

Enterprises of All Sizes Can Benefit from PLM

“PLM is No Longer Only for Large Organizations”

Over the last several years, Product Lifecycle Management (PLM) has emerged as the common term used to describe the creation, management, and use of product and plant related information and processes (i.e., an enterprise’s intellectual assets or complete product or plant definition) throughout the entire lifecycle and across the extended enterprise. Historically, Product Data Management (PDM) and now PLM solutions were practical primarily for large, distributed enterprises that had the extensive resources required to deploy and maintain them. Today’s PLM solutions are designed not only for large companies, but also for mid-sized enterprises in multiple industrial sectors. Increasingly companies of all sizes are recognizing the need for PLM solutions. At the same time, the capabilities of the solutions being offered have improved significantly.

PLM’s ability to enable enterprises to better create and manage their product or plant related information and processes has been proven for some time now. However, until recently PLM solutions have not delivered enough prepackaged functionality that is easy to acquire and implement at a reasonable price point for mid-size enterprises. The emergence of these prepackaged capabilities has not appeared overnight, but has come as a result of the continuous innovation and maturing of the PLM solution providers and their products.

As PLM’s scope has expanded and the industry matured, greater emphasis has been placed on the development and delivery of focused business solutions. These focused solutions are comprised of prepackaged functionality designed to simplify implementation and solve specific business problems. Common prepackaged functionality available today includes component sourcing, supplier management, project and program management, regulation-compliant document management, and many other diverse business capabilities. However, simply providing a prepackaged solution by scaling down existing features and technology is not sufficient. For instance, products that are based on a specific, pre-developed data model may prove inflexible during implementation and require significant programming to deploy effectively.

A complete PLM solution includes a combination of the right technology, appropriate features, best practices approaches, and focused implementation methodologies. To truly address the requirements of mid-sized enterprises the solution must also be easily tailored to fit the specific needs of the organization, which facilitates implementation and gets the solution into production as quickly as possible, at a reasonable price point.

This trend toward flexible, focused solutions is good for customers and the PLM industry alike, and CIMdata expects it to continue. The approach makes it easier for all enterprises to improve product and plant lifecycle activities, especially for mid-sized manufacturing enterprises.

Characteristics and Issues of Mid-Sized Enterprises

In general, mid-sized enterprises are companies or divisions of companies that are supply chain participants. These companies vary in size from roughly \$100 million to around \$1 billion in annual revenue. The companies that can benefit most from PLM typically come from the following industrial sectors:

- Aerospace and automotive supply chain participants (i.e., tier 1, tier 2, and some tier 3)
- Consumer products companies (i.e., appliances, toys, etc.)
- Electronics equipment manufacturers and their supply chain participants, especially tier 1, tier 2, and contract manufacturers
- Machine tool and heavy equipment manufacturers, primarily those that design and produce manufacturing equipment, such as multiple-axis turning machines, assembly equipment, conveyors, and generators
- Medical equipment manufacturers, especially those that have FDA compliance requirements
- Telecommunication equipment manufacturers and their supply chain participants, especially tier 1 and tier 2 manufacturers
- Utilities, especially those that need to track and maintain physical assets at a facility level, such as an electric substation or power generation station

Mid-sized companies within these industrial sectors are particularly receptive to PLM solutions that provide out-of-the-box capabilities that solve specific business problems because they share many of the same business challenges and characteristics:

- An increased focus on design/engineering and production of primarily electro-mechanical parts, components, and assemblies, with the need to capture and manage their product definition information throughout the enterprise
- Increasing requirements by larger customers for specific program management control by the supplier, regular status updates, and comprehensive project-related documentation
- Engineering and design environments with the need for configuration management and well developed engineering documentation standards and processes that can be easily automated
- The need to integrate with one or more MRP II/ERP systems to communicate product definition information, but with limited design supply chain management requirements; requiring only basic supplier and/or customer access to product development information
- The need to manage components and suppliers as part of the product development process, not as a separate, "after the fact" task
- Limited Information Technology (IT) resources, requiring the software to be reasonable in total cost, easy to install and maintain, pre-integrated with product development applications to reduce integration costs, and a quick ROI (i.e., months, not years)
- The need to manage plant or facility assets for maintenance, service, and operational up-time

