

Topic:
Collaborative
Solutions

Collaborative product Definition Management (cPDM) – analysis by Ed Miller of CIMdata

The development of web-based tools has pushed PDM into new realms. *iCT* asked Ed Miller, President of CIMdata, to explain how the market is developing, and who is leading it.

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What is cPDM?

The widespread adoption of the Internet and Web-based tools are now having a tremendous impact on the development and utilization of PDM and its related systems. Using these technologies as a foundation, new collaboration and e-commerce approaches greatly facilitate joint working between different companies and teams of people widely dispersed across the extended enterprise.

We refer to this evolutionary step as collaborative Product Definition management (cPDM), a strategic business approach to collaboratively managing the product definition lifecycle across the extended enterprise. The approach is provided through a combination of best-practice processes that address the extended enterprise, including OEMs, sub-contractors, suppliers, partners, and customers. The full suite of technologies includes product data management, collaboration, visualization, collaborative product commerce, enterprise applications integration, components supplier management, and others.

PDM's development - background

To deliver innovative products to market more quickly and efficiently, manufacturers are implementing a variety of technologies to facilitate management of the product lifecycle, which begins at the earliest point of product concept and extends until the product is obsolete and field support has ceased.

Management of the product definition lifecycle and its close integration with other major lifecycles, such as production and operations support, has been done for years. Historically, product data management (PDM) has been a major technology at the core of this concept. Originally in the mid-1980s, PDM was focused on data vaulting and communications requirements for CAD file management and was typically limited in scope to a design engineering department or workgroup. Functions were quickly added to this base, expanding the core capabilities of PDM systems.

As the industry evolved, the scope of the technology expanded beyond engineering departments, and by the early 1990s the requirements of industry dictated development of more sophisticated applications to address issues such as change control, configuration management, component classification, and others. The development of web-based applications then provides new opportunities for the evolution of PDM to continue....

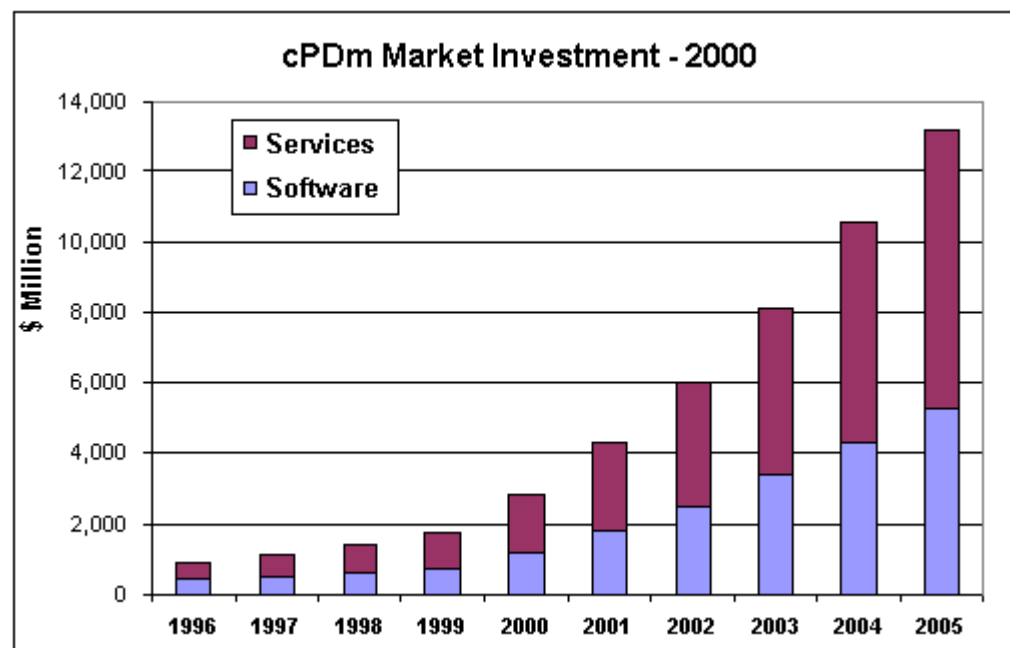
In this way, cPDm enhances the business performance of the enterprise by supporting initiatives such as supply chain management, concurrent engineering, integrated product development, design collaboration, and globalization - initiatives that can make or break a company.

Rapid expansion

According to recent CIMdata statistics, the worldwide cPDm market grew 62% to reach \$2.86 billion in 2000. Investments in software jumped to \$1.23 billion, comprising 43% of the total market and exceeding the growth rate for service revenue for the first time in years.

CIMdata forecasts overall cPDm investments to continue at a significant pace over the next five years. The market is predicted to exceed \$4 billion in 2001 and increase at a compound annual growth rate of 43% through the year 2005, when market size is expected to exceed \$13 billion.

