

# Navigating the Changing IT and PLM Landscapes

## *CIMdata Commentary*

Key takeaways:

- *Competing successfully in today's global market requires continuous management and improvement of your product's lifecycle from ideation through removal from service*
- *Many new technologies are impacting PLM solutions and how manufacturers must use them to optimize their product development lifecycle—Big Data, the Cloud, Mobility, and Social Computing, among others, are driving these changes*
- *HP supports and uses these IT trends in their PLM solutions and services to maximize the benefits and return on PLM investment their customers can achieve*
- *HP provides comprehensive solutions to address PLM—including PLM application implementation and management, integration of PLM with other business systems, IT infrastructure on which PLM is delivered, and business process transformation*

## Introduction

Today's manufacturers face continuing pressure as they compete in a fast moving, global marketplace. Addressing global competition, product complexity, time to market, regulations, unit cost, total lifecycle cost, compliance, and quality continually drive businesses to improve how they develop, manufacture and service their products. They must balance each of these factors to profitably gain and protect their market share. And they must do all of this in an environment of rapidly changing IT technologies.

Product Lifecycle Management (PLM) solutions are being applied to help businesses work more productively. Companies are investing in PLM to innovate and improve all aspects of their enterprise from customer interaction, planning, product development, manufacturing, and service. At CIMdata's recent PLM Road Map conference, many industrial speakers highlighted that strong partnerships with their PLM solution and service providers is key to ensuring rapid time to value for these investments.

In each of the domains mentioned above, valuable information is created that users need to make more informed and timely systemic decisions. Four technology trends are beginning to have a major impact on PLM—Big Data, Mobility, Social Computing, and the Cloud. Each is also driving changes in our society and businesses.

Big Data is often characterized by four "V's": Volume, Variety, Velocity, and Validity. Big Data includes huge quantities of any type of data, social media analytics, next-generation data management capabilities, real-time data, and much more. This information avalanche must be managed and analyzed so that all workers (from the top floor to the shop floor) can gain new insights and make better decisions faster.

Mobile devices represent a technological convergence providing high resolution still and video cameras, local storage, significant computing power, networking, and other functions that can be configured in infinite ways using third-party applications. For many people, their mobile devices are their ONLY devices—their gateway to the Internet, and how they communicate and collaborate professionally and personally.

Social computing is changing the way people interact, communicate, and collaborate. Companies are trying to leverage Facebook, Twitter, and blogs to capture comments on products. They find that they must monitor these media to get feedback (positive and negative) on how their products and services are perceived in the marketplace.

Companies want to use cloud-based solutions to address both infrastructure and software issues and requirements. Companies are substituting physical hardware with virtual hardware and contracting with their service providers to take full responsibility for implementing their PLM solution and maintaining the resulting working environment.

Each of these trends is changing how we work and operate our businesses, and PLM solutions are changing to incorporate them.

## The Impact of Technology Trends on PLM

Workers at all levels need better information—from the top floor to the shop floor everyone makes decisions. Higher quality information and analytics, delivered just in time and in context, can help people make more timely and accurate decisions, such as:

- What should I make—what do my customers want?
- What do I have that I can reuse—designs, inventory, etc.?
- What are my design constraints—what regulations are applicable?
- How much time do I have to get to market?

The emergence of Big Data is having an impact on PLM by creating a much broader and richer treasure trove of information available for decision making. To deal with the Big Data impact, PLM information searches must expand beyond what is typically stored in the PDM vault or in corporate business systems. Better search and analytics are needed to enable decision makers at all levels to find and use the right information, but only the information they need for the task at hand. Additionally, PLM related Big Data file sizes for parts and assemblies have increased significantly—requiring improved IT infrastructures to maintain acceptable performance levels when searching, sharing, and transferring these large files.

Recent CIMdata research on mobile applications in PLM highlighted some initial tablet-based applications available from the leading PLM solution providers. However, these initial apps are still mostly about consumption and don't do much more than could be done in a Web browser. They don't enable the worker to get the real power of the PLM solution. In CIMdata's opinion, we need new types of mobile applications to support PLM:

- They must provide secure access anywhere, any time on multiple devices
- Apps need to be about much more than just data consumption—they should help users to easily edit, share, make, and control annotations to managed information
- They should leverage location-based information along with other enterprise data to improve how production and service personnel can execute their tasks
- They must combine social input with enterprise knowledge to help social-media savvy workers sift through mounds of ever-increasing data, delivering it in context

As previously noted, Social Computing is also having a major impact on PLM. Some organizations, including PLM solution providers, are using social computing to develop their products, either internally to support the actual development process, or to bring external players into the development process. Others in the PLM industry are embedding social computing technology or techniques *within* their products. Finally, almost all companies, including those in the PLM economy, are using social computing for *marketing* their products. More and more companies use a combination of social computing capabilities to support their business and their products' lifecycles—everything from gathering requirements, obtaining product performance (and failure/incident reports), collaborating during development, and delivering service after sales. Manufacturers need social computing solutions that can help users more easily capitalize on their intellectual efforts no matter what PLM tools they are using while addressing the information overload problem.

