

Building Winning Product Development Teams

Why Real-time Access to Product Information Is the Key to Competitive Advantage

With more and more global stakeholders now taking part in product development, team collaboration and communication are more critical than ever to driving competitive advantage. By forming efficient product development teams, companies are able to make better-informed decisions—and capitalize on new opportunities faster.

What's the best approach to turning your dispersed internal and external contributors into an efficient, streamlined product development machine? This brief white paper explains the value of optimizing your product development collaboration process to compete and win.

Product development has never been easy. But in today's global marketplace, it's literally getting out of control. Here's why.

Historically, all design functions were co-located. Consequently, collaboration became very informal, and essential product development processes evolved around this casual culture.

Today, facing the pressure to reduce costs, increase productivity, and encourage greater innovation, companies are now switching to a more globally distributed product development team. In this new dynamic model, where functions are geographically dispersed, collaboration must be more structured, processes must be streamlined and reusable, and decisions must be traceable.

Drivers of Global Product Development

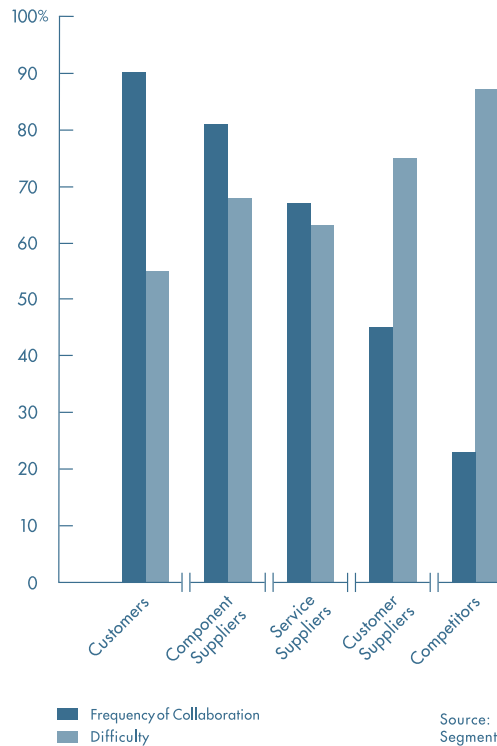
To reduce product development costs, many companies are now shifting their product development activities to low-cost regions in the world and capitalizing on lower labor rates. By outsourcing engineering or manufacturing tasks, companies are able to shift fixed costs to variable costs, thus reducing overhead expenses.

Companies are also looking to increase productivity by distributing the workloads around the globe. This shift to a 24x7 model greatly compresses the product development cycle.

Many companies are also outsourcing tactical design activities, thus enabling their experienced internal engineers to focus on more innovative design tasks. This shift is helping companies reduce development times by aligning their value chain to achieve optimum flexibility and performance. This strategy empowers companies to create more innovative products by taking advantage of the best possible expertise regardless of geographic and enterprise boundaries.

Difficulty Factor Is Multiplying

While a distributed product development team offers numerous benefits, it also introduces a new set of challenges. Companies must share up-to-date digital product definitions not only among cross-functional teams such as engineering, manufacturing, sales, and sourcing, but also with additional parties as well. Manufacturing partners and suppliers are being recruited to reduce costs. Design partners are engaged to increase innovation. And customer input is required to ensure requirements are met the first time. Added to that, product development groups must collaborate with remote team members across time zones, languages, and cultures. With so many dispersed stakeholders, sharing data such as CAD models, product specifications, and drawings can be extremely challenging. Ensuring that everyone always has the latest version of data, and is aware of all changes, is practically impossible.



While most companies collaborate with customers and suppliers, more than half report that collaboration is not easy for them.

When you consider that many team members are external, it's clear that you have your work cut out for you. How can you control the access to intellectual property that external parties need in their work, while ensuring they never work with outdated data? The administrative overhead associated with tracking and maintaining an up-to-date history of interactions, communications, and decisions can be costly and tedious. Problems with missing, out of date, or incorrect data are bound to arise from lack of efficient collaboration. This results in serious problems that manifest themselves into core processes such as change management and manufacturing design reviews.

Everyday Collaboration Issues Are Mounting

Have you ever...

- Had a difficult time locating and viewing necessary information such as CAD data and product specs?
- Struggled to engage customers and suppliers in the product development cycle?
- Had difficulty providing a design partner with the latest revision of the product data each time a change occurred?
- Had problems coordinating activities across multiple locations?
- Missed a schedule date or worked on the wrong task because of lack of access to the latest information?
- Not been notified of a change impacting your work?

Many Types of Collaboration

'Collaboration' takes on multiple forms depending on who is involved and what the goals are. Here are examples of different types, including customer, manufacturing, and engineering collaboration.

- **Customer collaboration** engages the customer during the design phase, to ensure a new product, customized product, or enhancement meets the customer's needs. Improved customer collaboration facilitates the management of customer interactions.
- **Good manufacturing collaboration** makes it easier to outsource manufacturing work or obtain manufacturing input during the design phase. It ensures the appropriate intellectual property is distributed to the right people at the right time.
- **Engineering collaboration** is very important during the design phase, especially when working with a globally distributed design team. Improved engineering collaboration means better communication among the design team. It also facilitates the sharing of CAD models and other design data.

