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Technology Strategies for Progressive Manufacturers

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## COMPANIES to WATCH

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# Siemens + UGS: Is the Merger Working?

More than a year after its bold acquisition of UGS, Siemens appears to have successfully absorbed the PLM provider. But the basic premise behind the merger — **the concept of the digital factory** — is still in its early stages.

BY STEPHANIE NEIL



On Jan. 25, 2007, Siemens AG President and CEO Klaus Kleinfeld addressed shareholders during the company's annual financial meeting. He opened his remarks by outlining the grim details of a bribery scandal that would send shockwaves throughout the organization. But, perhaps more surprising, was the announcement that Siemens would acquire UGS, the Dallas-based maker of CAD/CAM and product lifecycle management software.

Word of the scandal and the planned acquisition spread around the globe as fast as the World Wide Web could carry it, and when UGS employees heard the juxtaposition of these two news items, their initial excitement about the impending deal turned to uncertainty.

"We were all, like, you've got to be kidding," said a UGS insider. "The timing of the announcements made many of us feel like the deal might not come together."

The \$3.5 billion deal did indeed come together in May 2007, but not without much speculation and critical commentary from industry analysts. Criticism arose not because of the scandal, but because the acquisition strategy seemed implausible to many people, both inside and outside of the company.

Everyone knew that UGS, now called Siemens PLM Software — which before the acquisition was owned by three private equity firms — was ready either to go public or be purchased. But when news surfaced internally that it would be an acquisition by a German company with a name



“We think we have all of the ingredients to [deliver the digital factory] to the industry the fastest,” says Anton Huber, CEO of Siemens Industry Automation Division

starting with “S,” everyone assumed it would be SAP, a software company.

Why was Siemens, with a core competency in industrial hardware, buying UGS, a software company with more than \$1 billion in debt and a product line that appeared not to fit anywhere into the Siemens portfolio? And how would the German giant assimilate this independent American entity amid culture differences specifically related to management style? More important, what was this digital factory vision that Anton S. Huber, CEO of Siemens Industry Automation Division, spoke so passionately about?

Explaining the thinking behind Siemens’ move, Huber says the biggest pain point for manufacturers is the ability to manufacture products in a timely and cost-effective manner. Tying PLM and simulation tools together with industrial automation control architectures — which is the cornerstone of the digital factory concept — will let manufacturers unify virtual and physical domains and get a product to market in half the usual time, he says.

Acquiring UGS was critical, Huber says, as it not only added the PLM and

modeling technology required to marry the virtual with reality, but it also brought in software engineering expertise, thereby equipping Siemens with all the pieces it needed to connect the digital factory dots.

“We think we have all of the ingredients to [deliver] this to the industry the fastest,” Huber says. “And the competition will follow.”

To some extent, he is being proven right. The first sign came in December 2007, when Rockwell Automation and Delmia, a division of Dassault Systèmes, outlined a technology partnership based on an object-oriented database that provides a bidirectional information exchange between a digital design and the control architecture. Both Rockwell and Dassault have said the relation-

ship is not exclusive and they will seek out similar partnerships.

The non-exclusivity that Rockwell touts is much different from Siemens’ approach, which is centered on a tightly integrated turnkey plan. It’s an approach that could either propel Siemens into the spotlight as the premier digital factory provider or limit it to new deployments amenable to a soup-to-nuts solution.

It’s not clear at this point whether Siemens’ acquisition of UGS was ingeniously daring and deserving of kudos for its pioneering effort or a radical risk that could prove to be a costly mistake in judgment. The fact is, no other automation vendor has followed in Siemens’ footsteps and acquired a PLM company. But observers say that may not necessarily indicate it’s the wrong approach; rather, it could directly relate to money and market opportunity.

“Most automation companies are not in a financial position as strong as Siemens to do this,” says Joe Barkai, practice director of product lifecycle strategies at IDC Manufacturing Insights, a research firm. And even if they have the money, “the immediate question is, who would they acquire? There are not many PLM companies left,” he says.

That gives Siemens a tremendous advantage if indeed it made the right deci-

sion to acquire UGS rather than simply forge PLM partnerships. Still, there is a technology issue on the table. Specifically, most manufacturers have a plethora of PLCs from a variety of vendors. The Siemens PLM approach will tightly integrate and fine-tune Siemens controllers into the digital factory concept. But what does that mean for a factory floor with a mix of Siemens, Rockwell, Schneider Electric, or GE Fanuc controllers?

No problem, Siemens says. “The objective is to keep all of the products open,” says Chuck Grindstaff, executive vice president of products for Siemens PLM Software. “There is no push to be proprietary in connection points.”

