IDC Manufacturing Insights

MARKET SPOTLIGHT

How Mobile Can PLM Go?

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Dynamic supply chains need secure and quick access to different aspects of product information at different stages in the life cycle. To get complex, customized, intelligent, and connected products to market quickly, companies need to collaborate easily, based on unified information using a global product life-cycle management (PLM) platform that can flexibly support local needs and demand. These platforms need to be available not just on traditional computers and workstations but also on mobile devices. Global manufacturers in multiple industries are leveraging mobile devices to support rapid collaboration and time to market, efficient manufacturing, and process and product quality improvements. PLM's value has always been primarily about expediting time to market, and mobility only accelerates this process. This Market Spotlight examines these trends in detail.

Introduction

Getting products to market quickly and profitably has never been more difficult. On one hand, the process of designing, engineering, and manufacturing new products is increasingly global in scope; on the other hand, products and markets are more complex, connected, and nuanced. Increased software content, mechatronic products, and unique configuration and customization requests from customers drive a multidisciplined systems approach to PLM whereby products, processes, teams, and data are unified across an extended value chain.

Dynamic, multitier supply chains need secure and quick access to different aspects of product information at different stages in the life cycle. Because markets are highly competitive, ranging from new offerings from established companies to low-cost products from China and other BRIC countries, there is a need to rapidly bring more innovative and differentiated products to market while improving time to value. To further differentiate, many manufacturers look to services as a revenue driver, particularly in complex discrete manufacturing industries such as aerospace, high tech, heavy equipment, and industrial machinery.

To address these challenges and get complex, customized, intelligent, and connected products to market quickly, companies need to collaborate easily, based on a unified set of information across the product life cycle. Manufacturers need global PLM platforms that can flexibly support local needs and demand and still get products to market quickly. It's essential that these platforms be available not just on traditional computers and workstations but also on mobile devices.

Implications for Product Development and Innovation

To meet industry demands, there is an enhanced need for rapid, iterative innovation by collaborating effectively across product development, manufacturing, and supply chain functions. As a result, manufacturers are increasingly looking to transform innovation using PLM as part of a digital innovation platform across their enterprise and into manufacturing and service functions.

Engineers from multiple domains within the organization need to adopt new approaches to working collaboratively and play an expanded role. For this to occur, the systems engineering process needs technologies that provide the product development team access from anywhere while bringing together disparate engineering resources and data from mechanical, electrical, software, and automation repositories.

Today's engineers (especially recent graduates) are used to working via multiple mobile form factors. Having mobile access to PLM available when and where necessary is a natural fit and will accelerate innovation and improve global orchestration during new product development and launch.

Engineers are not the only ones who benefit from a complementary mobile approach to new product development. PLM is also extending benefits to senior executive, line-of-business, manufacturing, quality assurance, and supply chain functions — all of which also need secure access to product information so they can share ideas, specifications, schedules, CAD models and drawings, and work instructions quickly and easily.

The need for speed, quality, and competitive advantage is pushing many manufacturers to make their PLM processes and data available on whatever devices their teams are using, whether a desktop, laptop, tablet, or smartphone. Initial opportunities for employing mobile devices in PLM include:

- Supporting the most relevant business process areas including sign-offs and approvals to keep the development process moving
- Maintaining an electronic engineering workbook, shop floor access to drawings and work instructions, quality specifications and input forms for inspections, supply chain collaboration and sourcing, and communication of field service manuals

Longer term, one key benefit of PLM being readily available on a tablet or smartphone is having a secure digital workspace that's always on and always available to provide information and analytics in real time for product quality alerts or software release updates. This is critical in the current age of intelligent and connected products.

Mobile PLM Solutions: Part of a Hybrid Approach

Global manufacturers in multiple industries are leveraging mobile devices to support rapid collaboration and time to market, efficient manufacturing, and process and product quality improvements. PLM's value has always been primarily about expediting time to market, and mobility accelerates this process. Ideally, a hybrid approach to PLM, where product life-cycle information can be consumed via traditional computers and mobile devices, will dramatically improve the speed and efficiency of innovation, engineering, and service processes.

A mobile form factor will not be the only way PLM is consumed. Development of the eBOM and mBOMs, as well as complex design and modeling, will likely take place via larger devices such as laptops, desktops, and workstations. Mobility adds an option to the product development team that improves the ability to differentiate products, accelerates time to market, and makes developing and servicing products faster and more responsive. Additionally, mobile devices are good containers for the distribution of targeted PLM functionality and applications and hence a great enabler for an enterprisewide innovation platform that leverages PLM and other applications and data sources to enhance new and existing products.