Finally, Cloud-based computing is providing new, flexible PLM delivery paradigms that address many of the issues of traditional PLM delivery. Cloud-based PLM solutions leverage the cloud's ubiquitous access, "infinite" computing resource, and "unlimited" scalability to provide companies a flexible workspace within which personnel in multiple organizations can collaborate using workflows that extend across the full partner enterprise and organizational boundaries. Impact and benefits of Cloud-based PLM include:

- Pay-as-you-go access to applications and computing resources
- Resource flexibility—scale up only when needed for as long as needed
- Speed of deployment and immediate, global access
- Hosted services and environments that do not require investments in infrastructure

Cloud delivery limitations are being addressed and CIMdata expects that PLM solutions will continue to incorporate and take greater advantage of Cloud-based capabilities.

## **HP a Strong Partner for PLM**

Achieving PLM success takes a wide range of technologies and skills. Companies that achieve rapid time to value often have strong partnerships with their chosen solution and service providers. HP, a leader in CIMdata's annual rankings of PLM service providers, has a solid track record of delivering PLM solutions and services to a wide range of global customers. HP PLM solutions incorporate a combination of hardware, software, and services that help companies address the full range of their PLM-related business needs. HP's breadth of services helps companies not only implement the PLM applications needed, but helps them transform how they use those applications, and HP can also provide and manage the IT infrastructure needed to operate their PLM applications and related processes. HP recognizes the importance of Cloud, Big Data, Social, and Mobile, and is investing heavily to deliver hardware, software, and services to take advantage of these trends and help manufacturers meet challenges in developing and producing products.

One of HP's PLM strengths is that they are a global company that is also a PLM user. They have implemented PLM internally as part of their product development process and across their PLM associated supply chain. This internal and supply chain use of PLM helps HP understand the needs of their manufacturing customers, but also drives them to develop and deploy emerging PLM technologies and solutions that support and use the four IT trends previously discussed herein. HP's own PLM transformation is reflected in the breadth and depth of solutions they provide to their customers.

HP can not only address individual business needs including business and technical applications, IT infrastructure and management (hardware and software), domain knowledgeable services, PLM business transformation and more, but HP also looks at the big picture of the business and tailors all of its capabilities for each individual customer to enable them to receive maximum value from their IT investments. CIMdata thinks that this ability to look at the big picture of the business can help HP more effectively optimize the overall business, not just selected domains. This can help increase the ROI of a company's IT investment portfolio.

All companies should look to achieve rapid time to value in their PLM investments. To help make this a reality, HP created an in-depth approach to rapidly assess an organization and its requirements, and to define an optimal set of solutions and implementation tasks. The HP integrated Manufacturing Enterprise framework is a toolkit that HP has developed and refined for more than a decade. Built upon a model for product development within the context of the integrated enterprise, the framework also includes best-practice processes, bill of IT mapping

processes, applications methodologies, and templates and tools to support a company throughout the complete plan-build-run journey of a PLM implementation. HP has also developed a PLM solution to set up collaborative engineering environments that bring together OEMs, JVs, and top-tier suppliers. The HP Quickstart PLM solution includes IT-based implementation and integration methodologies specifically suited to help harmonize PLM enabling solutions and processes across the extended enterprise and speed up the onboarding process of integrating engineering partners.

For technical staff, the HP engineering Virtual Desktop Infrastructure (eVDI) is used to create the integrated environment that leverages Cloud technology. Via a dedicated, secure infrastructure, the HP eVDI solution can deliver a high-performance graphical environment co-located with high-performance computing and product lifecycle management that helps enable better collaboration, IP protection, reduced cost, and faster time to market.

HP also sees the benefits that Big Data and analytics can bring to PLM. HP provides solutions that enable companies to gather and manage information from multiple sources, and to apply business intelligence to all aspects of the business, including product development. They provide services to manage how projects run (i.e., processes, status, information, etc.) so that customers can know “what is going on” within their business in real time. HP can also define and implement a strategy that spans PLM, Enterprise Resource Planning (ERP), and Manufacturing Execution Systems (MES) to create a fully integrated enterprise. Finally, they can deliver and manage the on-site infrastructure, provide Cloud-based hosted solutions and high performance computing centers in any combination to enable customers to best leverage their IT investments and resources.

## **CIMdata Conclusions**

Technology continues to advance rapidly with new capabilities and working paradigms impacting current and future PLM solutions. Companies need solutions that incorporate emerging technologies like Social Computing, Mobility, Big Data, and the Cloud to enable PLM environments that have the flexibility and performance needed in today’s as well as tomorrow’s highly competitive global markets.

Because of the breadth of their software, hardware, IT management, consulting services, and strategic relationships with PLM solution providers, HP has the ability to deliver a suite of solutions and services that span all aspects of PLM implementations. They can support and weave these together for maximum impact, value and IT ROI. Companies trying to deal with PLM and the emerging IT technology trends (i.e., Big Data, Mobility, Cloud, and Social computing) and their associated issues should evaluate HP’s PLM solutions and related services.

## **About CIMdata**

CIMdata, an independent worldwide firm, provides strategic management consulting to maximize an enterprise’s ability to design and deliver innovative products and services through the application of Product Lifecycle Management (PLM). CIMdata provides world-class knowledge, expertise, and best-practice methods on PLM. CIMdata also offers research, subscription services, publications, and education through international conferences. To learn more about CIMdata’s services, visit our website at <http://www.CIMdata.com> or contact CIMdata at: 3909 Research Park Drive, Ann Arbor, MI 48108, USA. Tel: +1 734.668.9922. Fax: +1 734.668.1957; or at Oogststraat 20, 6004 CV Weert, The Netherlands. Tel: +31 (0) 495.533.666.