INFORMATICA®

SUCCESS STORY

CEMEX Constructs Unified Global Data Architecture for SAP Migration and Synchronization on Informatica Platform

FAST FACTS

CUSTOMER

CEMEX

BENEFITS

- Realized millions of dollars in ROI through increased developer productivity
- Delivered rapid time to value through accelerated SAP data integration deployment
- Ensured end-to-end data integrity through data validation and master data management
- Improved business agility and precision with a unified, global SAP data infrastructure

INFORMATICA SOLUTION

Informatica® PowerCenter® and Informatica PowerCenter Connect™ for SAP

NUTS AND BOLTS

- Data Integration: Informatica PowerCenter and PowerCenter Connect for SAP
- Sources: 100+ SAP, J.D. Edwards, and homegrown legacy applications
- Targets: SAP R/3 single global instance and front-office applications

"Informatica PowerCenter is the only solution that offered us the unique combination of universal data access, high performance, and data movement flexibility that we needed to implement a global data synchronization system across a heterogeneous infrastructure."

—Nelson Enriquez, Chief IT Architect, CEMEX

Based in Monterrey, Mexico, CEMEX is the world's leading supplier of ready-mix concrete and the third largest manufacturer of cement. With customers in 50 countries in the Americas, Europe, Asia, and Africa, CEMEX has annual revenues of about $15.6 billion USD and more than 51,775 employees. It produces nearly 100 million tons of cement a year at production facilities in 20 countries around the world.

The Challenge

Throughout its 100-year history, CEMEX's business success has depended on its ability to precisely and efficiently integrate massive quantities of such raw materials as limestone, sand, clay, and gypsum to manufacture cement, the oxide powder that when combined with water produces concrete. As it grows its business across 50 countries worldwide, CEMEX is applying its expertise in extracting and integrating disparate ingredients to another raw material—its enterprise data.

The mission-critical importance of data in CEMEX operations was underscored when it executed the largest acquisition in its history, buying London-based RMC Group for $5.8 billion in March 2005. On the business side, the acquisition was a tremendous opportunity that made CEMEX the worldwide leader in ready-mix concrete overnight and deepened its presence in Europe.

On the IT side, however, CEMEX faced the enormous challenge of systems incompatibility between the two companies—RMC with an SAP-based back office infrastructure in Europe and CEMEX running J.D. Edwards applications in the Americas and Asia. After strategic analysis of options by IT and business managers, CEMEX decided to retire its J.D. Edwards applications and implement SAP as a single, global back-office infrastructure. An SAP implementation, however, would present challenges of its own. CEMEX would need to:

- Migrate data from more than 30 J.D. Edwards and legacy application instances to SAP
- Migrate data from RMC SAP applications to a new SAP platform customized to CEMEX processes and information structures
- Build 150 interfaces to enable near realtime and batch synchronization
- Bidirectionally synchronize front-office operational data with back-office SAP

CEMEX did not underestimate the magnitude of its two-pronged SAP migration and synchronization effort. It recognized the potential risks of such a complex and ambitious undertaking—cost overruns, missed deadlines, and insidious data consistency problems that could undermine the information foundation of the entire business for years to come.

Prior to the RMC acquisition, CEMEX had used a homegrown tool based on Visual Basic, IBM AS/400, and a desktop database to migrate data to its J.D. Edwards applications for 10 years. Separately, DataMirror was used for data synchronization. In CEMEX's judgment, neither of those tools would be suitable for a multifaceted SAP data integration project on a global scale. To succeed, CEMEX's data integration effort would need to mirror the best practices of cement and concrete production itself—a precise and efficient integration of raw materials and complex chemical processes to produce a rock-solid material upon which the world depends.

The Solution

After proof-of-concept testing among leading data integration platforms, CEMEX selected Informatica PowerCenter and PowerCenter Connect for SAP. Notably, PowerCenter had been in use at both CEMEX and RMC in various capacities for several years, and IT managers vouched for its enterprise-caliber performance. According to CEMEX IT managers, reasons for PowerCenter's selection included:

- Support for a single, unified global SAP data architecture
- Reusable PowerCenter components to accelerate deployment across multiple projects
- Native access to data in J.D. Edwards, SAP, and legacy applications
- Flexible bidirectional data synchronization between operational applications and SAP
- Data integrity and consistency through validation and metadata and master data management

The top selection criterion was PowerCenter's ability to supply a standardized integration foundation for a unified global data architecture based on a single instance of SAP and the "CEMEX Way," a methodology to define common processes and information structures across CEMEX operations worldwide.