But will the experience be the same?

“They assured me they will have connections and interfaces to other controllers,” says Jim Caie, vice president of consulting at ARC Advisory Group. “But they won’t be as tightly integrated.”

What the actual extent of integration turns out to be is difficult to assess at this time, Caie says, because Siemens has only outlined a strategy to do this. Siemens describes that strategy, dubbed Project Archimedes, as an integration vehicle designed to move the UGS and Siemens technology communities together under a common vision of uniting PLM, automation systems, and motion control. But to date, no specific digital factory products that directly relate to the vision have been unveiled.



**“The objective is to keep all of the products open. There is no push to be proprietary in connection points.”**  
— Chuck Grindstaff, Siemens

“I’m having a tough time gauging how much progress they’ve really made,” Caie says. “They laid out a roadmap, but the hardest thing to do is integrate the mechanical worlds and the electrical world together into one model and one database. That’s where it’s at, and while I see the Rockwell and Delmia relationship addressing that directly, I see Siemens looking at Teamcenter [its PLM product] and trying to integrate a lot of information together. Siemens is focusing more on PLM so that they can get more unique applications to use their technology. I’m not saying it’s a bad strategy, but there’s a difference.”

Yet, Caie says Siemens has taken a conservative approach to disclosing details of products that are not ready for prime time. It's a company that does not pre-announce, he says.

In fact, Siemens did roll out something significant in April. At the Hannover Fair in Germany, the company announced its patent-pending "synchronous technology," a feature-based modeling technology that lets a user change a 3D design without necessarily understanding how it was created. Models can be defined — or redefined — on the fly, and changes then propagate through the rules of the design, geometry, and editing tools.

In May, Siemens rolled out versions of its Solid Edge CAD software and its NX 6 digital product development software, each with synchronous technology capabilities.

Synchronous technology might play a role in the digital factory solution, but Project Archimedes, which Huber has said "was crucial to connect the UGS business with [Siemens'] core business, and a key to the success going forward," is centered on Teamcenter PLM, which will act as the collaborative backbone.

That, Huber says, is why Siemens acquired UGS. "Why did we buy and not just team up? Because it is very important to the core automation business," Huber says. "We saw that if we bought UGS, we would have a major component in Teamcenter. It provides the ability to connect product design with machines using the same software."

For Huber and Tony Affuso, the former president and CEO of UGS, who now is chairman and CEO of Siemens PLM Software, the synergies between Siemens and UGS make perfect sense. But, then, they've been discussing this idea since May 2006, when they first met to talk about a strategic relationship.

Siemens had already been using software from Tecnomatix, a company UGS acquired in 2005, which includes a lot of factory simulation technology to connect product engineering with process layout and design, process simulation and validation, and a manufacturing execution system (MES). So, a foundation was already in place.

"As strange bedfellows [as Siemens and UGS] may have seemed, there really was a lot of history working around common goals and a common vision of integrating the virtual world with the physical world," says Bill Carrelli, vice

president of strategic marketing for Siemens PLM Software.

Nevertheless, the acquisition announcement came as a big surprise to most employees, end users, and even analysts. And the Siemens board knew it had to educate everyone on the synergies and vision in order to avoid backlash in the form of employee attrition.

More important, Siemens officials knew they couldn't treat this acquisition in the same cookie-cutter way that they had treated earlier acquisitions. UGS had a very different business dynamic, and Siemens had to be careful to welcome the team in a spirit of cooperation, not dominance, officials say. Suddenly, the acquisition became a serious business endeavor.

Karsten Newbury, vice president of integration at Siemens, was pulled in to help manage the post-merger process. A 12-year Siemens veteran, Newbury was running the U.S. process automation business at the time of the UGS purchase, but had also been at the center of some of Siemens' smaller software acquisitions.

For example, in February 2000, Siemens' Energy & Automation group acquired Moore Products in a \$170 million cash deal geared toward strengthening Siemens' presence in the North American process control market for the oil and gas, pharmaceutical, and pulp and paper segments. A year later, in January 2001, Siemens Automation & Drives acquired the Orsi Group, an MES provider based in Genoa, Italy.

Newbury helped facilitate both the Moore and Orsi acquisitions, understanding that Siemens wanted to be a stronger software company. Yet, he admits he didn't see the UGS deal coming. "It was a big surprise for all of us," Newbury recalls. "Nobody expected this type of acquisition," referring to both the size of the deal and the type of products under the UGS umbrella.

### GAME-CHANGING EVENT

Yet, at the same time, Newbury realized the significance of the moment, he says. "The prospect of changing the industry was an opportunity that was compelling to me. It's not very often that you can play a part in changing the industry and the rules of the game."

