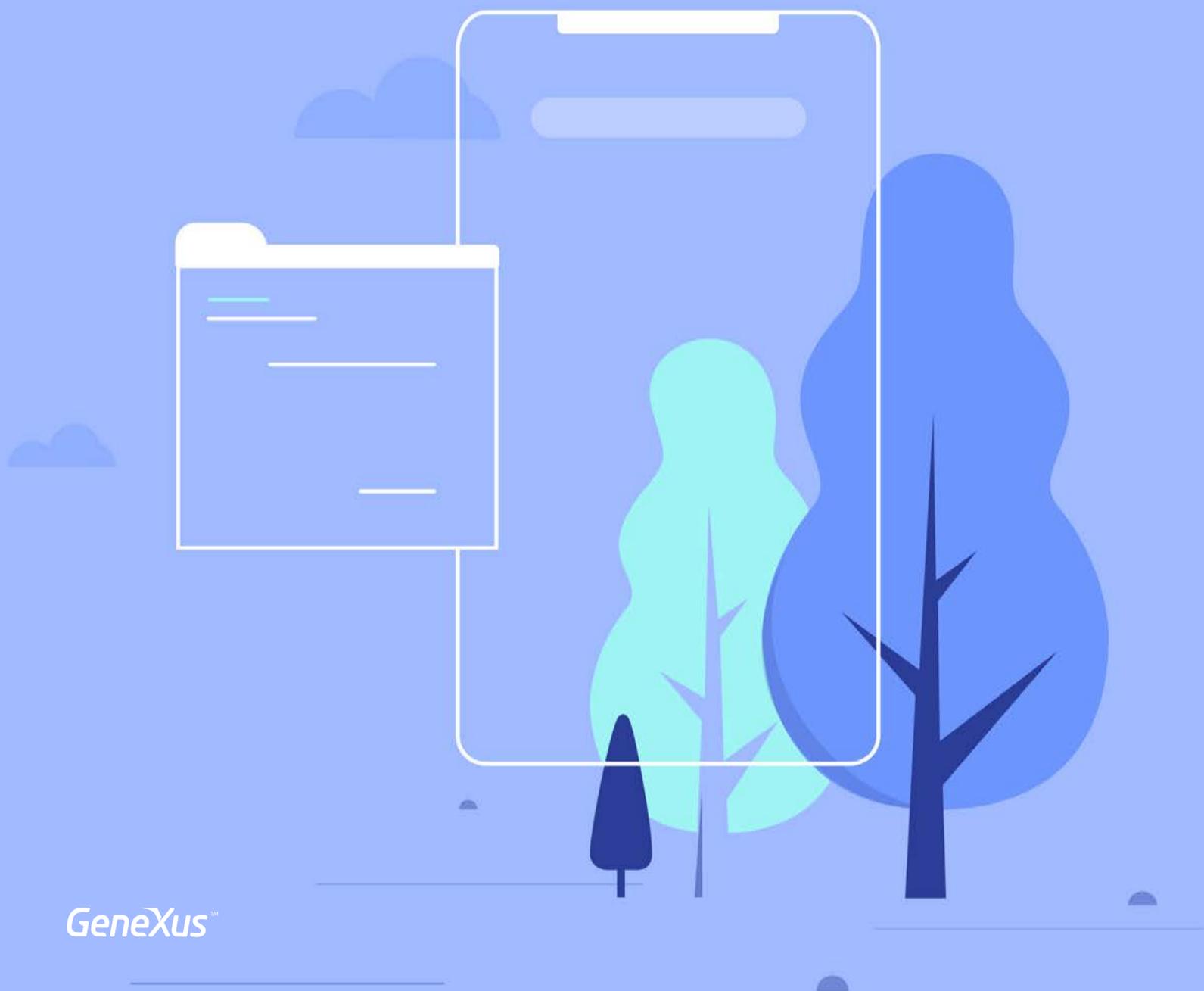


Software applied to the forestry industry value chain.

MONTES DEL PLATA

Whitepaper



GeneXus™



Montes del Plata is Uruguay's largest forestry exporter. Its core business is the production of cellulose from *Eucalyptus* pulp, and through technological implementations it has positioned itself as an industry company 4.0.

