



CIMdata Position Paper #2000-1

cPDm – the key to harnessing innovation in an e-business world

Position:

Collaborative Product Definition Management (cPDm) enables enterprises to bring innovative and profitable products to market more effectively, especially in the evolving e-business environment. cPDm enables enterprises to harness their innovation process through effective management of the full product definition lifecycle in their extended enterprise. It is provided through a combination of best-practices processes and technologies such as product data management, collaboration, visualization, collaborative product commerce, enterprise applications integration, components supplier management, etc. cPDm is rapidly transitioning from a competitive advantage to a competitive necessity, and is an essential element for companies to successfully compete in the evolving new world of e-business.

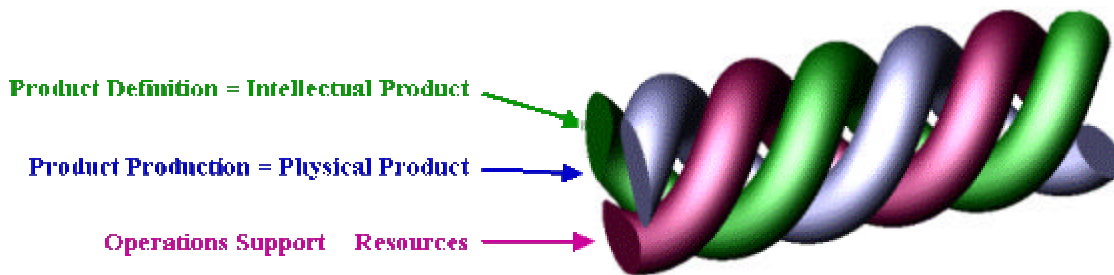
Discussion:

Collaborative management of the product definition lifecycle throughout the extended enterprise (i.e., enterprise wide and throughout the supply chain) is the next step in enterprise computing for industrial organizations seeking to improve their competitiveness. Manufacturers know full well the tremendous power of delivering innovative products to market more quickly and efficiently. So forward-thinking firms are scrambling to make the right investments to improve management of their product definition lifecycle and their innovation process: aspects of their businesses that typically have received little support in the past. It is clear that recent advances in technologies and approaches have vastly improved the ability of companies to achieve this vision, and thus the ability to improve their competitive position in the evolving new world of e-business.

The need to manage product definition and associated processes is growing even more acute because of their increasing complexity across an extended enterprise. The globalization of companies has dispersed employees, products, services, and partners around the world. Additionally, product content can take on a variety of forms that take much more effort to manage than their predecessors. On top of this, Internet and Web-based technologies are making information from both inside and outside of the organizations quickly available to widely dispersed operations.

Managing product definition has become not only increasingly complex, but absolutely vital to success in a global market. As a background on this issue, it is important to clarify the scope of product definition. Within any industrial enterprise, their overall product lifecycle is comprised of three primary and tightly intertwined processes. The first of these is the product definition lifecycle. As with the overall product lifecycle, this lifecycle begins at the earliest point of customer requirements and product concept, and extends until the product is obsolete and field support has ceased. It includes the complete product, from mechanical and electronic components, to software and documentation. It includes the entire set of information that defines how the product is designed, manufactured, and serviced. Product definition is an intellectual property of a business – an intellectual asset; to be captured, maintained, and leveraged. And it resides not just within an individual company, but across the entire enterprise, including the full product definition supply chain.

The second major process is the product production lifecycle. This lifecycle includes all activities that are associated with production and distribution of the product. Product production focuses on the deliverable product – typically a physical asset. The third major process is the operations support lifecycle. This focuses on facilities, people, finances, and resources required to support the enterprise. For an enterprise to succeed, there must be close coordination and communication among all three lifecycles. A close and collaborative effort is required to create the seamless product lifecycle needed to provide innovative products to market effectively.



product lifecycle – comprised of three primary and intertwined processes

Management of the product definition lifecycle and its close integration with other major lifecycles is not a new concept. In fact, this concept has been around for many years. Recently however, industry's ability to achieve this concept has improved dramatically with the availability of a wide range of new technologies and approaches that facilitate collaborative work efforts across wide networks and between enterprise systems. Historically, Product Data Management (PDM) was a philosophy at the core of this movement. Its roots are based in design engineering, but its vision has been to establish an enterprise-wide infrastructure to support management of the product definition.

Originally in the mid-1980's, PDM was focused on solving the problems of CAD file management by providing a good vaulting function, and was typically limited in scope to an engineering department or group. This technology was based upon some critical foundation technologies to handle data and communications requirements. Additional functions were quickly added to this base, providing the core set of capabilities for PDM systems.

As the industry evolved, the scope expanded beyond engineering departments, and by the early and mid-1990's the requirements of industry dictated development of more sophisticated applications to address issues such as change control, configuration management, and others. A host of related technologies, such as visualization, began to appear and were quickly used to enhance the capabilities and value of PDM implementations. The PC became the primary platform.

By the end of the 1990's, industry has gained additional experience with these systems, best practice methods have been developed, and these have been combined with available technologies to provide full solutions focused on specific industry problems.

The advent and widespread adoption of the Internet and Web-based tools has had a tremendous impact on development and utilization of PDM and related systems, and promises an even greater impact in the future. In addition, the new collaboration and e-commerce technologies greatly facilitate real-time, synchronous collaborative work efforts involving teams of people widely dispersed across networked organizations. This is enabling the implementation of technologies and processes that can deliver on the promise of "extended enterprise" product definition management.

This broadened scope does not represent a completely new market. Rather, it is an expansion and the next evolutionary step in the market's ability to deliver capabilities that have already been envisioned. This newly expanded market is called "collaborative Product Definition management" (cPDM), recognizing the extended nature of newer solutions beyond traditional PDM to include many technologies that facilitate collaborative work processes, collaborative product commerce, supplier integration, enterprise application integration, and a host of additional web-based and non-Web-based approaches. It also recognizes that full management of the product definition lifecycle throughout the extended enterprise is an attainable solution rather than a future promise.

cPDM is not just a set of application and technology solutions. cPDM is a strategic business approach; applying a consistent set of business solutions to collaboratively manage the product definition lifecycle across the extended enterprise. cPDM includes "best practices" methods along with the right suite of technologies. It addresses the extended enterprise, including the full product definition supply chain of OEM's, sub-contractors, suppliers, partners, and customers. cPDM is an approach that enables businesses to exploit the potential and promise of both today's and tomorrow's technologies and methods. It is an approach that can deliver value quickly.

The opportunity to improve the competitiveness of companies in a global market by harnessing their abilities to bring innovative and profitable products to market quickly has never been greater. And it is the ability to capture and manage an enterprise's intellectual assets throughout the product definition lifecycle that greatly differentiates cPDM solutions from other approaches, and contributes to their growing importance and adoption in industry. cPDM is transitioning quickly and inevitably from a competitive advantage to a competitive necessity.

Imaginative and knowledgeable companies are leading the charge to implement these new solutions and leverage them for success. Clearly, these emerging cPDM business solutions and approaches are not another set of buzzwords or marketing hype. Rather, cPDM provides an approach that is an essential element for companies to successfully compete in the evolving new world of e-business.

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