The PowerCenter-driven SAP migration and synchronization effort would be a major element in the ongoing CEMEX Way initiative to eliminate ad hoc data silos particular to countries and business units and implement a single SAP-based global data architecture at a consolidated data center at CEMEX headquarters in Monterrey, Mexico. The close technical and business partnership between SAP and Informatica, and SAP's certification of PowerCenter for SAP's DMI (Data Migration Interface), ALE/IDOC integration, and SAP BW (Business Warehouse), were also factors in the selection.

The migration project got under way in mid-2005 in Monterrey, where a team built a base CEMEX Way model of processes and information structures that would apply to PowerCenter data integration and newly implemented SAP R/3 modules for materials management, finance, sales and distribution, controlling, plan maintenance, and HR. Leveraging that base model, the first phase of multiple migration projects would take place in Europe, where RMC ran SAP applications in Germany, the U.K., France, Spain, Poland, Ireland, and other countries.

Informatica PowerCenter Connect for SAP, a data access option for PowerCenter that enables broad, metadata-driven, high-performance data interchange for enterprise data integration initiatives, provided native interoperability with SAP IDOCS, ABAP, ALE, BAPI, and DMI proved invaluable in enabling CEMEX's team of 15 developers to engineer 400 mappings and 150 workflows between both SAP sources and targets. The trick was to build in workflows that would transform the data from the standard SAP model used by RMC to the customized CEMEX Way information structure. By March 2006, CEMEX had successfully migrated data from the Germany-based SAP system to the consolidated SAP instance at CEMEX's Mexico headquarters.

"The beauty of the process is that once the workflows and mappings were built for Germany, more than 75 percent of them could be reused in the U.K., France, and other European nations where RMC's SAP applications are in use."

—Héctor Cantú, IT Deployment Manager

Fast-Track Migration: 75-Percent Component Reuse, 80-Percent Improved Productivity

PowerCenter's intuitive drag-and-drop interface helped to reduce the complexity that developers faced in implementing field-level rules to transform SAP data to unique CEMEX Way data definitions. "The beauty of the process is that once the workflows and mappings were built for Germany, more than 75 percent of them could be reused in the U.K., France, and other European nations where RMC's SAP applications are in use", said Héctor Cantú, IT Deployment Manager.

"The reuse of Informatica PowerCenter components will increase our productivity by about 80 percent," Cantú said. "For the next country, we can take the same set of workflows and localize them with very minimal effort—two days of fine-tuning in PowerCenter. That is huge for us. Otherwise we would be recreating the wheel in every country."

Besides SAP, RMC sites in each European country run an assortment of packaged and custom-built applications involving multiple languages, idiosyncratic data structures, and numerous instances; PowerCenter provides the platform to access, transform, and migrate data from those non-SAP systems as well. "It's crucial to have a proven solution and clear vision of how we're going to do data migration for all those countries and all those legacy applications," Cantú said.

With the Germany migration complete, CEMEX's migration team moved on to SAP-to-SAP migration efforts in other European countries. On tap to begin in 2007 is the migration to the single SAP instance of data from J.D. Edwards and legacy applications in USA, Mexico, Central America, South America, and Asia.

A 10x Acceleration of Interface Development for Data Synchronization

In parallel with the migration effort, a separate 12-member CEMEX team is using PowerCenter and PowerCenter Connect for SAP to build interfaces to enable bidirectional synchronization among SAP back-office applications and CEMEX front-office systems. "PowerCenter's native read/write support for SAP contributes to a 10-fold improvement in interface developer productivity", said Nelson Enriquez, Chief IT Architect.

"If we didn't use PowerCenter, we would have to manually build interfaces, maybe ABAP code, maybe Visual Basic," Enriquez said. "It's almost a 10-to-1 productivity improvement because PowerCenter is very straightforward and supports SAP out of the box. It's just a source-to-target mapping— source, destination, rules, transform data—that's it."

Much like the migration project, development of some 150 interfaces got under way first in Germany and will proceed through the rest of the European countries before moving on to the Americas and Asia. Once complete, the interfaces will support PowerCenter-driven data synchronization that will improve the efficiency and quality of mission-critical supply chain, logistics, customer ordering, production, and financials of CEMEX operations worldwide.