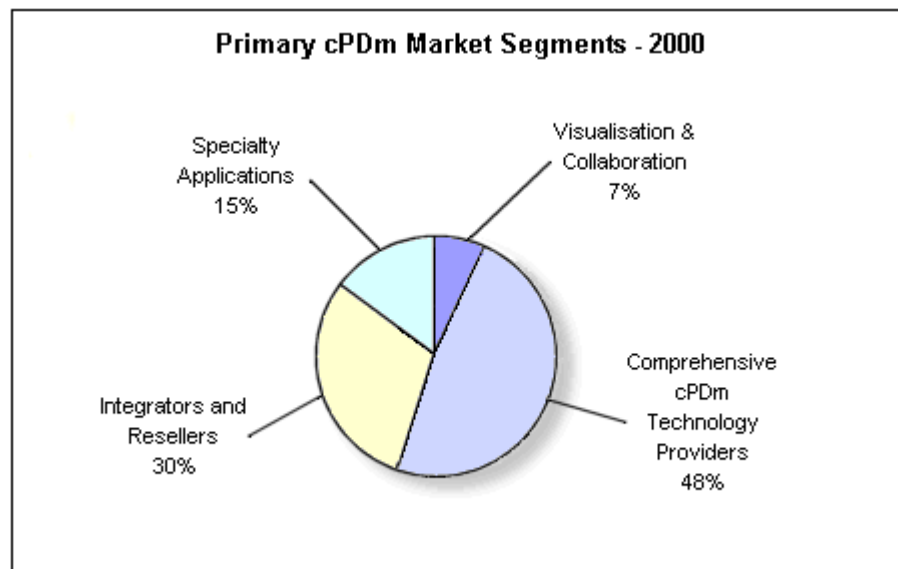
Exceptionally strong growth in 2000 is attributed to the widespread adoption of cPDm as a way for companies to operate more effectively in increasingly competitive global markets. A significant driver has been the adoption and implementation of e-business strategies across the manufacturing enterprise.



Diverse market segments

A wide range of vendors supply cPDM-related software and services. The overall cPDM market has different sub-segments, each with its own set of technology suppliers, many of which do not directly compete but rather complement one another.

The market is comprised of four major sectors: comprehensive cPDM technology suppliers, visualization/collaboration vendors, system integrators/resellers/VARs, and specialized application providers.



Comprehensive cPDM technology suppliers (e.g., SDRC, PTC, MatrixOne, SAP, etc.) comprise 48% of the market and had significant revenue growth in 2000. Increased investments are fuelled by the expanding scope of enterprise-wide implementations, readily scalable base technologies, the proliferation of web-based technologies, newer visualization/collaboration technologies that enable value to be achieved quickly, and the development of Internet portal exchanges. The growth of supplier-developed “packaged solutions” focused on specific industry problems and enabled sales and implementations to be completed at a much faster pace.

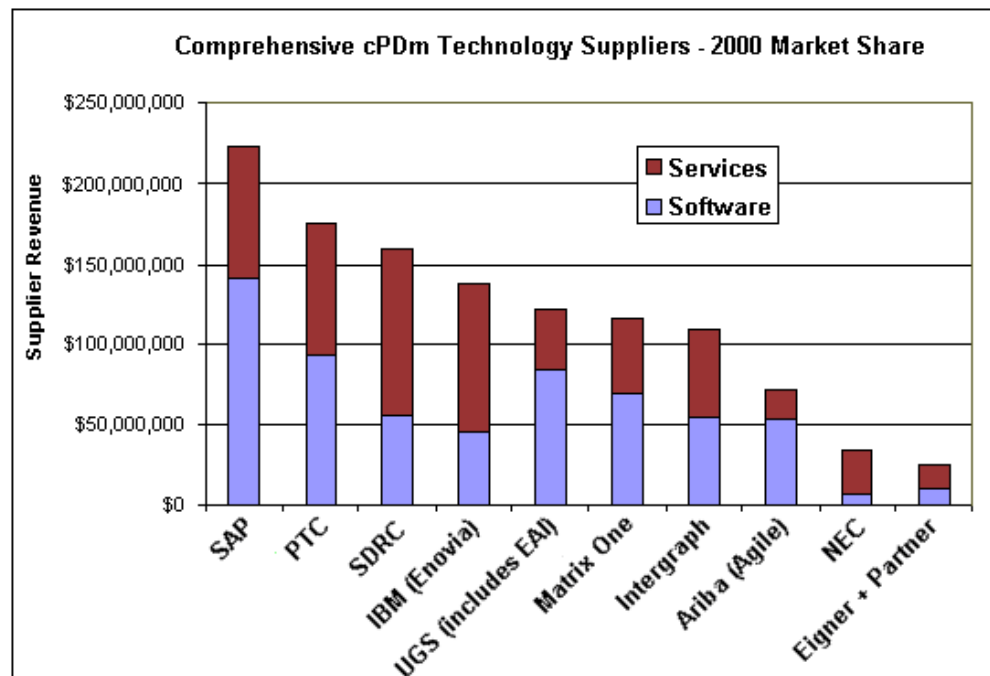
Visualization/collaboration suppliers (e.g. UGS subsidiary EAI, Centric, CoCreate, Cimmetry, etc.) saw impressive growth in 2000 as these technologies matured and companies began to recognize their tremendous potential in improving process efficiency in engineering organizations. Although this sector generated only 7% of the overall market, suppliers are poised for explosive growth over the next few years and are clearly a driving force in the acceptance and value of overall cPDM initiatives.

