

Solid Edge

Toshiba

Transition to 3D yields quantifiable rewards

Industry

Machinery and industrial products

Business challenges

Reduce development cycle for customized industrial equipment

Find problems sooner to ensure quality and eliminate "design loops"

Keys to success

Use 3D CAD from the beginning of the development process

Take advantage of viewing technology to communicate design concepts using 3D models

Results

Fewer design errors saves money; 9,200,000 Japanese yen saved across several projects

Design revisions due to error slashed by as much as 75 percent

Manufacturing time was cut by 30 percent

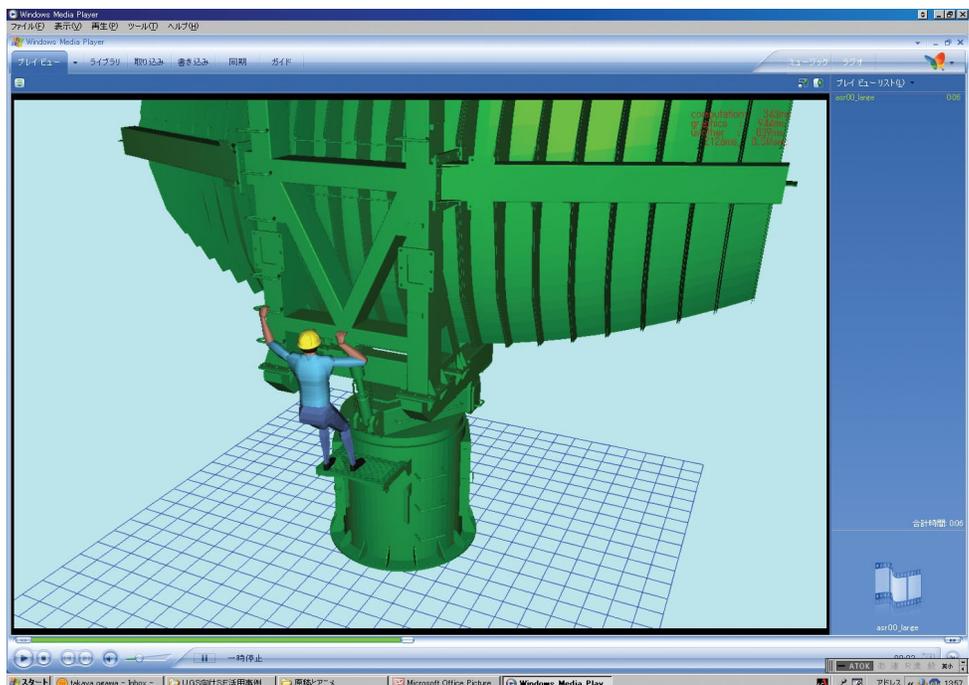
Overall task time was reduced by 50 percent across design, manufacturing and validation

Designing in 3D and then communicating via 3D models saves time and money from design through production

One design, many variations

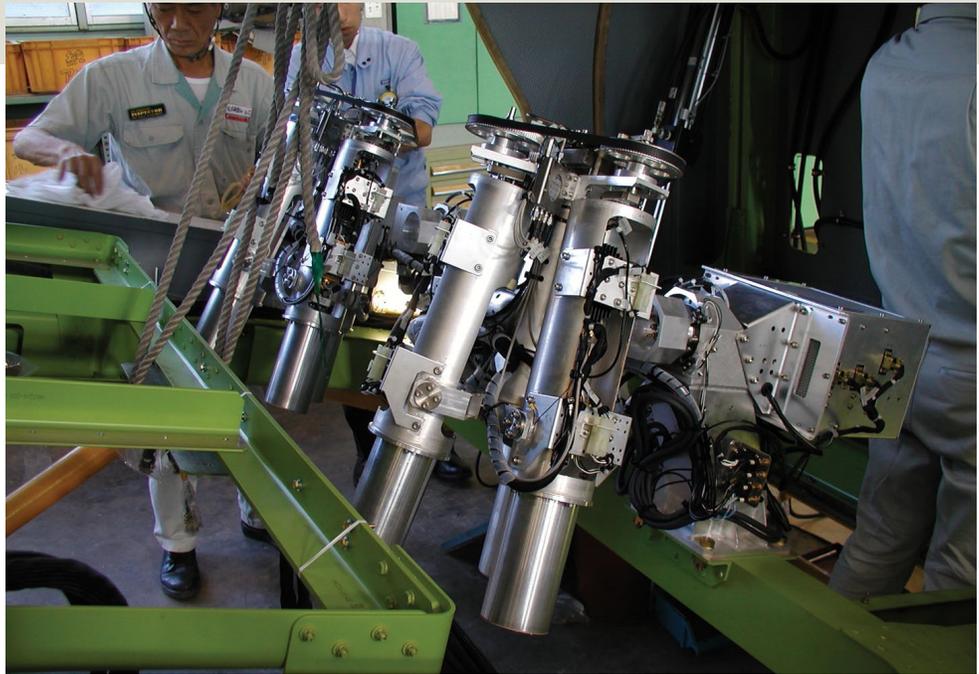
Toshiba Corporation's Komukai Operations delivers wide-ranging solutions, including advanced radar and radio systems in areas as diverse as air navigation, and spectrum monitoring and control. Many of these systems are produced in small lots. Typically designers create one basic design and then spin off multiple variations to meet the needs of Toshiba's global customer base.

