

Sakurai Graphic Systems improves productivity and innovation with CATIA V5



"After prototype production, we used to find 200 to 250 items that required changes or improvements, but with CATIA V5 changes have dropped by as much as 80 percent." – Tatsushige Matsuo, Senior Manager, Design Department, Corporate Officer, Sakurai Graphic Systems

With a shift under way from printed material to the Web and other digital media, the printing industry faces new challenges in a changing marketplace. Japan Association of Graphic Arts Technology (JAGAT), a testing and research corporation licensed by Ministry of Economy, Trade and Industry, has appealed to Japanese industry members to 'go beyond the bounds of the conventional print business model and envision a print business model that fits the IT era.'

Overview

■ The Challenge

Sakurai Graphic Systems needed to streamline its product development process to improve time-to-market, quality and internal collaboration

■ The Solution

Sakurai selected CATIA V5 to complement its existing 2D capabilities and as a tool to improve customer and market responsiveness and product innovation

■ The Benefit

Sakurai has streamlined development by reusing existing know-how and eliminating errors, reducing product redesign by up to 80 percent and improving collaboration and quality.

A changing marketplace leads to process changes

Sakurai Graphic Systems, established in Japan in 1946 as Sakurai Machinery Works, manufactures and sells offset presses, screen presses and related products with Computer-to-Plate technology. Although an acknowledged leader in its field, the changing landscape in the printing industry has prompted the company to examine strategies to ensure growth and success in the years ahead.

Masayuki Otake, Executive Director, Sakurai Graphic Systems, says that amid such business environment changes, printing press manufacturers must aim for major reforms. "Meeting the greatly changing market environment and bringing to the market what is required when it is required is a top priority for our business," he said. "The key is reform of product development. Specifically, innovation is required for accomplishing both a reduction in our time-to-market through reduced product development time and improvement in product quality."

Streamlining the design and development process ensures success

Since printing presses are such complex machines, many parts and interactions must be considered during their design. Even small design changes require a lot of evaluation time and consideration of their impacts on the rest of the machine.

Even after the shift to mass production, improvements are required, but the current state of design is 'trailing' those needs and creating delays in new technology development.

"First, we must establish the system that eliminates products and designs coming back for corrections by achieving design completion," Otake said. "That, will allow designers to focus on new development."

As Sakurai increasingly focused on innovation, the limits in 2D design became ever more apparent. With the need to streamline development, Sakurai decided that a full shift to 3D development was inevitable.

Making the transition from 2D to 3D

Sakurai considered a number of mid-range to high-end tools for its transition to 3D computer aided design (CAD). But because existing 2D drawings would continue to be a part of the design process for the near future, especially in collaborating with outside companies, the 3D solution they selected needed to utilise existing drawings created by its previous Micro CADAM system.

The new system needed to be capable of supporting the company's future plans, but at the same time be simple and quick to implement with a quick ramp-up following installation. After intense evaluation, Sakurai selected CATIA V5 as its new 3D CAD solution.

"CATIA V5 links well with the analytical functions and is scalable, with the capacity to expand in conjunction with the growth needs of our business," Otake said. "Its high market share and the high quality of support were among the reasons for our decision to use CATIA V5."

One-step rollout pays off at Sakurai

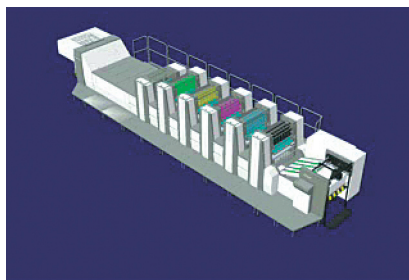
The transition to CATIA V5 was executed in one step in December 2002.

"At the start of the introduction of any new product, there is always the possibility that confusion will accompany the switchover," Otake said. "However, with a vision toward the future, we knew it was necessary to sweep away the previous 2D CAD drafter culture and to construct a corporate culture that understood 'design is not possible' without using 3D CAD."

As anticipated, 2D drawings had to be converted to 3D, which created some slow downs during implementation. But Otake said he knew that this was a necessary prerequisite for constructing a reliable base, after which development would be able to accelerate smoothly.