Systems integrators/resellers/VARs (e.g., Accenture, Pricewaterhouse Coopers, EDS) comprised 30% of market investments in 2000 and experienced major growth as both the scope and pace of implementations expanded dramatically. Demand for implementation services outgrew the ability of the technology suppliers to deliver, and the major service suppliers are filling that role. These suppliers are having a huge impact on the market, with most of the major firms establishing focused programs to address cPDM opportunities that complement and expand their e-business/strategy, supply chain management, and collaboration initiatives.

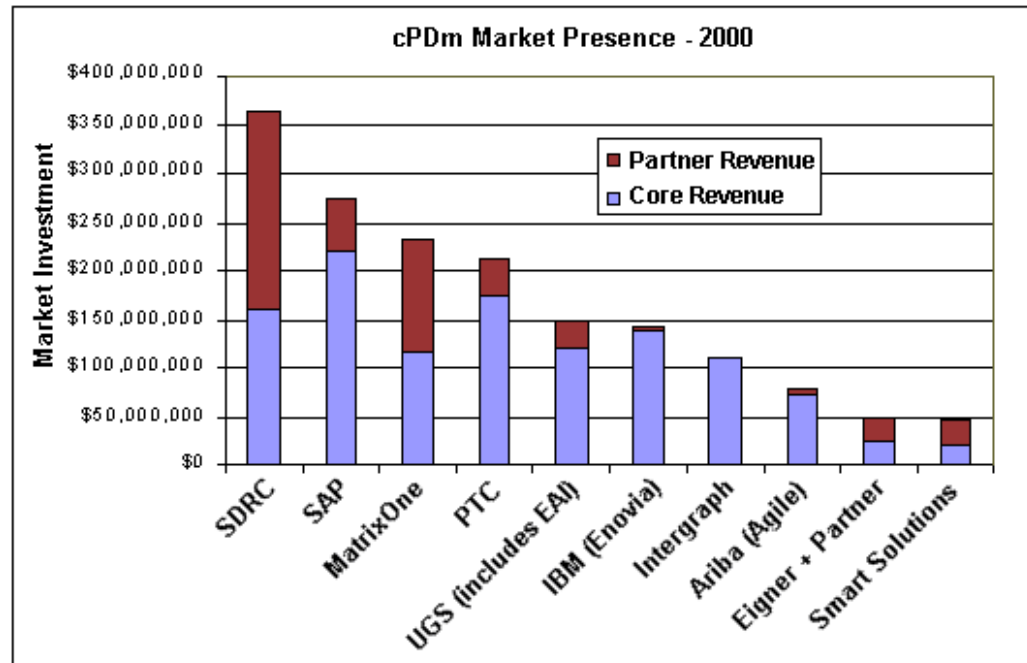
Specialized application suppliers (e.g., i2, Documentum, and others) accounted for 15% of cPDM investments as these vendors – most notably those focused on Customer Supplier Management (CSM), Supplier Relationship Management (SRM), and document management – have begun to acquire and integrate core cPDM technology into their overall product suites. This trend will likely continue, with these vendors (some quite large) focusing increasing portions of their business on the cPDM market.

Vendor rankings

According to CIMdata revenue statistics compiled for 2000, the market leader among the top ten comprehensive cPDM technology suppliers is SAP followed by PTC, SDRC, IBM (Enovia), UGS (including EAI), MatrixOne, Intergraph, Ariba (including Agile), NEC, and Eigner+Partner. The revenue achievements of the top ten are illustrated in the following figure.



Many of the suppliers provide technologies through their own field sales and support organizations. Others also heavily leverage system integrators, resellers, and other partners for additional sales. These combined core and partner revenues greatly expand the visibility and impact of these suppliers on the industry, generating a significant market presence for these major suppliers. Based on these combined revenues, CIMdata statistics indicate that the vendor with the greatest “cPDM market presence” is SDRC, followed by SAP, MatrixOne, PTC, UGS, IBM, Intergraph, Ariba Agile, Eigner+Partner, and Smart Solutions. This is illustrated in the following figure.