## inside|look

### WHAT PROJECT ARCHIMEDES ENCOMPASSES

Siemens' Unified Product and Production Lifecycle Initiative, code-named Project Archimedes, is a joint effort among Siemens PLM Software, Siemens Automation Systems, and Siemens Motion Control Systems. The areas of focus include:

**Adaptive Manufacturing:** Intelligent production components for the integration of process and automation design with Teamcenter.

**Virtual Commissioning:** The validation engine for process, automation, and MES.

**Harmonized Lifecycles:** Integrating the PLM backbone with production (bidirectional MES and controller integration).

**Hi-Fidelity Machining:** Tighter links between CAM and physical controllers.

**Mechatronics:** The most advanced mechanical and electronic systems engineering and management.

Source: Siemens

Newbury called upon Siemens Management Consulting, an internal group that helped develop a post-merger integration guide that looks at various areas of integration, including marketing, sales, R&D, human resources, IT, and finance. While the core integration team comprised about 20 individuals, at one point, due to the size of the endeavor, there were roughly 150 team members working on the UGS integration project, he says.

In order to bridge what some considered a gap between hardware and

Tony Affuso, chairman and CEO of Siemens PLM Software



software cultures, each of these areas of integration was co-led by a person from Siemens and an individual from UGS, as well as a Siemens Management consultant. Weekly calls were set up to handle any conflicts, with Newbury acting as the liaison to management when needed.

When Helmuth Ludwig was brought in as president of Siemens PLM Software in summer 2007, he shifted the focus toward the software sell, which has a very different licensing structure and maintenance and service business model than hardware.

Part of the exercise was to create account maps to find out how both organizations were addressing customers and where the cross-sell opportunity would be. "We would talk about the businesses and which customers were important, and at the end of the meeting the Siemens PLM guy would write down two customers he believed the automation side could help, and the automation guy would write down two customers where Siemens PLM could help," Ludwig says.

In addition to helping existing customers, the new combination appealed to new customers. Volkswagen Group had benchmarked a number of PLM offerings and had identified Teamcenter as fitting with the company's long-term strategy. UGS' financial stability, however, was in

question at the time, said Oliver Riedel, Volkswagen's director of process integration and information management, during a presentation at Siemens PLM Software's industry analyst event last May. The Siemens acquisition sealed the deal.

"Siemens had been a strategic partner in manufacturing," Riedel said. "And it was their acquisition of UGS that swayed us toward making the Teamcenter decision."

While there were mixed reactions from customers when the acquisition was announced, "all of our customers were positive about one aspect for sure, that UGS would not be in a bad position financially," Carrelli says.

The next question became: What will this mean in the future?

Many customers thought Siemens would slow down the software business, Ludwig admits. But it has actually had the opposite effect. The delivery of the synchronous technology is a perfect example. "We have put more money into R&D, and that made it possible to speed up the release [of the technology]," Ludwig says.

Indeed, some say Siemens is breathing new life into UGS, and they compare the atmosphere with the period when EDS owned UGS prior to spinning it out to private equity firms. "We felt when EDS was involved, they were sucking the life out of the Solid Edge product," says Cory Goulden, CAD administrator at National Steel Car. "When Siemens took over, everyone in the Solid Edge community thought it was a good thing because, historically, Siemens has proven it is the type of company that makes a purchase because of how good the product really is. They bought it because they wanted to own it and make it better, not kill it."

How well Siemens will integrate the product portfolios, however, remains to be seen.

"If you challenge them and say, 'Show me exactly how all of these products work and where things need to go,' they have a hard time doing that," said an end user, who requested anonymity.

But the product integration focus will likely sharpen now that the orga-

nizational integration is complete. According to Newbury, the last steering committee meeting outlining the post-merger integration happened in August. "We formally transferred lines of function, defined who is responsible, closed out the checklist, and reported back to management," he says. "We consider the [integration of the companies] complete."

While getting the departments working together was fairly routine, the effort was complicated by the need to enforce new compliance rules resulting



**There was "a common vision of integrating the virtual world with the physical world."**

— Bill Carrelli, Siemens

from the bribery scandal. "This was particularly difficult as we had a new company to integrate in and now we had all of these additional rules," Newbury says.

In addition, because UGS was considered completely complementary with little overlap in technology, Siemens wanted the UGS team to remain in place. But executives worried that the corporate scandal, which resulted in the departures of Kleinfeld and other top executives, might cause employee upheaval.

