SIEMENS

Siemens Energy

Transforming the process of innovation through global collaboration

Product

Teamcenter

Business challenges

Maintain leadership position in a very competitive industry

Improve collaboration among 100+ design, manufacturing, third-party and service sites around the world

Protect intellectual property

Reduce nonconformance issues during the design phase

Keys to success

Single window into a common data repository

Easy-to-use gateway into design, manufacturing and product support information

Neutral, lightweight data format to allow greater lifecycle use of 3D data

Realistic virtual assemblies used in design reviews and product training

Results

Global secure access 24/7/365

Greater re-use of engineering data

This power industry leader is transforming a collection of previously autonomous businesses – a multi-CAD, multi-site development environment – into a highly collaborative, virtual enterprise

The whole is greater than the sum of the parts

Siemens AG, Energy Sector, Oil & Gas (Siemens Energy for short) is one of the premier companies in the international power generation sector. It has a workforce of about 33,500 people worldwide. The Industrial Applications business of

Siemens Energy employs approximately 11,000 people based at more than 50 sites around the globe. These include major design and engineering centers (with more than 800 employees at each, some with up to 2,500 people), smaller manufacturing and service competence centers and a large number of regional organizations.

The design, manufacture and support processes for products of the industrial division – gas or steam turbines and process compressors – take place across multiple continents. When you also consider where parts of the product could be manufactured (Eastern Europe, South America or
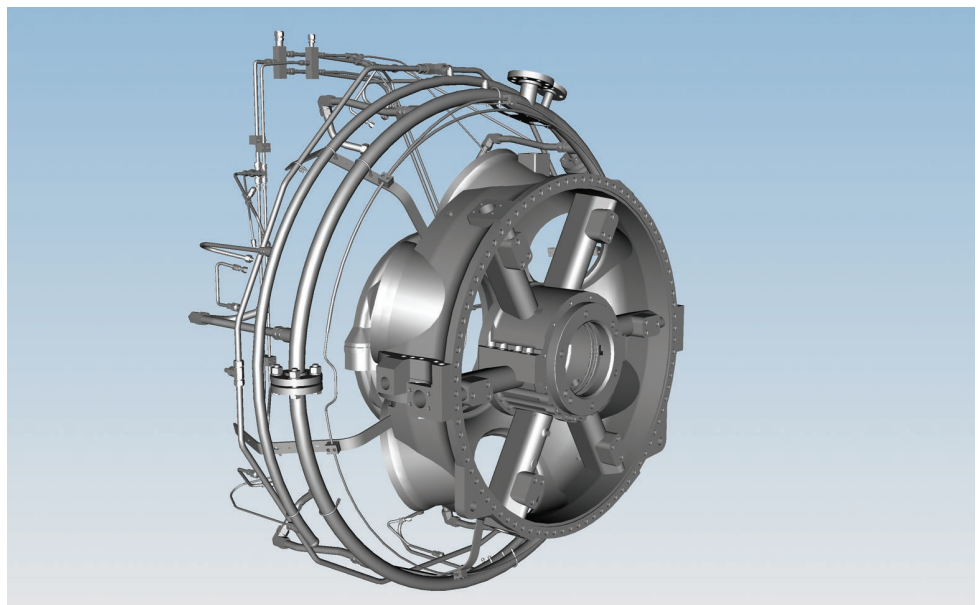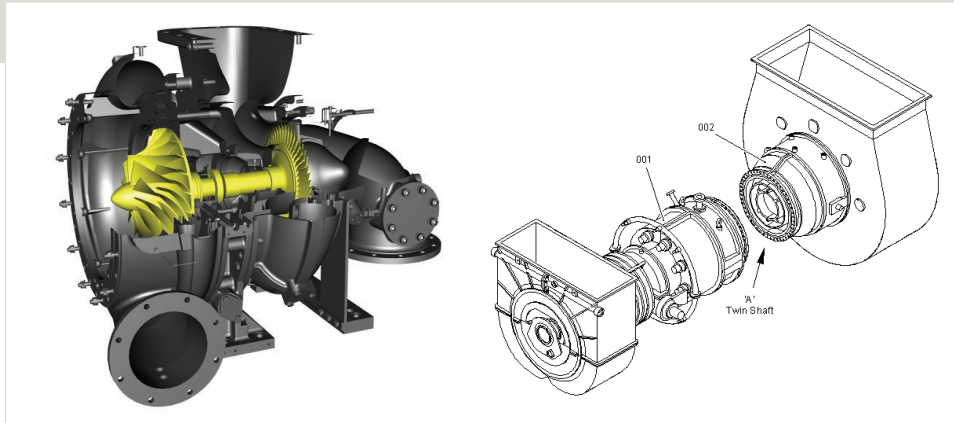
other low-cost manufacturing centers), you're looking at a development process that spans the globe. In a business that is highly competitive, the challenge has been to turn what began as a collection of autonomous businesses in various locations around the world into the division capable of global collaboration and rapid new product development.

