CORNING, INC.

Using the Virtual Factory to Improve Productivity and Response Time

Corning Inc.'s Specialty Materials Division makes complex, cutting-edge products for the Photonics and Semiconductor industries. To succeed in these demanding sectors, Corning required a flexible solution that could meet customers' shifting product requirements while improving manufacturing processes to reach volume quickly.

THE CHALLENGE:
Meet Customer Needs And Improve Global Production

The Specialty Materials Division produces high performance measurement devices and specialized glass, which are used in products from semiconductors to the space shuttle. In these hyper-paced technical markets, product specifications are complex, precise and constantly evolving. Materials are costly and products must be brought to market quickly without error. The division operates nine manufacturing sites across North America, in coordination with sales offices in Europe and Asia. Doug Anderson, CIO of the Specialty Materials Division, required a system that would leverage manufacturing capacity across multiple sites, facilitate rapid response to changing product specifications, and reduce infrastructure operating costs.

THE SOLUTION:
A Virtual Factory for Real-time Tracking, Visibility and Control Across Plants

A Robust MES to Track, Maintain Quality and Meet Changing Requirements

InSiteLive, Camstar's MES solution, captures critical data points during the making of a product and allows for real-time changes to the manufacturing process so Corning can quickly adapt to customer needs. "To make sure that you've met the dozens of customer-required attributes, you've really got to have an automated system to capture the customer specifications. Camstar provides revision control over the constantly changing specs, and it then allows us to compare the measurements and the spec in real-time," says Anderson.

A Flexible, Reliable Technical Architecture

"We evaluated a number of MES solutions, but Camstar was the one company that really understood the challenges a multi-factory environment can present," Anderson continues. The flexibility of Camstar's web-based architecture allows us to run smaller factories or R&D pilot lines from a central data center, or distribute the application servers to factories with especially high transaction volumes. It also allows us to use wireless devices with CE operating systems on the shop floor as user interfaces."

"The Virtual Factory enables better decisions and quicker execution for everything from order commitments, to process improvements, to capacity flow, to inventory—it creates our competitive advantage—I don't know how you'd put a dollar value on that."

–Doug Anderson, CIO
Specialty Materials Div.
Corning, Inc.

CORNING
Discovering Beyond Imagination

With Camstar's standardized infrastructure, Corning is able to operate their plants as if they were a single factory.

The Virtual Factory Delivers

- > **Tracking:** Obtain detailed history of products, processes and resources
- > **Uniformity:** Manage process specifications for multiple sites from a central location
- > **Connectivity:** Collect real-time data and deliver it to the enterprise
- > **Visibility:** Manage multiple plants as one factory
- > **Speed:** Shorten cycle time from R&D to volume production

SOLUTION OVERVIEW

Applications:

- **MES:** Camstar
- **ERP:** Peoplesoft
- **Planning & Scheduling:** PeopleSoft
- **Integration Hub:** Camstar
- **Product Specification Mgt.:** Camstar
- **Enterprise Reporting/ Analytics:** Camstar

System Specs:

- Windows 2000
- Zero Byte Thin Client
- XML GUI including wireless CE devices
- Oracle & SQL Server Databases

Increased Manufacturing Capacity and Utilization

Corning can now manufacture products in multiple plants with the help of Camstar's LiveSync and LiveRelay applications. LiveSync gives Corning the shared meta-data needed to manage all product and process specifications centrally, while each plant site controls its own execution and workflows. This has made quick, painless updates and modifications a reality. Previously, the division could make an average of two updates to the system a year. "We can now turn around fixes and changes in a matter of days," Anderson says.

LiveRelay allows production to begin in one plant and then be transferred, with all relevant manufacturing data, to another site for further processing. This level of flexibility and control allows Corning to take advantage of excess capacity without adding costly equipment. Corning estimates capital cost savings of more than $6 million in 2002 alone.

Leveraging Manufacturing Information Through the Enterprise

"We wanted maximum value from our investments in Camstar and PeopleSoft," says Anderson. "Our challenge was how to fuel the ERP with live transaction information that we were generating on the shop floor." The LiveConnect application provides the critical point-to-framework connection that passes XML messages between Corning's global ERP system and their Virtual Factory manufacturing sites. Anderson explains, "Trying to support multiple transactions for multiple businesses talking to multiple plants would have been impossible with a traditional point-to-point interface approach. We would have needed a small army of IT people to keep it running instead of the handful we have today." Today, Corning's CRM, ERP and MES are seamlessly connected. "Now we can link all these pieces, so it looks like one big system that has everything the user needs," Anderson says.

Better Decisions with Manufacturing Visibility

LiveView's multi-plant visibility allows for immediate analysis and comparison of all processes so productivity can be quickly improved in one plant or across the division. This means early detection of issues, quicker response, and prevention of problems.

Corning collects hundreds of different data elements with Camstar which are used by the scientists and engineers who analyze the actual manufacturing process. "If these people have information, they'll be able to figure out how to improve yields," he says.

THE PAY OFF:
The Virtual Factory Saves Time and Money

The Virtual Factory has enabled Corning to deliver unparalleled products and service to its customers while dramatically improving manufacturing and business processes. "We have been able to construct a very complex manufacturing model in a fraction of the time and cost it would have taken with a pure custom approach," says Anderson. In addition to the savings from improved production, the division expects to save $750,000 to $2.3 million in MES operational costs over three years by implementing the Virtual Factory.

Anderson says Corning is now able to stop worrying about IT issues and focus once more on the big picture. "The partnership with Camstar makes it possible to solve our biggest challenge: Taking all of the data we're collecting and turning it into useful information to help our businesses win in the marketplace."