# Product Data Management for Manufacturers in the Cloud
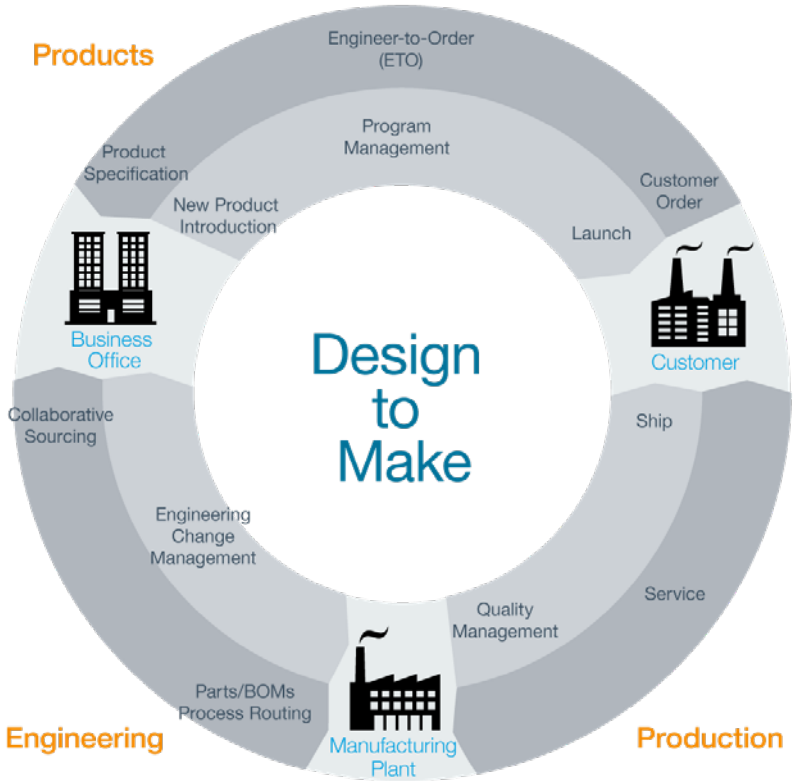
## At a Glance:

- The only consistency in product development is change. Make sure that your data is up-to-date.

- A single source of data ensures that your team is working on the correct version of product data to keep you—and your customers—in sync.

- Product Data Management (PDM) for manufacturers can help you organize the flow of product data throughout production.

**White Paper**

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## The Importance of Product Data Management (PDM) for Manufacturers

Managing the various revisions of parts and their effect on the various revisions of assemblies can be a daunting task for designers and engineers but can be even more challenging for downstream users of the data such as manufacturers and suppliers. Design teams may know why and when a product needs to be revised, but that information is often missing at the manufacturer's site.

Without an automated process or system to manage documents, individuals develop their own methods that aren't visible to their team members. When data management and change processes are well defined, you can identify the work that needs to be done, in what order, and by whom. These processes can be committed to repeatable digital processes, but can often result in an overly detailed workflow that limits the autonomy, flexibility, and agility of the other team members.



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PDM for manufacturers can help you convert design information into manufacturing operations:

- Import product specifications directly from computer-aided designs or drawings (CAD) to eliminate manual data entry.

- Secure access to customer requirements and specifications for everyone to view, but only edited by those authorized to make changes.

- Execute changes faster with greater control. With centralized revision control, changes to specifications coming from customers can be reflected in process instructions, control plans, and other critical documentation behind the scenes without disrupting production and be instantly reflected everywhere upon release to ensure all users stay up-to-date with the right versions.

- Drive process standardization and continuous improvement. A repeatable, digital workflow ensures that everyone follows the prescribed process and results in a digital paper trail to audit what happened. It also provides visibility that can be reviewed for future process improvements.

## Relying on One Version of the Truth

Once customer requirements are accepted, a common information base must be established as the one and only "single version of the truth." This keeps all parties in the process working on the same version of a document. Even for basic products, there may be several documents that cascade from, but are related to the specification document. For example, a production part approval process (PPAP) packet, typically required for an automotive supplier, may include as many as 18 different documents that would all have references to the original specification document and to each other. In the case of a specification change, some or all of the related documents would obviously need to be revised. Without a single source of truth, these changes may not be executed completely, and parts may be produced using outdated documentation that may ultimately result in costly scrap or rework and lost profitability.

## Revision Control

The engineering change request (ECR) process requires careful orchestration to ensure that not only every document gets updated, but that everyone who needs to approve steps in the process or be informed of the final engineering change order (ECO) is included. Digital workflow is ideal for orchestrating the serial steps that occur one after the other, but even more effective at managing the parallel steps that may run concurrently. In some organizations, these ECR workflows may include conditional logic (if/then/else) to account for optional branches such as an alternate approval or escalation if someone is not available.

The ECR process can take days or weeks, and the resulting ECO may have an effective date, volume, or other threshold (called "Effectivity"). Therefore, the entire process must be able to take place while the previous revision of the product is still in production. The release of the newly revised documents and processes must be complete and replace all existing copies in circulation. Of course, the "down rev" documents must be stored and accessible indefinitely for reference. Without a single source of data, this is difficult and error-prone.

## Managing Product Data in the Cloud

With a cloud manufacturing system, like the Plex Manufacturing Cloud, you gain much broader accessibility to data and documentation because you can access them from wherever you are.

Digital data from customers, typically in spreadsheet form, can be received through your customer portal for up-to-the-minute accuracy. All resulting PPAP documents can be shared back through the portal for a completely paperless process. All data is maintained in a single database, and there is no need for redundant, duplicate data entry—eliminating transposition errors and information silos.

The database manages the relationships between the critical specifications and ensures that any one entry—such as dimension or tolerance—is a unique database entry and that any usage of that value comes from the database itself and is not copied or typed by someone. Therefore, a process that references that dimension can only reference that dimension and should it change, the

database updates it everywhere it is used. This database-driven approach ensures that all team members and stakeholders have ready access to the correct version of all data and documentation as soon as that data is released.

To stay current with your customers' needs, you need a manufacturing data management solution to maintain accurate, up-to-date engineering data with consistent, repeatable production processes. The PDM capabilities within the Plex Manufacturing Cloud give you a common, single source of data to keep everyone in your enterprise working on the correct version of product data and reduce the risk of out-of-date documents that are typical of manual or paper-based processes.

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## About Plex

Plex is the Manufacturing Cloud, delivering industry-leading ERP and manufacturing automation to nearly 600 companies across process and discrete industries. Plex pioneered cloud solutions for the shop floor, connecting suppliers, machines, people, systems, and customers with capabilities that are easy to configure, deliver continuous innovation, and reduce IT costs. With insight that starts on the production line, Plex helps companies see and understand every aspect of their business ecosystems, enabling them to lead in ever-changing markets. Learn more at www.plex.com

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