These characteristics apply to many enterprises that supply Original Equipment Manufacturers (OEMs), as well as companies that sell their products directly to retailers, distributors, or consumers. Due to constrained financial and support resources, these companies are rarely early adopters of new solutions. However, as prepackaged solutions become available at more cost-effective price points, these enterprises adopt the technology to solve long-standing business problems. Over the last several years, PLM solutions have become both feature rich

and affordable. As a result, mid-sized manufacturing enterprises are increasingly embracing PLM solutions, and are actively applying these to support their business and enhance their competitive status.

How PLM is Being Applied to Support Mid-Sized Enterprises

For the most part, enterprise PLM solutions focus on PLM issues that affect multiple domains, such as program management, engineering, manufacturing, purchasing, asset management, and quality. PLM solutions provide the greatest value to companies that design or engineer parts, components, and complex assemblies or operate complex facilities. Typical functionality includes: project management; CAD file management; basic CAD integrations (i.e., simple one-way integrations that transfer BOM information from the CAD tool to the PLM solution); bill-of-material (BOM) and bill-of-information (BOI) creation and management; document management, visualization (usually some combination of 2D and 3D viewing for CAD generated models is provided); approved vendor list management; and workflow management capabilities to automate various engineering, manufacturing, or service processes (e.g., engineering change, BOM release to manufacturing, corrective actions, and configuration control).

For mid-sized companies that design or engineer simple parts or components, configuration management support is not as critical. As a result, with these types of companies PLM solutions are being implemented to support data vault management, workflow automation, and applications that sustain specific needs in the engineering or manufacturing process (e.g., change management and quality assurance). For companies that design or engineer medium to highly complex products (e.g., engines, turbines, machine tools, medical equipment, and heavy equipment), these capabilities are being supplemented with configuration management support.

In addition, the PLM solutions that are supporting today's mid-size enterprises usually work with a wide variety of software applications and with paper documents. They are usually delivered on a mix of computers, workstations, and associated hardware. Typical users include managers, administrators, and end-users from a variety of departments including engineering, manufacturing, purchasing, marketing, sales, quality, service, and information technology that all need to create, capture, access, share, and/or manipulate product or plant related information. Our research has shown that PLM solutions improve communication and cooperation among these diverse groups and form the basis for organizations to support their complete lifecycle activities.

The key PLM factors to consider for mid-size enterprises are the ability to deliver out-of-the-box applications and easily tailored solutions based on best practices that support the enterprise's product or plant related information creation and management requirements.

Summary

CIMdata expects the application of PLM solutions within mid-size enterprises to grow at a fast pace as these enterprises: 1) recognize the need to improve their management of intellectual assets—an enterprise's key to enable product and process innovation; 2) more clearly recognize their need to become better integrated with customers and suppliers to address cost, quality, and delivery; and 3) available solutions become easier to deploy and support.

Currently there are a number of solution providers that focus on solving the problems of mid-size enterprises. We expect them to be successful if they continue to tune their solutions to be

quick and easy to install and comprehensive in nature. Many of today's PLM solutions are proven and very capable of delivering the product definition information management functionality required by the typical mid-size enterprise.

About CIMdata

CIMdata is the leading PLM consulting and research firm dedicated to helping industrial organizations around the world establish effective PLM strategies, assist in the selection and deployment of PLM technologies and products (e.g., PDM, visualization, collaboration, CAD/CAM, etc.), and helping organizations optimize their operational structures and processes to implement solutions that manage their entire product or plant definition lifecycle. For PLM solution providers, CIMdata helps define business and market strategies, delivers worldwide market information and analyses, provides education and support for internal sales and marketing teams, as well as overall support at all stages of business and product programs to make them optimally effective in their markets. While CIMdata works extensively with providers of PLM solutions, it is important to understand that CIMdata neither resells nor represents any solution provider's products. CIMdata's reputation is built on remaining completely independent and objective regarding the providers of PLM solutions.

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