



## SUMMARY

### CEMEX®

#### Industry

Cement Manufacturing

#### Business Value

- OT-IT integration
- Data Democratization
- Enterprise Visibility
- Data Validation
- Corporate Reporting
- Data Extraction

#### PI System™ Components

- PI Server™
  - Asset Framework
- PI Integrator for Business Analytics™
- PI DataLink™
- High Availability

## Building Enterprise Intelligence with the PI Integrator for Business Analytics

As a global building materials company, CEMEX has a presence in more than 50 countries throughout the world and yearly sales exceeding \$15 billion. As one of the leading manufacturers of cement and ready-mix concrete and aggregates in the world, CEMEX's cement operations stretch across 70 sites in 21 countries. In his presentation, Mr. Rodrigo Quintero, Operations Model and Planning Manager described CEMEX's 20-year journey to achieve visibility across all 70 plants, adding context to data for reporting and analysis and finally integrating and analyzing operational data at scale to generate overall enterprise intelligence.

Quintero started his talk by describing his role in CEMEX's global technology department. "[The global technology group] is in charge of building new plants, [the] expansion of plants, driving the technology agenda for cement operations and governance for some cement operations. That means defining policies, procedures, systems and tools for the different plants." He continued by defining their efforts support three principal goals for operations - "to improve performance, reduce cost and provide reliable data to decision-makers." Over the course of the talk, Quintero described the three main cycles in their journey toward their current data practices.

### Cycle 1: Standardizing information across a global organization

At first, "we had plants, every one of them with different equipment, with different practices. We set out on the journey to begin standardizing the [data] infrastructure, defining standards and standardizing the tag nomenclature. To give you an idea, a regular PI Server has 10,000-15,000 tags for each cement plant - multiply that by 70 sites. It is a lot of information that we manage." He continued, "after a couple of years, we were able to have the PI [System] infrastructure across all of our cement plants, so we achieved global visibility. After we finished the global implementation, we stayed there for more than 10 or 15 years."

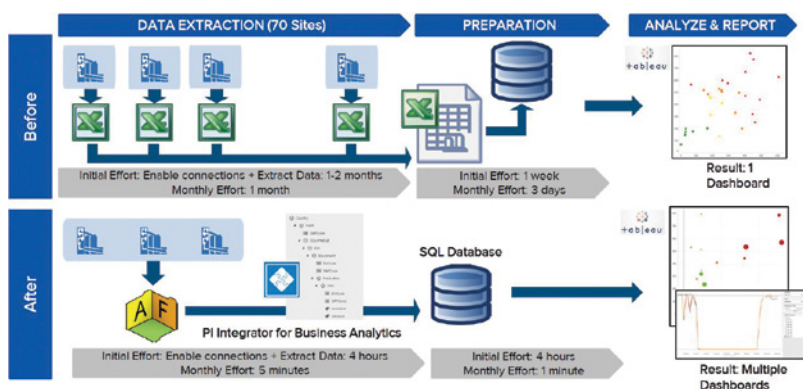
### Cycle 2: Creating operational context

During this period, CEMEX signed an enterprise agreement with OSIsoft. Quintero described next steps, "We had the challenge of giving context to the information. Because even though we had the standardized information restructured across all the cement plants, we didn't have the correct context for it. Now, we have [Asset Framework] AF. We began using AF three years ago with this new model. The result was we had a standard practice to report all of the information and how all the information was being analyzed not only for reporting but for process analysis and everything. That was a big improvement."

## Cycle 3: Data Democratization

Quintero described the last cycle and the results of their experiences with the PI Integrator for Business Analytics. He related, "the third cycle that we are going through is how do we make people use this data. Since we were from the corporate side, we started to produce a lot of corporate benchmarks and consolidated reports, so people are asking more and more questions. They say, "how does this help?" and "can you cross-reference to this?" and "how do we match this process data versus maintenance data versus quality data?"

"By giving out reports and different dashboards, people are starting to ask more questions. They want additional analysis, and they want additional data. We don't have the capabilities to serve 70 sites or the regional offices or country offices. That is where democratization of data comes in. We want people to be able to perform their own analysis given their own global access, so they can start doing all of their different benchmarks. We want every end user to be able to produce their own. That is where we are trying to go here."



Quintero stated that for several business applications, including data validation and merging PI System data with their ERP systems, where people were spending too much time and effort manipulating data. For the validation process, Quintero said, "it took me two months to extract all of the information from the 70 production sites. It was a lengthy and painful process" Then Quintero said, "when OSIsoft offered us the opportunity to participate in the beta testing of the PI Integrator for Business Analytics, we jumped in immediately."

CEMEX was able to see results quickly. "The typical data extraction...took 740 hours. When we went to PI Integrator, [it took] one hour." Quintero added, "the tool itself is very intuitive to use; it is almost an out-of-the-box solution." "Since it uses the AF structure, it is based on templates, so it is very easy to replicate and just very fast to get everything. It takes the complexity out of the equation." Since it is not complex anymore, [people] are not overwhelmed or afraid or discouraged from extracting information."

Quintero concluded by saying, "in the end, you are shortening this continuous improvement cycle because you have really fast information and you can validate your information really fast. You don't have to wait one month or two months to get results from reports. Finally, CEMEX saw results outside of their corporate offices. "People are starting conversations. We are tearing down all the barriers across different departments because everybody is looking at the same data...and they are sharing information and experiences."

Quintero, R. Transforming Process Data into Information. OSIsoft.com, Oct. 2015. Web 02, December 2015 <http://www.osisoft.com/Templates/item-abstract.aspx?id=12807>

"Now we don't spend any time preparing data - It's there. Now, your time is spent in value-add activities like analyzing your business, making decisions, or if you already have made decisions, validating your decision-making"

- Rodrigo Quintero, Operations Model and Planning Manager