

Expresso Mercúrio reengineers business process and develops logistics system using IBM Rational Software Development Platform.

Overview

■ **The Challenge**

Seeking to expand into new territories and process more transactions, Expresso Mercúrio was hampered by an aging software system unable to support a new business process, manage sales, coordinate fleets, and track itineraries.

■ **The Solution**

The company began using IBM Rational software to reengineer its business process and accelerate development of a Web-based logistics management system. Expresso Mercúrio also engaged Trace Sistemas for consulting and mentoring services.

■ **The Benefit**

Requirements, resources, tasks, assets and schedules are centrally accessed and managed, keeping development of core business systems on schedule.

Headquartered in Porto Alegre, Brazil, Expresso Mercúrio is a 60-year-old logistics and transportation company that serves all of Brazil, Argentina, Chile and Uruguay. With a fleet of more than 2,000 vehicles and 6,500 employees, Expresso Mercúrio is also responsible for delivering and picking up United Parcel Service (UPS) inbound and outbound shipments throughout the south and southeast regions of Brazil. The company completes more than four million deliveries each year, and its fleet travels the equivalent of four trips around the world each day.

Coordinating this massive effort on a daily basis while maintaining reliability, efficiency, and speed is a significant challenge. As Expresso Mercúrio planned expansion into new territories, and increased traffic through its current systems, it saw the difficulty of that challenge being compounded by the aging software system it had in place to process sales, coordinate its vehicles, and track progress each day.

The company began work on a new Logistics Management System (LMS), a Web-based, services-oriented system that would enable growth and innovation. LMS would also closely align the company's business goals with IT by supporting a newly reengineered business process.

LMS is not only one of the largest development efforts ever undertaken by Expresso Mercúrio, it is also central to the company's ability to compete. "LMS is going to be our main system; the company is completely dependent on this software and would simply stop without it. As a result, it must support more than 1,000 simultaneous users 24 hours a day, 7 days a week, with 99.999% reliability," says Fabiano Fração, project manager for LMS.

"The project includes four internal projects, and from 60 to 85 people on eight teams. We expect it to require approximately 230,000 man-hours to complete the entire project."

Choosing IBM Rational

To support the large-scale initiative and replace its existing logistics system, originally developed in Clipper, Expresso Mercúrio sought to apply open technologies, proven development methodologies, and advanced tools. Developed using Java™—J2EE™ and J2ME™ technology—the new LMS will integrate all Expresso Mercúrio business units.

The LMS master project comprises four sub-projects:

- Process reengineering
- System development (LMS)
- Integration (of LMS with the existing legacy system)
- Implementation

Fração explains, “In process re-engineering, we are standardizing the business processes of the whole company and the integration between different business areas. In system development, we are implementing existing and new business requirements to support the new process, and centralizing the system with a Web- and J2EE-based application. In the integration project, we are integrating the LMS with the legacy system, so that we can implement the process and the system in a ‘branch-by-branch’ strategy. Implementation will enable us to fully leverage both the LMS process and the companywide LMS application.”

The need to simultaneously manage software development projects and nondevelopment projects led Expresso Mercúrio to select the IBM Rational Software Development Platform as a foundation for the entire LMS initiative. “One of our main challenges was to find an effective way for all of our teams to manage projects, using a single tool. We did not want to use one tool for managing systems development projects and another for projects not in the IT area. We found that IBM Rational Portfolio Manager fulfilled this requirement, allowing us to manage development and nondevelopment projects,” says Fração.

He continues, “At the same time, we were not looking for just a project management solution. We also needed a complete software development toolset. In addition to Rational Portfolio Manager, we brought in IBM Rational solutions for requirements management, software configuration management, visual modeling, and testing. Our goal was to have one source for all of our needs, so that we could continue to grow our expertise and efficiency using the same toolset, project after project. That is what we did with the IBM Rational Software Development Platform.”

A helping hand

To help the LMS project team get up and running quickly, Expresso

Mercúrio contacted IBM Business Partner, Trace Sistemas, for assistance with the installation and configuration of IBM Rational solutions.

“Trace Sistemas consultants worked directly with our teams in a mentoring relationship on the toolset. They have good knowledge of IBM Rational solutions. We also were supported very well by our IBM contact here in Brazil. We think of Trace Sistemas as an important partner, as well as IBM, in helping us use the tools most effectively.”

Process reengineering

In the first phase of the overall LMS project, Expresso Mercúrio is re-engineering its business processes to improve efficiency and increase integration. This project serves as a crucial link to enable the company to align its business goals with the IT processes and systems that support it.

As part of this effort, Expresso Mercúrio is using IBM Rational Portfolio Manager to plan and manage the process re-engineering project and ensure the right people are working on the right tasks at the right time. “With Rational Portfolio Manager, we manage the schedule, tasks, and the timesheets for all projects. Everyone working on reengineering the process uses Rational Portfolio Manager to enter timesheets and track their time. As project manager, I use it as a central point to allocate and manage

resources, to manage time, and also to monitor and control risks. We manage risk from the master project, rather than at the level of individual subprojects,” says Fração.

