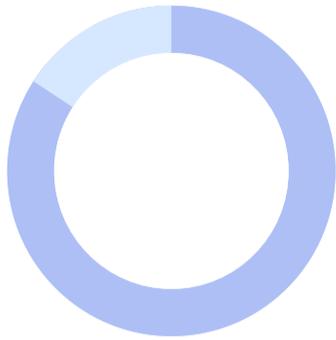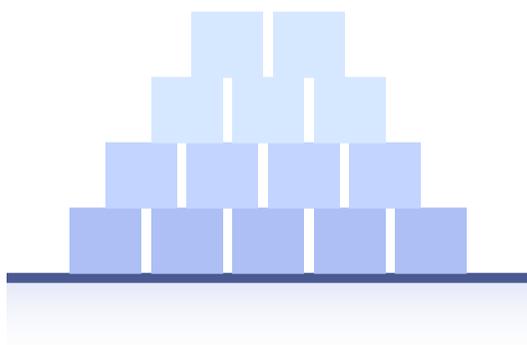
Almost 80%

of scrap is recyclable steel.

14 millon tons

Gerdau, in Brazil alone, purchases about 14 million tons a year. The value of the material depends on the type, size and density of the metal.

Largest recycling company in LATAM

Gerdau is the largest recycling company in Latin America, annually transforming millions of tons of steel scrap worldwide.

110 years

Gerdau has been operating in the steel market for more than 110 years.

To learn more about these technologies and their possibilities, please **contact our SAP Systems specialist.**

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