Improving any of these types of collaboration can have significant benefits for product development. Improving collaboration alone can shave 40% off product development time.¹

Collaborate – Early and Often

Effective collaboration is a critical component of product development that can deliver significant value across an organization. Improving collaboration early on between the design team and manufacturing engineers ensures that existing tooling and manufacturing processes are taken into account during development of the design. Identifying a problem in the manufacturability of the design late in the design cycle can result in a compromise to the design intent, and possibly loss of the competitive advantage. Conversely, if a limitation in the available tooling is identified early on, it can be avoided, resulting in lower costs and fewer changes.

Effective collaboration can dramatically improve the change process during release to manufacturing. If the design engineering and manufacturing groups are able to collaborate in real-time when managing post-production changes, both groups can quickly work toward an agreeable solution, saving time, effort and rework.

When all stakeholders in the product development process have instant access to the most current product definition data, such as CAD models, product specifications, and drawings, manufacturers can achieve a number of desired benefits:

Reduce Time-to-Market

Companies operating with optimized collaboration procedures can reduce product development cycle times by as much as 37%. With real-time access to digital product data, and with a secure way to store, access, and manage the most recent product information, engineers can reduce errors, streamline projects, and shorten review cycles.

Lower Product Development Costs

With excellent collaboration, costs can be reduced by as much as 30%.² With secure Web-based sharing and storage of data, companies not only can reduce travel expenses associated with product development activities, they can also lower administration costs when generating and disseminating information. Plus, by reducing the number of errors generated, companies can save money due to fewer change requests, reduced scrap, and less rework.

Accelerate Information Exchange

Secure access to current information gives stakeholders the confidence that, as changes occur, they're precisely tracked. If all team members are notified immediately when changes to designs or schedules occur, it means fewer development errors, less duplication of effort, and minimal project downtime.

Optimize Quality

Product quality can be improved by 19% when the development team is collaborating efficiently.² When engineers have instant access to current digital product data, and a central repository for relevant product specifications and customer/market requirements, they can eliminate errors due to miscommunication or a lack of key product information. The result: higher quality products that exceed customer expectations.

Drive Innovation

Improved innovation is difficult to measure, but it is reflected in an increase in revenues. Companies operating at the highest degree of collaboration on average increased revenue by 40%.² When everyone in the digital product value chain is involved in the process, it enables more design iterations—and more innovation—without impacting cost and time-to-market.

PTC – Uniquely Qualified

Companies who deploy Global Product Development models stand to gain significant financial and operational benefits.

Financial Benefits

The complexity of product development today makes it clear that improving collaboration is essential to achieving goals and gaining an edge.

PTC, the leading provider of Product Lifecycle Management (PLM) solutions, offers a solution that enables manufacturers to realize maximum value from collaborative product development.

PTC's Product Development System (PDS) provides fast, secure synchronous and asynchronous communication. Dispersed users can share digital product definitions for real-time design reviews, collaborative design sessions, or frequent information sharing. In this open, collaborative environment, design data can be communicated from the desktop to multiple, global team members, who can then review designs in real-time with other design locations, outsourced design partners, and tooling suppliers. In this way, travel expenses and related overhead are virtually eliminated.

In addition, PTC's PDS merges traditional project management approaches with Web-based project collaboration. As a result, distributed project teams are empowered to work collaboratively to meet important project milestones and deliverables. And the benefits are impressive. In a recent PTC study, customers indicated that, with this combination of tools, they have accelerated time-to-market by 15%, eliminated 70% of physical prototypes, reduced data proliferation by 30%, and saved hundreds of thousands of dollars in travel expenses.

In product development today, the practice of 'exchanging information' means that massive data files must be shared more frequently, in a wider variety of forms, among more globally dispersed team members. And the pressure only continues to build: customers demand to be part of the process; marketing is demanding product images; purchasing demands product BOMs; and, manufacturing wants to be part of the design process.

PTC's PDS offers seamless collaborative product development. It delivers both real-time access to digital product definitions and a secure means to store, access, and manage the most recent supporting product information generated by all cross-functional team members, independent of location.

Four Steps to Efficient Collaboration

The following four steps highlight how to establish a framework for collaboration and information exchange with a global design partner or with a remote engineering team. This framework can be applied generally by identifying the collaborative events within any other process, and then applying the logic. By following these guidelines, customers have been extremely successful in improving their collaborative processes.

Step 1: Define and Document Standard Working Process

Establish a clear set of standard methods and policies for collaborating and exchanging information with distributed engineering teams during design projects.

Step 2: Identify Project Collaboration Vehicles

Identify the tools and technology available for collaborating and exchanging information with design partners and distributed engineering teams.

Step 3: Map Collaboration Vehicles to Events

Identify the events during a global design project that trigger collaboration and information exchange among team members. Identify the appropriate collaboration vehicle to support each event.

Step 4: Establish the Supporting Infrastructure

Project collaboration and information exchange with global partners and remote teams relies heavily on the supporting technical infrastructure. An unreliable or poor performing infrastructure can halt collaboration and impact the success of your global design project.

For More Information

To learn more about improving your product development collaboration process through a Product Development Collaboration Assessment, call your local PTC sales representative or contact us to find a representative at www.ptc.com/company/contacts/index.htm.

1 Total Economic Impact™ of Collaborative Product Development, Rugullies, Giga Information Group

2 Collaborative Commerce: Compelling Benefits, Significant Obstacles, Wipro Technologies