Considerations and Success Factors for Mobile PLM

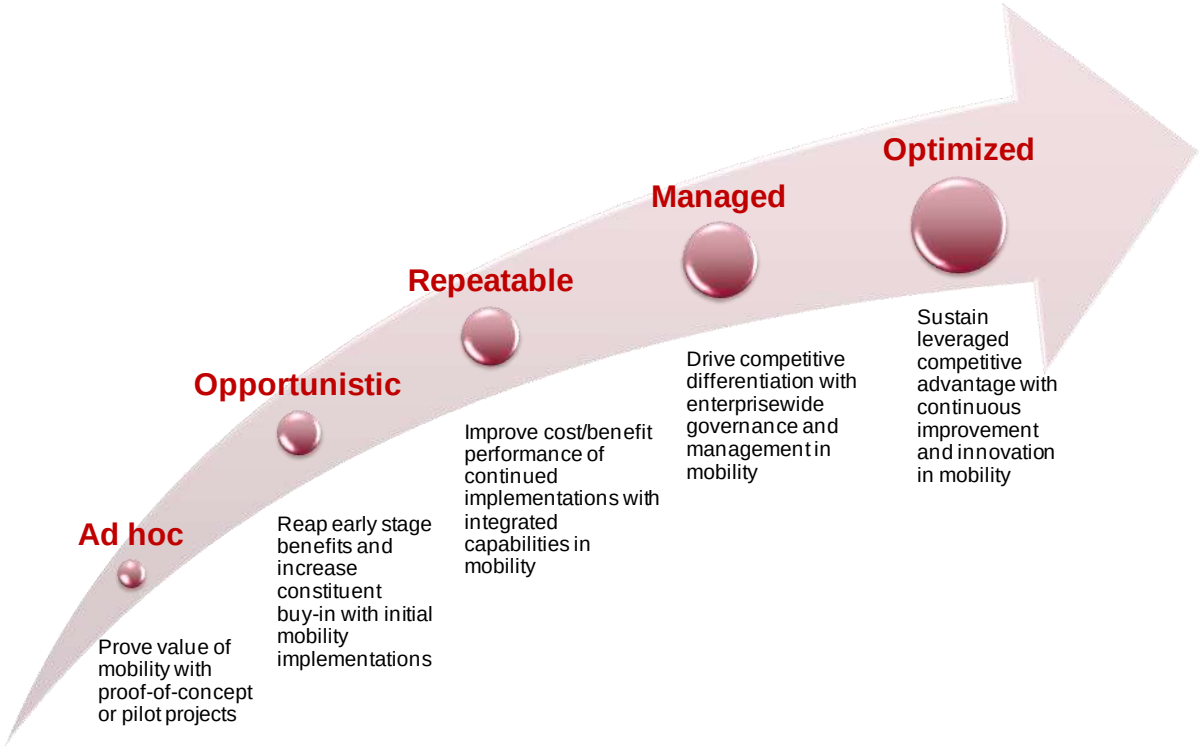
To develop mobile PLM capabilities successfully, IT organizations need to address the following questions:

- Which PLM use cases and features are best suited for mobile applications?
- Which PLM scenarios are most appropriate for tablets versus phones?
- Should we maintain a PLM section of a corporate application store?

IDC research shows that approximately 80% of manufacturers are developing mobile applications, but the reality is that these apps are not currently managed centrally. A recent IDC survey of United States–based IT managers found that less than 20% of companies currently have their own app store of business applications for smartphones and tablets. We see most companies follow the path to enterprisewide mobility depicted in the maturity curve in Figure 1.

Figure 1

The Mobile Maturity Curve



Source: IDC Manufacturing Insights, 2015

While an increasing number of PLM providers are adding mobile apps to their product offerings, it is important to recognize that in mobile "one size does not fit all." To truly be effective in mobile PLM, applications consumed in mobile devices need to be purpose driven and roles based. One way to accelerate distribution and consumption of mobile applications in PLM is to have a mobile-enabled service-oriented architecture (SOA) in place that can make the development of the necessary PLM app to either tablet or smartphone device fast and easy. In addition, because many PLM implementations have specialized customizations, the ability to develop apps that exactly match what's required for a given process, role, or scenario, based on customizations, is extremely important. In addition, forward-thinking companies will increasingly view apps as "disposable," deploying them quickly to deliver competitive advantage in fast-moving conditions.

There are a number of common success factors for PLM implementation with mobility:

- Availability of a set of mobile APIs for Windows 8, Windows Phone, iOS, and Android
- Support for the "right" form factor for the scenario, whether tablet or smartphone, or both
- Process-specific applications such as engineering change, design review, electronic work instructions, and field service instructions
- Role-specific applications for designers, systems engineers, component engineers, field service technicians, and others
- Activity-specific applications such as sign-off and approvals, development collaboration, and incoming inspection
- Strong authentication (Design, engineering, procurement, manufacturing, and supply chain roles need to have confidence that they can collaborate securely and quickly, without limitation, regardless of device.)

Conclusion

When the success factors described in this paper are in place, mobile PLM helps improve collaboration and product quality and accelerates the development of next-generation products. Recent IDC mobile enterprise application research shows that the mobile enterprise market will grow at an 18% CAGR from 2014 to 2018, resulting in a $5.5 billion market. There are a number of PLM-related applications and processes that manufacturers have rated highly in importance, including team collaboration, product portfolio management, manufacturing, and service operations management.

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Global Headquarters: 5 Speen Street Framingham, MA 01701 USA P.508.872.8200 F.508.935.4015 www.idc-mi.com