

Desktop Engineering Magazine :: PLM Shortens Avionics Design Cycle

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Written by Brett Duesing

By getting a handle on CAD file management, PLM save this company millions.

CMC Electronics, Inc. (formerly BAE Systems Canada, Inc.) produces both commercial and military avionics products. For example, CMC supplies Boeing with flight management systems using GPS, and other big customers, like the U.S. Marines and Army, look to CMC Electronics for line-of-sight, high-frequency tactical radios.

» » This image shows BOM (bill of material) information as it is imported into ProductCenter. Sources of such information can be almost any standard digital and database format. Click to enlarge.



As CMC Electronics was rapidly adopting more CAD systems in the early 1990s, company engineers began grappling with new problems caused by the huge proliferation of project files. They realized they needed to manage CAD files and associated information effectively to prevent costly inefficiencies and project delays.

Files Multiplying Out of Control

At the time the company reached the apex of CAD-system proliferation, you could find [AutoCAD](#), CADKEY (now [KeyCreator](#)), [Mentor Graphics](#), [Pro/Engineer](#), and four or five other CAD systems in use. The only official tracking system for the bewildering array of files and file structures consisted of jotting down lists on paper. The potential for error started to be actualized with alarming regularity.



« « This image shows how a BOM can be edited and redefined once imported into ProductCenter. Click to enlarge.

"Typically, the files were just spread all over the place, with multiple copies everywhere," recalls Mark Hamilton-Piercy, IT Engineering Manager. "This caused us all kinds of problems. The time it took just to find drawings, to make sure you had the right ones, and [to] be sure you were not redoing work by picking the incorrect files was costing us a lot of money."

›› *ProductCenter offers a variety of dashboard operations to help track and process ECOs, change orders, assignments, and projects. Click to enlarge.*



In 1994, managers of CMC Electronics realized they needed a PLM (product lifecycle management) solution to regain control of the engineering process. They sought out SofTech, developers of ProductCenter software. "One of the main driving forces was cycle time in the design phase," Hamilton-Piercy explains. "An awful lot of time was spent affecting changes. There were all kind of issues that just went away when we started working with SofTech."

Pro/Engineer Integration the Driving Force

CMC Electronics chose SofTech's PLM due to its close affinity with its dominant CAD system. "I would say the main driving force was ProductCenter's integration with Pro/Engineer, which was the emerging standard in our company. Although other vendors had products available for managing the problem, they were far short of meeting our requirements," says Hamilton-Piercy.



‹‹ *Examples of ProductCenter's file management and search tools. Click to enlarge.*

"After reviewing the product, it was pretty evident that ProductCenter is an extremely flexible product. We saw that it would be an ideal electronic system for gathering and collecting the information we need, rather than distributing paper."

CMC Electronics' Engineering Configuration department began to store and manage all of their core drawings and engineering documentation in ProductCenter. The next step, linking all technical manuals for CMC Electronics product lines to the design documents, made the department project-centered. "Over time, our plan is that ProductCenter will become our full blown product lifecycle management system—handling everything," Hamilton-Piercy says.

›› *This image shows file markups as well as progress reports on related data. Team members can also perform live chats and share to establish consensus within the changes and markup being made. Click to enlarge.*



Now, all engineering documents (mechanical and electrical drawings, specification sheets, and other product information) are web-accessible with the company's custom-built Electronic Document Online

Viewing System (EDOV), which is based on the ProductCenter system and developed with the ProductCenter WebLink Toolkit. EDOV won BAE Systems's Bronze Award for Innovation—an internal program to encourage employees worldwide to suggest improvements to products or processes—and "is now deployed across the entire organization," Mark says. "That includes the manufacturing, testing, and engineering departments."

Mounting Savings

CMC Electronics calculates that the quicker searches for drawings and information ProductCenter gives has saved more than \$313,000 per year in employee time alone. In the several years since ProductCenter's adoption, the savings have accumulated into the millions, doubling the company's original savings estimates.

CMC Electronics can also take on more new business that requires short design cycles and rapid results. "Using ProductCenter has definitely improved our responsiveness to our customers," says Hamilton-Piercy. "Our increased ability to deliver is bringing us more customer satisfaction and more business."

***Brett Duesing** writes about high technology from his base in Colorado. Prior to his career as a writer, Duesing was a CAD and GIS worker bee. Send Brett your thoughts about this article by clicking [here](#). Please reference "Shortens Design Cycle, August 2006" in your message.*

Piloting ProductCenter

SoftTech offers program that could help you evaluate its PLM solutions. They call it the "No Sweat PLM Pilot"—a marketing tag that way understates the anxiety any engineering IT staff and corporate bigwigs experience simply considering the expense and complexity of implementing a mission-critical application like ProductCenter. Still, you might want to consider this program because SofTech tries to make your evaluation as low risk and hassle-free as possible.

The short description is that SofTech sends in some of its professional services people to you. They then implement a ProductCenter pilot. It takes about a week or so, and they use your data and tailor ProductCenter to your workflows and specifications. For example, they can set up a vaulting and viewing environment, manage multi-CAD files, and automate an ECO process. You then get to live with the pilot and form your own opinions as to its benefits.

The enormity of the PLM and all its facets— vaulting, documentation, asynchronous/synchronous collaboration, V&M, DMU, process management, data translators, configuration management, ETO, BTO, APIs for ERP, WM, SCM, CRM, etc.—can produce analysis paralysis in even the most decisive CTO. SofTech recognizes this, and that's why their approach might be the one that to get you off the dime.

Speaking of dimes, SofTech does charge a fee they describe as "minimal" for the pilot service. They'll credit it toward your purchase if you proceed.

For more on the "No Sweat PLM Pilot," click [here](#). If you proceed, I'd love to hear about your experience.—
Lockwood

Companies Mentioned

[CMC Electronics, Inc.](#)
Montreal, QUE, Canada

[SofTech, Inc.](#)
Tewksbury, MA

Additional links
SofTech [white papers](#)

Additional Images



« « This set of images shows the creation of audit trail reports where you can obtain a snapshot of a project's status, what actions need to be taken, what processes are next, and what revision status is in place. [Click to enlarge.](#)

» » This image depicts the general working environment of ProductCenter. [Click to enlarge.](#)



« « ProductCenter interfaces with 3D CAD products, such as [SolidWorks](#) (pictured here). It can display combined the 3D data, associated metadata, and user-defined BOM data. [Click to enlarge.](#)

» » This image shows an object-oriented workflow, indicating, in this case, the status of ECOs in a specific project, backed by the processes required to ensure completion of the project (in top box). [Click to enlarge.](#)

