Autodesk® PLM 360

Why the Cloud Changes Everything

Autodesk® PLM 360 provides a powerful, affordable, easy-to-implement solution for product lifecycle management (PLM) that is available anytime, anywhere.

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Introduction: The Inevitability of Product Complexity

There are few things more challenging for today's manufacturers than managing a product from its initial conception to the end of its useful life. Not only are products becoming more complex, but the processes used to design, build, and service them involve more steps, more vendors, and more locations.

A recent study by George Group Consulting and the University of Pennsylvania's Knowledge@Wharton describes the effects of this complexity. Polling 424 executives from 30 industry groups, the research team found that:

- Portfolio complexity is having a "negative or somewhat negative" impact on cost competitiveness and lead time for about half of respondents.
- Respondents reported that complexity has "a negative or somewhat negative" impact on capital efficiency (45 percent), profitability (35 percent), product quality (32 percent), sales effectiveness (29 percent), and customer service and satisfaction (24 percent).
- Of those who claim complexity boosted profits at their companies, 38 percent said that this complexity was being driven by a small portion of their products or services.
- About 85 percent of respondents indicated the number of offerings at their companies has grown by at least 10 percent over the last five years. Of these companies, almost half reported that their offerings have grown by more than 50 percent.[1]

Can companies ease their burden by taking steps to minimize product complexity or slow down product proliferation? Not likely. Among survey respondents who came from companies where complexity hurt profits, about half agreed that they could eliminate "considerable levels of fixed costs" if they dramatically reduced their portfolios. But 55 percent of respondents said proliferation is a must to participate in their industry segments.[2]

How, then, can you mitigate the complexity of releasing an endless stream of sophisticated new products? Over the past two decades, manufacturers have invested in product lifecycle management (PLM) solutions—but with disappointing results.

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[1] George Group Consulting and Knowledge@Wharton. "Unraveling Complexity in Products and Services." Special Report.
[2] Ibid.

The Broken Promise of PLM

Ever since the first PLM solutions appeared on the market, software vendors have been promising manufacturers a cradle-to-grave view of their products and the processes to create them. But this highly appealing vision has been difficult to achieve. Most traditional PLM software takes many months (or years) to implement fully. "Out of the box" solutions rarely conform closely to any one company's specific needs. And because they often consist of large, monolithic code bases derived from product data management (PDM) technology, traditional PLM solutions are complex and costly to maintain.

Nevertheless, the largest manufacturers have had little choice but to implement the best available PLM solutions. Under pressure to manage massive supply chains and vast product lines, these companies have spent countless dollars and hours trying to reengineer PLM solutions to fit their processes. After seeing the dismal success rates of their larger counterparts, most small and midsized manufacturers have chosen not to purchase formal PLM solutions. Instead, they continue to track product lifecycles in spreadsheets and paper files.

It's no wonder, then, that only about 10 percent of manufacturers worldwide have implemented PLM solutions. The current skepticism toward PLM solutions runs deep. Gartner probably understates the case: "Manufacturers dissatisfied with the cost and quality of services that PLM software vendors deliver will become increasingly discerning about who they select as service partners."[3]

To summarize the problem, many manufacturers continue to operate without a PLM solution for two main reasons:

1. **The very definition of PLM is nebulous.** Ask 10 people to define PLM, and you will probably get 10 different answers. To some, PLM means simply keeping track of equipment in the field to have a history of what repairs it has required and predict when it will need servicing in the future. To others, PLM means collecting customer requirements to be included in new product development. Still others might characterize PLM simply as a workflow for engineering change orders.

   The bottom line? PLM is a highly dynamic collection of activities and data that won't look exactly the same in any two organizations.

2. **PLM solutions have proven to be difficult—and costly—to deploy.** Even for companies with budget for the costly PLM solutions currently on the market, implementations have proven time-consuming—so much so, in fact, that the company's needs and objectives have often changed dramatically by the time its

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[3] Halpern, Marc. "Predicts 2011: Manufacturers Revamp and Enhance Product Life Cycle Management Strategies." Gartner. November 16, 2010.

PLM solution actually goes live. From there, changes are difficult and expensive to make because these huge, powerful solutions are built on a massive code base.

Think of PLM as the enterprise resource planning (ERP) of the product development community. Just as ERP solutions have gradually become more complex as industry needs have intensified, PLM solutions have increased exponentially in complexity to keep pace with today's complex manufacturing environments.

Built on outdated architectures and relying on millions of lines of code, existing PLM solutions can't easily adapt to modern challenges such as distributed supply chains. And although these systems are intended to provide employees across the organization with widespread access to engineering and design information, they are typically as complex as an ERP system. As a result, traditional PLM solutions seldom achieve high adoption rates or deliver the anticipated return on investment.

The Vision of an Ideal PLM Solution

Despite these struggles and disappointments, many manufacturers have held out hope that a viable PLM solution would eventually emerge. The ideal solution would provide a continuous view of each product, from development through recyclability and reuse.

As Gartner writes, "The promise of Enterprise PLM continues to appeal to organizations who strive to realize the potential benefits of PLM, including:

- Greater visibility to critical information
- Business process efficiency
- Improved supplier collaboration
- Faster time to market
- Improved compliance to standards
- Higher product quality
- Faster response to market dynamics
- Improved program and project visibility
- Reduced waste
- Greater component reuse"[4]

Indeed, the low adoption rates of PLM solutions aren't due to a shortage of PLM salesmen—nor are manufacturers ignorant of the challenges of managing product lifecycles. The interest is there. But the industry needs a new approach.

