

SITUATION

Seagate Technology is the world's largest manufacturer of disk drives and components. In this highly competitive industry, the first company to introduce new, reliable technology generally gains the greatest market share. To maintain its leadership position and ensure the on-going development of innovative new products, Seagate decided to migrate from the company's existing 2D mainframe-based CADAM system to 3D. In its effort to transition to solids, Seagate used lessons learned about the support required both internally from the company's users and managers, and externally from the new system vendor, to guide the development of a successful migration strategy.

OBJECTIVES

- ✓ Develop and build support for a plan that would successfully migrate Seagate from CADAM to a solids-based, integrated design and analysis system.
- ✓ Select the vendor and the CAD/CAM/CAE tool that could best support that migration strategy by leveraging existing 2D data and providing a growth path to 3D solids.
- ✓ Implement and execute that plan without compromising product schedules.
- ✓ Reduce the costs of the engineering system and eventually eliminate the existing mainframe.

PROCESS VISION

Enhance disk drive design and development for the next four to 10 years by improving product quality and time-to-volume through use of a unified 3D model for product definition throughout the enterprise.

ACTIONS

- ✓ After an extensive evaluation, Seagate selected SDRC and I-DEAS™ because the vendor and the software supported a two-step approach to migration. The company's first experience had taught the transition team leaders that they couldn't simply throw out the old system and process and "jump" into a new one. They needed the new system to co-exist with the old one, at least for a period of time, to give everyone the chance to learn the software, and accept – even facilitate – the change.
- ✓ At Seagate's request, SDRC developed a customized training program for the company's 120 CADAM users. Key design leaders from the



Seagate Shrinks Cycle Time to Lead Market

"I-DEAS™ fit with our vision as we migrated from CADAM to solid modeling. From its CADAM translator and strong drafting capabilities to its broad application breadth, I-DEAS would enable the integrated product engineering environment we wanted, and more importantly, provided the migration path for successfully getting there."

- Doug Speidel,
Director, Engineering
Computing Services,
Seagate Technology



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product design groups were the first to be trained. Called the "Marines," they became the missionaries for the new approach.

- ✓ During the first phase of the migration strategy, users became comfortable with I-DEAS Master Series™ software in a 2D environment, using direct translators to migrate more than 10,000 CADAM drawings into I-DEAS Drafting™ software. The remaining 120,000 CADAM drawings were archived so that, if needed, they can be translated "on the fly."
- ✓ During the second phase, I-DEAS Master Modeler™ software and training was made available to users who were proficient in I-DEAS Drafting. Solid modeling was then used on new design projects.
- ✓ Once the users were trained and the legacy data converted, Seagate reengineered its design process to allow analysts access to solid models during early phases of design.
- ✓ Seagate also began implementing product data management tools including SDRC's Metaphase® software. Worldwide vaults and a distribution system for design information have been established, and electronic release processes have also been developed.

RESULTS

- ✓ Because the new software was easy to learn and allowed the necessary legacy data to be readily accessible, all production schedules were met during the transition to the new system.
- ✓ In fact, all existing CADAM users were as proficient – even more productive – in I-DEAS Drafting within three months.
- ✓ With the 3D process in place, cycle time for a new disk drive has been reduced from 18 to 12 months.
- ✓ Costs have been reduced, too. The elimination of mainframe maintenance and 75 host terminals, which was completed on time and under budget, saves Seagate approximately \$1 million per year.
- ✓ Up-front simulation, which was not possible with a 2D approach, has reduced prototype testing. Up-front analysis has also increased the reliability of products coming off the line since rapid design-analysis iterations allow time for fine-tuning drive performance.
- ✓ In addition to sharing data among applications, Seagate is sharing design data among its geographically distributed engineering facilities to improve efficiency and increase re-use of designs.

PLANS

As Seagate continues to refine its new product development process with the continued support of SDRC, it plans to tie in other engineering groups, and integrate specialized analysis capabilities through I-DEAS' interfaces to magnetics, fluid dynamics, and variational simulation code.

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