Activities of the major players

Vendors in the list of top ten comprehensive cPDM technology suppliers and leading market presence suppliers maintain their strong market positions through differing strategies:

SAP achieved the top spot among comprehensive cPDM technology suppliers by generating over \$220M in direct revenues. This dramatic feat was achieved almost quietly, with most of their implementations launched as extensions of SAP’s enormous customer base and thus requiring no significant competitive benchmarking. Also, SAP is one of the few suppliers generating significant revenues in both the discrete manufacturing and process industries, with overall revenues larger than either specific industry group would immediately recognize. A major portion of SAP revenue derives from central Europe where they hold a dominant market position. However, their growth in other major regions is accelerating, especially in North America, and the firm is leveraging existing relationships with major system integrators to continue expansion of cPDM business within its customer base.

SDRC maintained the leading position in overall market presence based on the total revenue that they and their partners create in the industry. Their existing customer base is substantial and includes some of the world's largest corporations. As these implementations have been expanded (with the help of many systems integrators and SDRC partners) investments around the world in the "Metaphase economy" have expanded significantly, totalling almost \$365M in 2000.

PTC continues to show major growth in their Windchill program, with impressive revenue growth in both software and services, where they ranked number two in both categories. Their impact on the market, and their overall visibility, are tremendous. Through their market activities, they are playing a major role in educating the industry and increasing cPDM business for themselves as well as their competitors.

MatrixOne demonstrated overall impressive growth, jumping to the number three spot in market presence and number four in software revenues during 2000. Their market presence and visibility are greater than their company revenues indicate, as they have effectively leveraged partners and systems integrators to generate a substantial economy built on their technologies.

UGS is still a relatively "quiet" competitor as they continue to expand their business. Historically a significant portion of growth came from within their existing CAD/CAM customer base, but they are gradually becoming more visible in the "open" market. Their acquisition of EAI boosted total revenue numbers for 2000, placing them number five in both market presence and overall revenues, and number three for software revenues.

IBM's growth continued, with much of the increase achieved by leveraging their existing CAD/CAM customer base. Additionally, they are one of the largest suppliers of services among the major technology suppliers. They are ranked fourth in overall revenue among the comprehensive cPDM technology suppliers.

Intergraph is a major supplier to the process industries and holds a dominant position in the process and plant sectors. Among the top ten overall suppliers worldwide, they are the only one to totally focus on the process industries.

Ariba-Agile is one of the real success stories of the industry. Their clear focus on a primary market sector enabled them to differentiate themselves and expand their business significantly. Their market presence has been visible for the last three years and in 2000 they generated enough revenues to break into the list of top ten revenue generators.

NEC has been a major force in the Japanese market for the last few years and continues to expand their business presence. They finished 2000 ranked ninth in total revenues among comprehensive cPDM technology suppliers.

Eigner+Partner has developed business beyond the original home location of Germany, and is beginning to establish a presence in North America as well. In 2000, they are ranked tenth in revenues and eighth in market presence based on their strong relationships with key partners.

Smart Solutions has shown impressive growth in both revenues and market presence over the last year. They provide their technologies primarily through partners, and gained a spot in the top ten of the overall market presence for the first time in 2000.

Conclusion?

For increasing numbers of companies, the key to improving their operations and staying competitive is cPDM. Those operating as they have in the past run the risk of being overtaken by agile, more aggressive competitors, across town and around the world. The core market is experiencing tremendous expansion as cPDM programs become mainstream and are targeted as enterprise-wide initiatives. Additionally, the continually expanding and overlapping scope of related technologies coming from the vendor community offers user companies a broader array of capabilities to address their problems.

Ed Miller is president of CIMdata Inc., a firm providing strategic consulting and research in collaborative Product Definition management (cPDM) solutions, best practices, and technologies that help companies develop products in the global e-business environment.

CIMdata hosts international conferences focused on management of the product or plant definition lifecycle. The next CIMdata Europe conference is scheduled for October 23-25, 2001 in Barcelona. CIMdata will also host its annual European Plant Information Management Conference (PIMC) November 13-15, 2001, in Noordwijk, The Netherlands. For information on these and other international conferences, contact CIMdata at 3909 Research Park Drive, Ann Arbor, MI 48108, U.S.A. Tel: +1(734668-9922. Fax: +1(734668-1957. Or visit the CIMdata website: www.cimdata.com.

You can access [more information](#) about our database of 20,000 UK CAD/CAM using sites from the Business Advantage website, or by contacting David Eaton on +44 (0)1689 873636. Amongst the data collected on each site is which brand of PDM solution the organisation uses.

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