The division has started to accomplish its process goals through the use of product lifecycle management (PLM) solutions from Siemens PLM Software integrated with mainstream enterprise resource planning (ERP) solutions from SAP. "We've gone from being a series of autonomous businesses to a virtual organization," says Alan Walker, head of the Collaborative Product Definition Program at Siemens Energy. "We were looking for a solution that would allow us to push our data around in a virtual organization across the globe.

Teamcenter® software gave us that, and is allowing us to transform a multi-site, multi-CAD operation into something much more integrated and therefore more competitive."

Global challenges require a comprehensive solution

Some of the challenges in creating this virtual, global organization included the physical separation between sites, as well as the different computer-aided design (CAD)/computer-aided manufacturing (CAM), ERP and product data management (PDM) systems in use at the various locations. The physical separation necessitated a great deal of travel which, typically, means at least a day of productivity lost per person in transit each way. "There are costs, such as airfare and hotels, of course," says Walker. "But the real cost of travel is lost productivity. Or, someone will decide not to make a trip, so their involvement is lost."

As for the many different software solutions in use, the intent is not to make each site use the same system, but to enable collaboration while supporting different data formats. An even more important consideration about data is the security of the electronic information as it moves from site to site. "This information, if on CD-ROMs or memory sticks or similar media, is highly reproducible and therefore vulnerable," Walker notes.

Other problems related to the geographic distance include design reviews taking longer than necessary, and different sites being forced to rework or recreate designs

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Axel Hoynacki
Head of Process Optimization and Product Standardization
Siemens Energy

that already exist at other locations. In addition, there is a key goal to reduce non-conformance issues in the design stage, the source of which can be attributed to the geographic distance between sites involved.

Teamcenter creates a collaborative community

To overcome the challenges of global product development, Siemens is implementing the engineering process management and community collaboration capabilities of Teamcenter software. Today, design and manufacturing sites still use their original CAD/CAM solutions, which include Pro/Engineer® software, NX™ software and NX I-deas™ software. The extended enterprise of suppliers and third-party design houses also use such tools as Solid Edge® software and AutoCAD® software. Sites work in 3D according to a collaborative product data model. Although data is stored locally in Teamcenter databases, these databases are now being linked by the multi-site functionality of Teamcenter, making up-to-date information from one site accessible to the other sites. This gives everyone involved in a project the assurance that they are working with correct data at all times.

Beyond the engineering environment, Teamcenter supports global collaboration by unlocking product information and providing access to Siemens stakeholders. This makes it easier for people in other parts of the organization, (sales, service, manufacturing, suppliers and third parties) to provide input throughout the product lifecycle process.