Montes del Plata was established in 2009 as a result of the merger of operations in Uruguay of the Swedish-Finnish company Stora Enso and the Chilean company Arauco. It opened its cellulose plant in 2014, which represented an increase in Uruguay's Gross Domestic Product of 2%.

The company has production activities in 13 of the country's 19 provinces and provides more than 6,500 jobs to the local economy. Its production chain begins in a research and development center located in Río Negro -a nursery to produce up to 20,000,000 seedlings every year- and includes forest planning, planting, forestry, road infrastructure, harvesting, loading, and transport activities. Transportation from the forests to the plant is carried out both by land and by river, through a fleet of 4 barges that connect the port terminal of M´Bopicuá in Río Negro to the port of Punta Pereira in Colonia.

Digitally transforming the forestry value chain: need and challenge.

Much is being said about the forest industry due to its great socioeconomic impact, but what do we know about the forestry value chain?

This institutional [video](#) by Montes del Plata shows the entire process, from the production of *Eucalyptus* seedlings to the packaging of paper or cellulose bales for export.

In addition to its great socioeconomic impact, the forestry value chain involves highly complex logistics and several challenges at the IT level.

Connectivity is one of the first IT challenges faced by the forest industry, because a large part of the productive chain takes place in large extensions of land distributed throughout the country, frequently in fields where there are connectivity problems. In this scenario, having technologies that can work in offline mode is essential. **Another challenge, not only for the forestry sector but also for other large industries, is the capacity to adapt and integrate technologies, as well as the possibility to scale up.**

Given the figures briefly shown in the video and the company's large size, the high costs involved are made clear. **This, together with the long development and maintenance times** for business systems, made **digital transformation an urgent need.**

Martínez explains that the development processes implemented were long and complex, which reduced their ability to innovate and obtain minimum viable products in short timeframes, or to dynami-

Sebastián Martínez, head of IT at Montes del Plata, says the following about the evaluation of various technologies to implement this change:

“Digital transformation varies greatly depending on each organization, including their level of maturity or their need to transform.”

cally perform tests or changes. The need was clear and involved overcoming those high costs and development times with the traditional management systems that were available.



Imagen tomada de: montesdelplata.com.uy

Once the decision was made to digitally transform and take advantage of technology to streamline the production chain, Montes del Plata called on different software vendors to develop the web project and mobile application, in order to assess them and compare the following:

- Delivery time of an MVP (minimum viable product)
- Development time of the complete solution
- Costs involved in the process
- Platform used by each vendor
- Ability to scale the solution to meet the need for future integrations, for example, with SAP.

The following platforms were proposed: .NET, Xamarin, Android, MS Dynamic, GeneXus and SAP.

After comparing the different vendors, Montes del Plata selected GeneXus as development platform because it

achieved a competitive advantage of 50 percent lower costs and development times. Also, it selected Dvelop -GeneXus Gold Solution Partner- as supplier of the web project and mobile application.

Montes del Plata + agile methodology + Dvelop + GeneXus = Smart and sustainable company

The team at Montes del Plata was particularly surprised by the speed and quality of the deliverables created during the first year of work with GeneXus, where approximately 10 applications (mobile and web) were developed to be used in various areas of the company.

Since November 2017 with a team of 2 full-time programmers, and part-time QA and ScrumMaster / ProductOwner-Proxy, 5,000 hours of work were executed, 8 systems were implemented and 2 more are currently under implementation.



In one year, DVlop developed 10 systems for Montes del Plata:

1. Qualitas: System for quality control in plantations during the first year.

Qualitas is a mobile (Android and iOS) system that allows contractors, supervisors and auditors to locate the different fields where they must make measurements. It has the ability to work without Internet connection, locate the points to measure on a map, take pictures on site and attach them to the measurement data, among others.

It also has a web backoffice where users can check their measurements and evaluate different metrics, as well as plan the next measurements to be made.

2. SIG: Mobile system to manage events, non-conformities and communications.

SIG Mobile is also an **Android and iOS application** that connects with Montes del Plata Sharepoint. SIG is the acronym for Integrated Management System in Spanish. It is also capable of working offline and attaching images.

In addition, it allows all Montes del Plata employees to report and manage any event from anywhere.

