



## OKUMA

# INTEGRATING TOP FLOOR TO SHOP FLOOR BY UNIFYING ECOSYSTEMS

### QUICK FACTS

#### Industries

Industrial machinery and components, aerospace, automotive, oil and gas

#### Revenue

US\$1.7 billion

#### Employees

More than 2,500

#### Location

Charlotte, North Carolina

#### Web Site

[www.okuma.com](http://www.okuma.com)

#### SAP® Solutions and Services

SAP® ERP application, SAP NetWeaver® technology platform, SAP Manufacturing Integration and Intelligence application, SAP ecosystem and partners

#### Partners

- TATA Consultancy Services Ltd.
- Stratus Technologies
- Lexmark International Inc.

#### Key Challenges

- Provide integrated top-floor-to-shop-floor solutions for discrete manufacturers
- Demonstrate interoperability among all the technologies required
- Allay manufacturers' concerns about deployment risk, speed, and costs, and provide them a truly integrated, total company solution
- Accelerate the delivery of innovation

#### Ecosystem Components Engaged

- Okuma THINC controllers
- ftServer Series fault-tolerant computer systems from Stratus Technologies
- Multifunction devices from Lexmark International, Inc.
- System integration services from TATA Consultancy Services Ltd. (TCS)

#### Ecosystem Engagement Highlights

- Used template approach, with software preloaded on hardware
- Took advantage of TCS experience in the Perfect Plant Innovation Center
- Leveraged collaboration among all partners involved and synergies among them
- Completed implementation in less than 8 weeks, on schedule, using 1 consultant
- Created sustainable, reproducible solution

#### Benefits

- Created powerful capability demonstrations of Okuma's unique message
- Showed what the union between SAP and Okuma partner networks can do
- Demonstrated how risk, time, and costs of achieving complete top-floor-to-shop-floor integration are minimized
- Finished in half the time thanks to SAP ecosystem

#### Lessons Learned

- Recognize that in partnering,  $1 + 1 = 3$ ; in combining partner networks,  $3 + 3 = 10$
- Involve all levels of the organization on the project team – a major shift away from applications in silos and custom integration projects
- Challenge the team to be creative
- Realize that a lot of the old rules no longer apply, but the rules of solid project management still do
- Be flexible: flexibility allows for rapid and valuable iterations in real time

#### Next Steps

- Enable joint customers to create their own "perfect plant"
- Invite customers and partners to co-innovate on-site through the Okuma Partners in THINC innovation center in Charlotte, North Carolina or at the Perfect Plant Innovation Center in Newtown Square, Pennsylvania
- Develop best-practices reference architecture



Okuma Corporation's "Partners in THINC" initiative unified disparate manufacturing equipment, but the company wanted to demonstrate even more – the elusive integration from the top floor all the way to the shop floor. So Okuma invited SAP to join the program. SAP brought along its own partner ecosystem to provide other needed technologies. The unified pair of ecosystems built the environment with minimal resource expenditure, allowing powerful demonstration of the group's collective capabilities.

## Background

Okuma Corporation is a world leader in the development of computer numeric controls and machining technology. Okuma controllers and machine tools offer high-throughput, accurate, reliable solutions for production machining operations.

Among Okuma's recent innovations is THINC, which stands for The Intelligent Numeric Controller, a highly flexible and open platform that is ideal for integrating machine tools and other discrete manufacturing devices from multiple vendors. To show the degree of shop floor integration possible with it, Okuma conceived Partners in THINC. This initiative combines various THINC-powered manufacturing devices from Okuma and its partners to comprise an overall solution that meets the needs of specific industries such as aerospace,

automotive, and oil and gas. The goal is to reduce deployment risks, costs, and time frames by orders of magnitude.

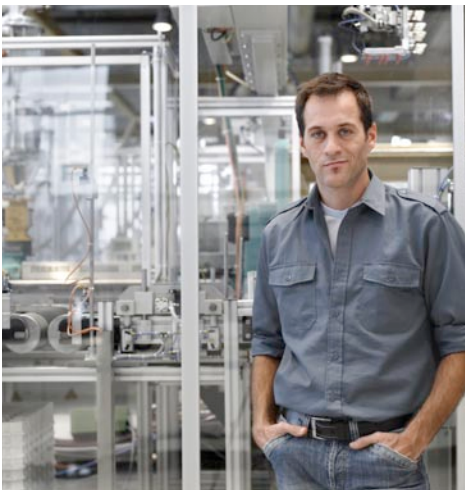
## Challenge

Okuma's "Partners in THINC" architects had much more in their sights than intrafactory integration. They wanted to show the additional benefits of using enterprise resource planning (ERP) software to unite the plant with the extended supply chain – the elusive and difficult total integration of a company from the top floor all the way to the shop floor. Okuma wanted to fulfill the long awaited promise of connecting such functionality as planning, scheduling, and reporting with manufacturing to introduce new levels of automation throughout an organization and deliver all the attendant benefits. This required extending Okuma's partner ecosystem further to include an ERP software ven-

dor, and even further to that vendor's own ecosystem of partners. Only such an expanded network of collaborating partners acting as one could provide the range of complementary technologies that were necessary for the demonstration of the innovations that Okuma had in mind. And only such an expanded network could bring the concept to fruition in time to meet Okuma's schedule requirements.