Many parts of the organization already use the community collaboration functionality of Teamcenter, which enables Siemens users to collaborate, sharing files, data and models, and posting them to a common location on the web. Teamcenter enables users to view engineering data in a lightweight, CAD-neutral format (JT™ data format). People who historically didn't have
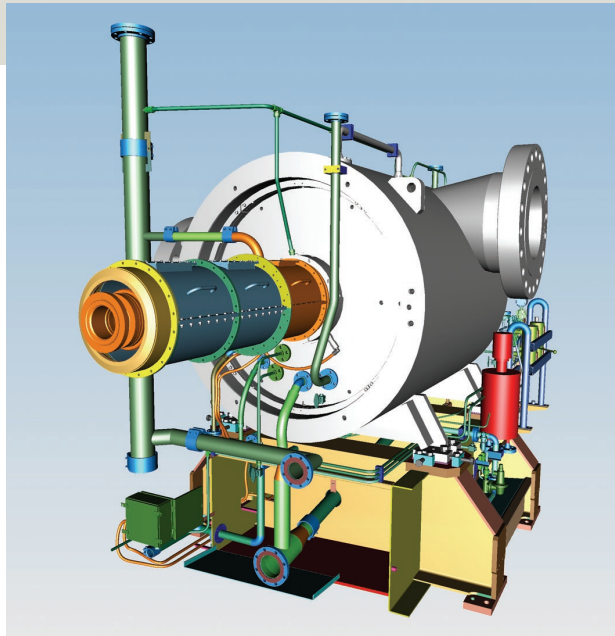
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access to CAD software, or to the engineering data management environment of Teamcenter, can view and mark up this data, allowing faster design reviews, and greater collaboration early in the design process. As a result, Siemens reduces downstream errors during production and installation.

The community collaboration capability of Teamcenter bridges the gap between diverse engineering applications and provides a lightweight, user-friendly view of the product. Embedded visualization capabilities combine models that were originally created in different CAD systems into virtual assemblies. A design review, for example, might combine turbine or process compressor components from various

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Product Development
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Solutions/Services

Teamcenter
www.siemens.com/teamcenter

Customer's primary business

Siemens AG, Energy Sector, Oil & Gas (Siemens Energy for short) is one of the premier companies in the international power generation sector.
www.energy.siemens.com

Customer location

Europe, Americas and Far East

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suppliers into a complete assembly. Reviewers can manipulate the assembly on screen for much more comprehensive design reviews. With web conferencing capabilities included in Teamcenter, it reduces the need to travel to participate in these design reviews and enables a much stronger process approach.
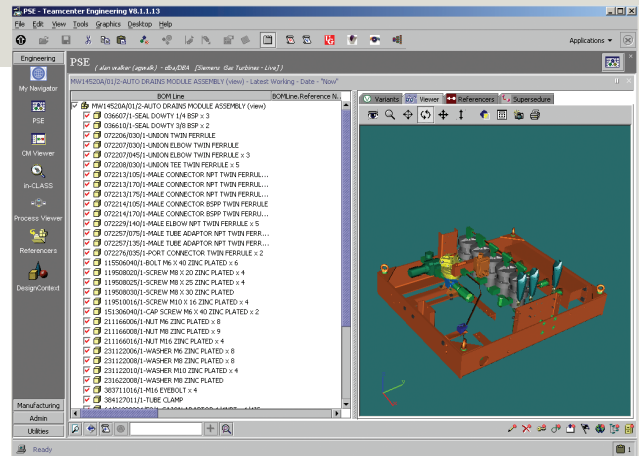
Transforming the process of innovation

"Teamcenter is transforming the process of innovation through team collaboration," says Alan Wilds, director of gas turbine product development, Siemens Energy. "We can now globally connect people in an instant, rather than having to schedule meetings days, or weeks, in advance. These improvements include not only our business' own sites, but are extending to our many suppliers as well. Best of all, information is now much more secure and controllable as it crosses the globe."

Wilds explains, "Teamcenter gives us better control of our intellectual property. Even though it's internet-based, it significantly reduces the previous risks. We have high-encryption delivery of information over the internet that we can track. We know exactly who logs on and what they access. It's far better control than we had previously, and in our business this is very important."

With people now collaborating more easily (fewer travel and document transfer delays) and effectively (better design

reviews, more leveraging of engineering data), Siemens Energy anticipates a new level of productivity that will help the business meets its targets of faster time-to-market and lower nonconformance costs. Axel Hoynacki, head of Process Optimization and Product Standardization in Siemens' Compressor Business, observes, "Global pressures hit us quite hard. We need to cross the physical boundaries of the world. With an integrated solution of Teamcenter and SAP, we have a great opportunity to accomplish this."

Finally, the impact of Teamcenter on collaboration has helped improve quality at Siemens Energy. "With Teamcenter, we have seen a measurable reduction in design review time and increased re-use of designs," says Hoynacki. "As a natural outcome – with more time available and better use of data – we also expect improved product quality. More specifically, with the correct data in hand, versus autonomous site development, nonconformance issues caused by geographic separation will be measurably reduced."