3. Tree nurseries: System for personnel task management and production incentive calculation.

This **web-based** system is intended for the management of plant nurseries, more

specifically for reporting work hours and tasks.

It replaced management made in Excel, simplifying the input and analysis of data.

4. PEP: Critical vendor evaluation system.

This system helps in managing the vendor evaluation process by implementing a well-established business process based on GXFlow, the business process management tool provided by GeneXus.

It is used in all the areas of Montes del Plata, replacing the existing process based on Excel and clarifying the tasks that each area must perform to evaluate all their critical vendors.

It clearly displays tasks in an inbox and notifies users by email to avoid missing deadlines. It also generates and sends a report to the vendor, thus providing them with faster feedback.

5. SYSO Monitoring: Monitoring of safety plans and training for forestry contractors.

This web-based system assists in occupational safety and health planning for contractors.

Its objective is to allow contractors to schedule the workshops and activities they will attend throughout the year and keep records of recent activities.

Also, Montes del Plata can access this schedule and identify opportunities for improvement.

6. Lab: System for managing special plant laboratory analyses.

It allows any plant sector, through a simple web interface, to request specific and non-routine analyses at any stage of the industrial process. The results of these analyses can be viewed in the same system.

7. Tree nursery R+D: System for identification and measurement of seedling growth.

This mobile application can work offline and allows managing the entire process of research and development of new combinations of genetic materials.

It offers the possibility of printing labels (in a printer connected via Bluetooth) to label the different seedlings, and scanning these labels to view information about them.

8. SPCI: System for the inspection and maintenance of fire prevention assets in the plant.

This web system featuring a mobile application allows planning and carrying out various exercises for the inspection, maintenance, and tests that must be performed on the fire prevention assets.

By completing a convenient and quick form, the operator carries out the inspection, and the mobile application determines whether the equipment is

in good condition or if it must be maintained to become operational again.

9. Production Harvest: Web system for obtaining production harvest data to be loaded in the forestry system.

10. Plant Maintenance, Harvest: Web system for obtaining data regarding maintenance of harvest equipment to be loaded in the SAP management system.

These Web systems aim to achieve the integration of 2 Montes del Plata information platforms: information obtained via Rest API and SAP.

As for Production Harvest, it is aimed at obtaining and processing production information from machines used during work shifts. The latter obtains and records in SAP the various maintenance tasks carried out on the work machinery (Forwarder and Harvester).

In this case, the power of GeneXus to easily integrate WebServices and the features of SAP connector to simplify access to information in SAP were used.

Objectives accomplished

At the platform level, GeneXus enabled DVelop to carry out an agile and incremental development through prototyping. This was in line with one of Montes del Plata's main objectives, which was to **improve the innovation process.**



GeneXus also stood out by providing multi-platform development, the generation of native applications and the ability to integrate with future developments at Montes del Plata, with a direct impact on the reduction of costs by hiring resources specialized in multiple tools and technologies.

On its way to digital transformation, just like any other company with Industry 4.0 standards, Montes del Plata benefited from DVelop and GeneXus; agility, and broadly achieved the following objectives:

- Work offline
- Substantially reduce delivery times
Lower development and maintenance costs
- Achieve a dynamic relationship between experimenting and prototyping to adapt to change and innovate in an agile way.

Here is the [presentation](#) made by Sebastián Martínez, head of IT at Montes del Plata, at the GX28 GeneXus Meeting: Digital Transformation Process in the Forestry Industry.



About 100 people from Río Negro and Soriano

work at the Montes del Plata tree nursery.



600 people

The planting of trees is planned exhaustively, about 600 people participate annually in forestry activities.



13 /19

The company has production activities in 13 of the country's 19 provinces and provides more than 6,500 jobs to the local economy.



Every 10 years

Every 10 years, in each forest the wood is harvested, loaded and transported to the industrial complex, which requires both expertise and precision.



The challenge

is to produce the amount of wood required by the plant to achieve full production.



50% lower

Montes del Plata selected GeneXus as development platform because it achieved a competitive advantage of 50 percent lower costs and development times.

Find out how GeneXus
can do the same for your company.

I want a free diagnosis today!

ralvarez@genexus.com