## Approach

Okuma management knew that the top-floor-to-shop-floor integration concept has inspired much more talk than action, and its preliminary overtures to ERP vendors to join the initiative only produced more of the same. But then Okuma approached people at SAP, who explained that the company fully understands that its core competencies lie in ERP software, and that total solutions



“SAP thinks the same way we do about partnerships and the value an ecosystem delivers to customers. The other ERP vendors we spoke with just wanted to sell us licenses.”

Larry Schwartz, President and COO, Okuma America Corporation

must embrace many technologies outside this area of expertise. Then SAP presented its response to the challenge of providing access to all these technologies – the SAP ecosystem. The ecosystem includes communities plus partnerships that go beyond traditional one-to-one partnerships to empower full collaboration among teams of complementary partners that all use a common platform: SAP® software. By engaging teams from this ecosystem, customers can take advantage of synergies already developed among team members, along with integration already accomplished among their technologies. This is vastly preferable to acquiring each technology individually and performing the integration anew.

Contacts at SAP explained that by joining Partners in THINC and involving its own ecosystem, the company would not be undertaking its first demonstration of the benefits of its partnering concepts and their applications in manufacturing. For years the firm’s highly integrated Perfect Plant Innovation Center in Newtown Square, Pennsylvania, has been providing an opportunity for members of the SAP ecosystem to join forces to create tightly integrated manufacturing scenarios. The solutions on display at the innovation center have served as a model for many customers’ multitechnology manufacturing solutions, some of which are saving their owners tens of millions of dollars annually. By joining

Partners in THINC and applying principles of the Perfect Plant Innovation Center to it, SAP was merely extending the already-proven total integration concept to an important new arena: machine tools and other discrete manufacturing equipment on the factory floor.

### Results

The SAP team examined its ecosystem portfolio for ideal partners to fit Okuma’s needs. For hardware SAP chose Stratus Technologies because its fault-tolerant ftServer Series computers can save millions by avoiding plant downtime. For paper on-ramps and off-ramps to the enterprise solution, the SAP team chose Lexmark International, Inc. and its multi-function devices. And to integrate the entire solution the team selected TATA Consultancy Services Ltd. (TCS), which had gained vital experience and proven itself on several projects and initiatives at the Perfect Plant Innovation Center.

TCS got a head start because Stratus delivered servers on which the SAP software had been preloaded and tested – another benefit of the ecosystem that customers can also leverage. By working directly with one another instead of always via SAP, these teammates implemented the solution in a matter of weeks. This approach, a key differentiation between the SAP ecosystem and ordinary partnering programs, saves a great deal of time.

“In this case, time is certainly money,” says Bryan Newman, director of information systems for Okuma America Corporation, “and the project would have taken twice as long without the SAP ecosystem and the accelerated innovation it makes possible.”

One of the key tools that TCS employed in integrating the shop floor equipment with the SAP ERP application was the SAP Manufacturing Integration and Intelligence (SAP MII) application. “We haven’t found anything that we wanted to do with SAP MII that we couldn’t do,” says Newman.

To showcase Partners in THINC and its tight connection to SAP ERP, the team built a number of scenarios that are typical of factory floor operations that can be greatly expedited by business software functionality. In one of them, for example, machine tools and related equipment are used to actually build a small engine. This scenario includes scanning paper documents containing customer information, creating an order, milling engine parts and assembling them, tracking and reporting progress, inspecting the engine and its parts, printing quality reports, and generating shipping documents. Throughout the process there are multiple interactions between SAP ERP, Lexmark multifunction devices, the THINC controller, and the manufacturing equipment. SAP software monitors the shop floor

equipment via THINC and Okuma's MacMan-Net software, which extracts efficiency and utilization data, and continually calculates and displays key indicators of manufacturing performance. The entire manufacturing and assembly process takes a matter of minutes – highlighting the value of the close integration among all the technologies involved and the degree of automation it makes possible.

### Lessons Learned

Even though the partners on the project were geographically dispersed, the Okuma and SAP team began by calling them all together for an in-person meeting. "It's important to know all the key players you're working with, and there's no substitute for face-to-face," says Newman. "For one thing, a meeting of everyone involved provides an opportunity to take advantage of one another's ideas for how best to accomplish our goals. One of the great values of using the ecosystem is that we got everyone's suggestions on the table, selected the best of them, and then built improvements on top of them as a group. Without the live, personal forum provided at our meeting, the interaction wouldn't have been nearly as effective."

After the kickoff meeting, which firmly established the project scope, the team members all returned to their respective locations and went to work building their parts of the overall solution. They relied on telephone conference calls and WebEx online collaboration for subsequent interactions – which proved

entirely adequate because they already knew one another well. During the final month, the team conferred weekly on scheduled calls augmented by ad hoc interactions.

"I've been involved in a number of projects of this nature and I know that we couldn't have finished on time if we hadn't taken thorough advantage of the SAP ecosystem and all the team members' ideas," says Newman. "Frequent, all-inclusive communication is key to getting the most of what everyone has to offer."

### Next Steps

Now the Partners in THINC demonstration is a reality. The team is displaying the scenarios it built at Okuma's innovation center in Charlotte, North Carolina. There it will build additional scenarios on an ongoing basis to demonstrate other types of manufacturing and ERP interaction both in Charlotte and at the Perfect Plant Innovation Center in Newtown Square, Pennsylvania.

At these venues, people can witness firsthand the true plug-and-play technologies made possible by the collaboration between the respective Okuma and SAP partner networks. Seeing these technologies in action, they can develop an appreciation of true partnering that goes far deeper than any they have experienced, and of the value it can deliver in their own environments.

For more information go to <http://partnersinthinc.net/>.



TATA CONSULTANCY SERVICES



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