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[4] Ibid.

Introducing Cloud-Based PLM

From a business process perspective, manufacturers value enterprise PLM. They are eager to realize the benefits of streamlined product and project planning, development, manufacturing, service, and other aspects of the product lifecycle. To accomplish this, they need an integrated, easy-to-deploy system that reduces process breakdowns and removes bottlenecks. Today's new cloud computing technology helps manufacturers solve the age-old problems of PLM on a flexible, agile, and affordable platform.

Autodesk has developed a solution that rejects the previous failed approaches of building PLM systems on top of PDM technology and instead manages on-premise PDM and cloud-based PLM separately. This enables the PLM solution to tap into the full advantages of modern cloud computing. Autodesk® PLM 360 provides a powerful, affordable, easy-to-implement PLM solution that is available anytime, anywhere, through virtually any web-enabled device. At the same time, Autodesk PLM 360 features integration and interoperability with on-premise PDM systems including Autodesk Vault software.

Autodesk PLM 360 makes powerful PLM business application benefits available to companies of all sizes with low up-front costs, no capital expenditures, and no prerequisites or installation. It streamlines the creation and management of information, people, and processes to help manufacturers become more competitive and grow their businesses.

Olivier Letard, chairman of PCO Innovation, has commented on Autodesk's PLM strategy: "We are very excited to support this new cloud strategy in the PLM landscape. It represents a new way of addressing each client's stakes. PCO Innovation will be proud to propose adapted consulting and integration services to early adopters from now on."

Here are several highlights of taking a cloud-based approach to PLM:

- **No outdated infrastructure to work around.** Cloud-based PLM starts from scratch, leaving behind 20 years of failed attempts to build PLM systems on top of PDM technology.
- **Rapid deployment.** Software as a service (SaaS) solutions typically go live quickly, with the rollout handled by a vendor that focuses on enabling a speedy payback.
- **No in-house installation.** As a hosted solution, cloud-based PLM doesn't require installation within a manufacturing firm. That means no risk of failed implementations and wasted IT budget.
- **Low maintenance requirements.** A hosted PLM solution is maintained by the vendor. There's no need for a manufacturer's IT staff to configure and constantly tune a transactional database.
- **Flexibility for unique business processes.** Cloud-based PLM provides a platform upon which individual manufacturers can design specific applications that address their unique workflow. You can add new apps to the platform as you need them.
- **Scalability.** Some smaller manufacturers just need a PLM solution to address a specific business process, such as engineering change order workflows. Others need a comprehensive solution that covers every imaginable process. Cloud-based PLM can easily scale to either extreme.
- **Low total cost of ownership.** Cloud-based solutions can typically run on commodity hardware and infrastructure.

- **Automatic upgrades.** Cloud vendors upgrade and enhance their code regularly, with no need for involvement from customers' IT staff.

Perhaps most appealing to manufacturers, cloud-based PLM offers the unique ability to test-drive. Because the solution doesn't need to be installed in-house, but instead is offered on a subscription basis, a manufacturer can simply purchase a few licenses and start using the application. If it proves to be a good fit, the manufacturer can then scale up the purchase to include more users.

Gartner encourages manufacturers to be open to the cloud delivery model:

> "Manufacturers have been slow to adopt software-licensing models such as software as a service (SaaS) and open-source software due to concerns about software security, breadth of PLM functionality, or viability of the small innovative vendors that often introduce these opportunities. However, it is increasingly compelling for PLM software users to adopt these licensing models. Software as a service has been well-proven in other software markets, such as CRM, with minimal security risk, and there is no reason that manufacturers should be inhibited from adopting it in the PLM domain. Besides saving on cost, adopting these models also reduces, and in some cases eliminates, the need for services to deploy and upgrade the software."[5]

Plan Your Path to the Cloud

While Autodesk PLM 360 requires no on-site hardware implementation, getting up and running on the solution requires more than a simply logging-in. For any PLM solution—cloud-based or traditional—true value comes from fitting seamlessly into a company's workflow and integrating with other corporate systems such as purchasing and manufacturing. Otherwise, it will remain nothing more than a stand-alone tool.

In addition, most sophisticated enterprise-class applications require data configuration, data cleansing and loading, testing, and training. Often these needs persist even when the application happens to live in the cloud. To maximize uptake of the application across the enterprise, training, change management, and process reengineering services can help to ensure people embrace the transformed business processes that the new solution enables.

That's why it's recommended that manufacturers work with a systems integrator as they roll out Autodesk PLM 360. The Autodesk CSI Partner Program can connect you with a partner who can help you design your ideal workflow, integrate Autodesk PLM 360 with your enterprise systems, and help you manage all aspects of the business transformation that results.

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[5] Ibid.

Power Your Innovation

Ask manufacturing CEOs for their top three concerns, and chances are they will mention innovation. That means their organizations need solutions that make this innovation possible—solutions that offer the flexibility to support dynamic business processes and ever-more-complex product lines without hogging company resources.

Autodesk PLM 360 delivers just such a solution by taking advantage of the most promising computing platform to come along in years: cloud computing. Autodesk PLM 360 aims to be the first solution that delivers on the value that PLM has always promised.

Find Out More
Learn more about Autodesk PLM 360 at www.autodeskplm360.com or join the PLM conversation on www.facebook.com/autodeskplm360.

Autodesk CSI Partner Program
For information about the Autodesk partners who can help get you started on the path to cloud-based PLM, contact the Autodesk CSI Partner Program at http://partner.autodesk.com today.

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