"The multiplier effect provided by the training by IBM Japan and IBM Business Partner CIS (Central Information Systems), coupled with the motivation of our designers to 'not just learn, but master', provided us with an extremely smooth transition," he said.

"With CATIA V5, even young, inexperienced designers can immediately play a role as members of the development team."



Design process improvements come quickly

Until the rollout of CATIA V5, Katsumasa Tanaka Manager of Design Department said, small 'slip-ups' piled up quickly and caused delays. With 2D drawings, contradictory shapes that could not co-exist in the same design easily happened unnoticed, making the degree of productivity of each designer critical to the success of each project.

"Since the shift to 3D design, we can check for interference and other problems visually, allowing even inexperienced designers immediately to play a role as members of the development team," Tanaka said.

With only slight variations between printing press models and customisation common among customers, being able to capitalise on a designer's resident knowledge and on existing product designs became crucial as instruments to shorten the design process.

"The shift to 3D designs of objects allows everyone, regardless of their level of proficiency, to share the same understanding of the design," Tanaka said. "This point is extremely appealing."

"A collaborative company culture is starting to emerge in which everyone, from their own standpoints, offers better ideas for products and feeds that back into the next period's products," said Tatsushige Matsuo, Senior Manager, Design Department, Corporate Office.

CATIA V5 streamlines development process and improves quality

Tanaka credits the shift to 3D design with speeding the production of prototype machines at Sakurai.

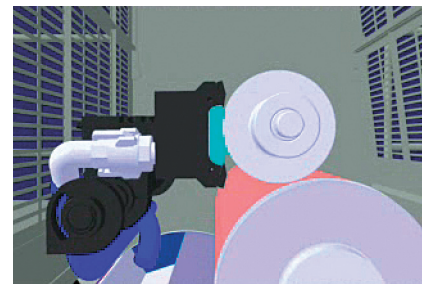
"Because we are able to give our presses deeper study and evaluation in the design phase, there are almost no troubles in the phase of prototype verification," he said. "By repeating various trials on the screen, design consistencies are improved. When it comes to installation too, the new system has enabled us to clear this hurdle smoothly."

Matsuo said the new system has eliminated trial and error, reducing personnel costs. He also said that before CATIA V5, studies on prototypes typically identified 200 to 250 items requiring changes or improvements, but that with CATIA V5 the number of necessary changes has dropped by as much as 80 percent.

"Since the time and labour saved this way can be turned to improving quality and innovation, our products have become even more sophisticated," he said. "This collaborative system is spreading outside the company to cooperating companies, suppliers and others."

For example, instead of working with 2D drawings for orders from forging manufacturers in China, which are prone to errors and incompatibilities, Sakurai can now build 3D designs in CATIA V5 with compatible data and no contradictions. "With CATIA V5 3D data on site, the communication of intent without misunderstanding is even better," Otake said.

CATIA V5 has brought unexpected benefits as well. For example, moving Sakurai's nearly 20-ton printing presses to the shipping dock has historically been a challenge because each move required the company to pinpoint the specific machine's centre of gravity.





"If we tried to find the centre of gravity of a nearly 20-ton product with a complex 3D shape using just 2D CAD and calculations, this was too complex – in fact it was impossible," Tanaka said. "So the only way we could do this work was by trial and error with experienced workers relying on their expertise to help find the right hand hold. However, with CATIA V5, it is extremely simple to calculate the centre of gravity point."



Future plans

Sakurai wants to further leverage their investment in CATIA V5 by putting even more effort into simulations as they head toward full-scale operation in the future. "If it becomes possible for designers themselves to carry out various analyses on their own desks, tests to meet all design needs will be realised swiftly," Otake said. "Also, with more trials, qualitative advance of designs can be expected."

"Conducting their own simulations also will allow veteran designers to transform their personal knowledge and experience into standard 'formal knowledge' that can be shared throughout the whole company", Otake said.

Sakurai is now entering the second phase of the CATIA V5 implementation, in which it aims to raise its design turnover rate, use online tools to improve collaboration and increase design productivity from two models per designer per year to four models.

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