"Our concern was high because UGS had a strong culture and strong ethics," Newbury says. "Everyone on [the Siemens] team felt strongly about ethics as well, so we communicated as much as we could ... about what we would do to investigate the issues. We also held town meetings, [sent out] employee surveys to get feedback, and addressed every verbal comment."

The town meetings turned out to be pivotal. One in particular, at UGS' Cypress, CA, office in October 2007 — was the turning point for many employees who had been struggling to understand the intent of the acquisition and the future of Siemens PLM Software.

### GETTING BUY-IN

When Huber called the UGS team into a huddle at the Cypress headquarters last fall, the concept of unifying product and production lifecycles was foreign to the majority of people attending the meeting. Nevertheless, Huber had each manager make a presentation, using the town meeting as a platform for exchanging ideas.

## report card

### SIEMENS AND UGS: A PICTURE OF HEALTH

Since Siemens' acquisition of UGS in May 2007, the company has been growing at a healthy clip — from employees, to customers, to revenue.

#### In the most recent 12 months (July 2007 through June 2008):

- NX license revenue grew 13%.
- Tecnomatix (Mechanical) license revenue grew 28%.
- Teamcenter total revenue grew 15%.
- New versions of NX, Teamcenter, Tecnomatix, Velocity product lines were delivered.
- Customers grew from 47,000 to 51,000.
- Seats grew from 4.3 million to 5.5 million.
- Teamcenter achieved another leadership milestone with delivery of 4 million seats, continuing to make it the most used PDM in the world.

Source: Siemens PLM Software

Still, many employees couldn't grasp the big-picture vision. "You could feel the stress in the room," Huber recalls.

He, too, felt the stress at times. "There was a lot of nervousness buying this company at this price," Huber recalls. "It was a stressful time, but we had time to talk about it [and sort things out,] from the integration strategy to the management team."

He used the meeting in Cypress to lay it all out on the table. Slowly, he says, people began to understand.

"There was a lot of regular communi-

**The company sees Archimedes as much more than a roadmap for future products.**  
— Helmuth Ludwig, Siemens

cation with the purpose of educating, because people were still trying to piece things together," Carrelli says. "There was no single light bulb moment. The light bulbs went off at different times depending upon who you were and where you were in the organization with the different product directions of the company being unveiled."

The good news is the vision caught on, at least internally. "They started to talk about the future where manufacturers would be able to develop personalized products at the same scale, in terms of cost and availability, that mass-produced products could provide," Carrelli says. "It's the idea of mass customization."

At the heart of making this all happen was Project Archimedes. Indeed, the company sees Archimedes as much more than a roadmap for future products. "It's bringing two worlds together; that's what Archimedes is about," Ludwig says. "It is focused on technology, the need for a long-term project, and collaboration across different business units ... to synchronize development plans."

The first-generation Archimedes-enabled products are expected to roll out before the end of this year, officials say, starting with the integration of CAM and CNC to get a precise view of what the CAM operation is doing relative to the specific controller or machine tool. A second development will be geared to



Teamcenter for the CPG industry integrated with SIMATIC IT, Siemens' MES product.

The delivery of these first digital factory products will be an important milestone. But Siemens still has a lot of convincing to do with customers.

"We are not seeing a huge uptick of the digital factory," says Manufacturing Insights' Barkai. "The idea of virtual commissioning is a good idea, and it's making progress, but slowly. It looks exciting in theory, but how do you take a great concept from PowerPoint down to the shop floor?"

"It is an area of high interest, but a lot of people are still in the experimentation

phase," says Joe Kann, vice president of global business development at Rockwell Automation. "In general, we see people in the 'we are interested stage' and not in the 'we are spending money in this area' stage."

Perhaps they don't understand the big picture just yet. "People look at the grand visions that exist in this area and try to match it up against the realities of the environment and the complexities of the real environment ... and they are hesitant because it's impossible for them to stop their business model and hit a restart button," Kann says, referring to the vision Siemens has outlined.

"We see things differently than Siemens does," Kann says. "It is a more complicated world than perhaps the way I've seen Siemens describing it." To that end, manufacturers need flexibility more than anything else, he says.

Given that insight — albeit from a competitor — it's interesting to take a step back and measure the success of the Siemens acquisition of UGS, which will result in a tightly integrated PLM-to-production solution. Is the Siemens acquisition of UGS working?

As an integrated organization, the answer appears to be yes. From a PLM sales perspective, Teamcenter revenue was up 15% a year after the acquisition closed, and Tecnomatix license revenue was up 28%. But as far as Siemens PLM Software's being the de facto standard for the digital factory of the future, well, the jury is still out. ■

Photo courtesy, Siemens

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# SIEMENS

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