Toshiba's Komukai Operations has established a goal of reducing the time it takes to develop its customized equipment. As part of that goal, there is an initiative to find errors earlier in the design phase. When problems are not discovered until parts are manufactured (often by outside sources), the additional costs cut into profits. Errors found late in the development cycle also cause delays in delivery as additional design revisions must take place to solve the problem. To meet these objectives, the mechanical design division decided to upgrade from 2D design to 3D solid modeling.



“Solid Edge is designer-friendly, with a variety of finely detailed functions, and it was wonderful to be able move from initial design to drawing without having to customize.”

Masami Ishida
Komukai Operations
Toshiba Corporation



Solid Edge is the 3D design solution of choice

The mechanical design division began an investigation into the implementation of a 3D solid modeler in 1998, and after investigating several systems, chose to implement Solid Edge® software in 2000. There are several reasons Solid Edge was chosen, but the most important fact was that it is very easy to manage. Because Solid Edge minimizes the number of menus and clicks that are required when performing everyday tasks, designers find it easy to use the system. Superior drafting functionality, the ability to create sound drawings and the fact that Siemens is also the developer of Parasolid, the de facto 3D modeling component standard, also contributed to the division's selection.

Solid Edge introduction on a trial basis enabled the company's mechanical engineers to begin doing all of their design work in 3D, starting with their basic design

activities. Solid Edge makes it easier to communicate design concepts across the company because designers can understand 3D models better than 2D drawings. Another benefit is that designing in 3D is more accurate than 2D. Designers better visualize errors than they could in the past. In addition, the ability to assemble systems virtually onscreen makes it possible to detect and fix interferences before they get to production.

Over the course of several projects, the cost savings resulting from higher 3D accuracy were estimated to be 9,200,000 Japanese yen. The division has not eliminated errors completely because some are still caused by human mistakes, but errors have been reduced significantly since the implementation of Solid Edge. The number of design revisions has also been cut substantially. A control panel that was designed in both 2D and 3D illustrates this well. The control panel designed in 2D required 32 revisions. The one designed in Solid Edge needed only eight.

Solutions/Services

Solid Edge
www.siemens.com/solidedge

Customer's primary business

Toshiba's Komukai Operations provides special order products based on customer specifications for a diverse range of activities including radar and disaster prevention systems.

http://ni.toshiba.co.jp/snis/ovs/index_e.htm

Customer location

Kawasaki, Kanagawa
Japan

"With the implementation of Solid Edge, we began doing all design work in 3D, starting with basic design. One of the benefits of this is that it is now easier to communicate design concepts to others in the company. As a result, in one project we achieved a drastic reduction in development cost and defects, a 50 percent reduction in overall task time and a substantial overall reduction across design, manufacturing and validation."

Takaya Ogawa
Komukai Operations
Toshiba Corporation

Using 3D models to communicate

The division gets extra value from its Solid Edge models by using them to enhance communication with the other divisions, suppliers and manufacturing. The division uses Solid Edge Insight Connect (the powerful design review functionality that comes with Solid Edge) to enable extended team members to view CAD data and interrogate designs using dynamic sectioning and measurement tools. Solid Edge free viewer, SmartView and Web Publisher (an additional software module for sharing design information over the internet or intranets) are also used to leverage the company's Solid Edge data.

One area where this has been particularly valuable is in manufacturing. Since the installation of the CAD viewer, production personnel have had less need to check with the design division. With that advantage and the fewer design errors attributed to the use of 3D, manufacturing time has been reduced by 30 percent. Also, across system design, manufacturing and validation, there has been a 50 percent reduction in task time that the company attributes to the use of 3D models. Now that 3D design has been fully implemented, Toshiba's Komukai Operations is investigating the implementation of an all around product lifecycle management (PLM) solution, including PDM, and has great hopes for Velocity Series™ software.

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