A key objective is to maximize CEMEX's investment in a custom-built application called GINCO (a Spanish acronym), the "crown jewel" of CEMEX's ready-mix concrete business. Running on a Sybase database, GINCO manages customer orders, production, inventory, deliveries, and other aspects of ready-mix concrete, which must be produced to customer specification and kept in slurry form until poured.

Near Real-Time Synchronization of Mission-Critical Operational Data

Once live, PowerCenter will execute hourly bidirectional synchronization of GINCO data and SAP R/3 for back-office accounting, procurement, maintenance, and sales and customer relationship management. CEMEX selected the 64-bit version of PowerCenter after it bested DataMirror in performance, scalability, and flexibility in proof-of-concept testing. Deployed in highly available architecture, PowerCenter will also synchronize data among SAP R/3, a custom-built costing application called SICO, Hyperion Financial Management for global consolidations, SAP BW, the SAP CRM application, as well as Oracle-based I2 for supply chain management and Ariba for purchasing. Flexibility for batch, real-time, and changed data capture movement enables CEMEX to implement synchronization tailored to its diverse business needs.

"PowerCenter is the only solution that offered us the unique combination of universal data access, high performance, and data movement flexibility that we needed to implement a global data synchronization system across a heterogeneous infrastructure," Enriquez said.

The Results

Realized Millions of Dollars in ROI through Increased Developer Productivity

CEMEX officials anticipate the company will save millions of dollars in labor expenses over several years in reduced development time made possible by PowerCenter's native access to SAP and other systems, ease of use, and reusability of components across subsequent projects. An 80-percent improvement in migration team efficiency means that CEMEX can both scale down team size and accelerate deployment by reusing some 60 percent of components with minimal rework in country-by-country projects. On the interface development side, a tenfold increase in developer productivity both saves time and money and allows CEMEX to more rapidly implement its data synchronization network and reap the business dividends of integrating back- and front-office data in near real-time or batch mode. Over the years, PowerCenter will continue to pay for itself by eliminating the need to revise, patch, and maintain custom code.

Delivered Rapid Time to Value through Accelerated SAP Data Integration Deployment

PowerCenter is helping CEMEX to meet an aggressive implementation schedule driven by CEMEX CEO, Lorenzo Zambrano, and avoid cost overruns that can often result from massive custom-coding efforts and underestimating the scope and complexity of data migration. By shaving months off the time required to implement alternative migration and synchronization systems, CEMEX is able to rapidly leverage the information assets of the RMC Group and streamline the multifaceted processes behind the single-instance SAP deployment and the continued refinement of the CEMEX Way model. The standardized data integration infrastructure also positions CEMEX to further improve enterprise agility and IT productivity through a phased evolution towards a serviceoriented architecture.

Ensured End-to-End Data Integrity through Validation and Master Data Management

CEMEX developers took advantage of PowerCenter's rich flexibility to embed validation processes into data migration workflows in both pre- and posttransformation phases to ensure the integrity of data values and processes throughout the migration lifecycle. For instance, in Germany, validation mechanisms ensured a zero percent deviation from SAP source and target values in a migration of SAP finance data. Validation showed another load of 600,000 open items records with just 35 problems, which could be readily addressed by the CEMEX finance team and helped speed adoption of a new enterprise application. "That's phenomenal," Cantú said. "If you use a conventional tool for migration, you might end up putting the data in SAP and then doing validations. Then it would be very hard to look at the transformed data in SAP and pinpoint problem areas." Similarly, PowerCenter's metadata-driven architecture and self-documenting mappings enables visibility and auditability across the migration lifecycle and supports consistency of material, product, customer, and other reference and transactional data for SAP-based master data management.

Improved Business Agility and Precision with a Unified, Global SAP Data Infrastructure

From an industry perspective, the CEMEX project represents a next generation in enterprise-wide data integration infrastructure made possible by visionary business and IT leadership and robust and innovative technology from SAP, Informatica, and other enterprise software vendors. The CEMEX implementation supports the company's ongoing data center consolidation initiative by extending a unified, global data architecture across a landscape of diverse geographies, software and hardware platforms, and business requirements. The system both fortifies CEMEX's reputation as a global leader in advanced e-business technologies and positions it to continue its rapid growth as a worldwide leader in cement and ready-mix concrete through enhanced business agility and precision in supply chain, production, financials, customer management, and other realms.

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