Fração reports that Rational Portfolio Manager, as part of the IBM Rational Software Development Platform, is contributing to better alignment with business priorities, more accurate planning, and reduced development time. “All the key users and business stakeholders use the tools and have access to the information made available by Rational Portfolio Manager, IBM Rational ClearQuest®, IBM Rational ClearCase®, IBM Rational RequisitePro® and Rational test management software, so they know what to expect. I have an easy way to gather information and I spend less time getting information and planning. With Rational Portfolio Manager and the IBM Rational Software Development Platform, I know exactly how long it took to develop a program, which makes it easier to estimate ongoing efforts. That, in turn, helps us determine what we need to do to reduce development time and attend to business.”

Managing requirements and activities

All requirements for the LMS project are defined and managed using IBM Rational RequisitePro. This provides everyone on the development team with an up-to-date and accurate view of requirements throughout the project.

In addition, Fração also uses Rational RequisitePro to manage project scope, complementing the scope management capabilities of Rational Portfolio Manager.

“We start with a vision document, and from that point on, all of our requirements are managed in Rational RequisitePro. We also decided to bring our specifications detailing how the software works together with our requirements. So requirements, use cases, scope documents, software design specifications, and any other specifications defined by our analysts, are all managed using Rational RequisitePro,” says Fração.

Once a use case requirement is defined, it is broken down into development activities that are then tracked in IBM Rational ClearQuest. Espresso Mercúrio uses Rational ClearQuest not only for defect and change tracking, but also to automate and enforce its development process. Rational ClearQuest views and reports provide visibility into LMS projects and help the team gain the insight needed to make informed decisions.

“We use Rational ClearQuest extensively throughout development. We have implemented our development process with Rational ClearQuest. Each of our use cases has a state

associated with it, and with Rational ClearQuest, I have a detailed view of all the use cases, what state they are in, and the percentage complete,” notes Fração. “The integration between Rational RequisitePro and Rational ClearQuest is important, because we can trace use cases through development until they are completed. That is a big advantage for us.”

Espresso Mercúrio also relies on Rational ClearQuest to track software quality assurance information, including manual tests conducted using IBM Rational Manual Tester. The information is reviewed in a presentation periodically—every two weeks—by the entire development team.

Modeling the software architecture and promoting reuse

On the LMS project, Espresso Mercúrio used IBM Rational Software Architect to design and develop a complete, new software architecture using the Unified Modeling Language (UML) and incorporating freely available frameworks. The LMS application is based on a service oriented architecture (SOA) to promote reusability as the company’s business needs evolve. “We are building reusable components and services. We have adopted this concept to increase reuse with less work, and Rational Software Architect and Eclipse are helping us in this effort,” says Fração.

Increased control

The Espresso Mercúrio team follows many of the best practices and principles of the IBM Rational Unified Process methodology, tailored to their specific needs. For example, the team follows an iterative development process, but has added a prototyping phase to facilitate system scope management. Following these best practices by employing IBM Rational tools has improved the team's ability to control the development process.

One key to the increased control is Rational ClearCase, which Espresso Mercúrio uses to manage software artifacts. "In systems development, we control deliverables and different versions of artifacts using Rational ClearCase," Fração reports. "We use it to control the merging of development streams. We manage more than 10,000 files in Rational ClearCase. We could not do that with just Microsoft® Windows® Explorer or a simple CVS implementation. We even track and manage our non-development related documents, and our process reengineering project, using Rational ClearCase."

Through the integration between Rational ClearCase and the Eclipse platform, Espresso Mercúrio de-

velopers can check files in and out directly from their integrated development environment. Fração notes, "The developers are really happy with the performance of Eclipse, and the integration makes it easier for them to do their work because they don't have to open another window to check in or check out."

Benefits and future plans

As project manager for LMS, Fração sees the benefits of using IBM Rational solutions at all levels of the organization. "The reengineered process alone will benefit the company, and the LMS application with centralized online data, Web-based technology, and reusable components will enable the new process as well as future innovation," he notes.

He adds that IBM Rational tools have also minimized the risk associated with key personnel being reassigned or becoming unavailable during the project. "Now everyone is working with the same engineering process, and the same tools. Everything is documented. Because of that standardization, we are not as heavily dependent on individual people as we were in the past."

From a project management perspective, Fração highlights increased control, better access to information, and integration as key advantages of the Rational Software Development Platform.

"With Rational Portfolio Manager and Rational solutions, I have integrated access to all projects. I have one place that I can go to control all of the resources common to many projects. We have the information we need to make good decisions, and allocate resources to speed development. With all resources in one system, it is easy to share resources between projects, and that is very important for us."



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