

## Dynamic documents and PLM

Reduce cost, risk and time by bringing critical documents to life

[www.siemens.com/plm](http://www.siemens.com/plm)

white paper



▶ A JustSystems and Siemens PLM Software white paper.

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# PLM Software

Answers for industry.

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Today's manufacturers recognize the impact of producing targeted, high-quality documentation on customer acceptance, and the costs and additional time needed to produce to that quality. The profitable lifecycles of products continue to decrease in many industries – e.g., some estimate the life of a semiconductor at six months. Getting product to market as quickly as possible directly impacts a manufacturer's bottom line.

Meanwhile, the volume of product information required to ship with products is resulting in missed product launches and increased production costs. Keeping up with product changes and a growing number of configurations as products become more specialized has caused many companies to begin developing technical manuals concurrently with product development in an effort to get the documents done more quickly, resulting in additional changes and costs. In an effort to reach global markets, most have increased the documentation translations they're supporting, which adds to both the cost of documentation and the delays in shipping product while translations are completed.

Today's manufacturers cannot afford delays in shipping product resulting from the time involved in translating or editing documents. As a result, many are looking for ways to streamline the development of documentation and deliver documents to users through multiple channels.

Most manufacturers recognize that product documentation is derived from a variety of engineering source materials, including CAD and product structures. Changes in engineering design from conceptual phases through the definition of manufacturing processes often directly impact product documentation – yet these systems are separate from each other, and information is passed back and forth between engineering and publications groups as static files. Leaders in innovation recognize the benefits of making document development an integral part of the entire product lifecycle.

This is leading to increased focus on product documentation development to ensure:

- Faster time-to-market
- Cost reduction, including the promotion of re-use and efficiencies for document development
- Higher quality, flexible product documentation
- Identification of product change impact and automation of documentation updates based on those changes

Manufacturers have been adopting a strategic business approach – Product Lifecycle Management (PLM) – which applies a consistent set of business solutions to support the collaborative creation, management, dissemination and use of product definition information. CIMdata, a leading and independent worldwide strategic consultancy, identifies the key components of PLM as:

- Support for the extended enterprise (customers, design and supply partners, etc.)
- Management from concept and design to end of life of a product or plant
- The integration of people, processes, business systems and information involved with products<sup>1</sup>

However, traditionally technical publication departments are seen as simply an add-on to the product by many engineering groups. By integrating content management with PLM applications, manufacturers can extend engineering methodologies to the related product documentation – in effect engineering the product information of user and service manuals, work instructions, parts catalogs and job cards.

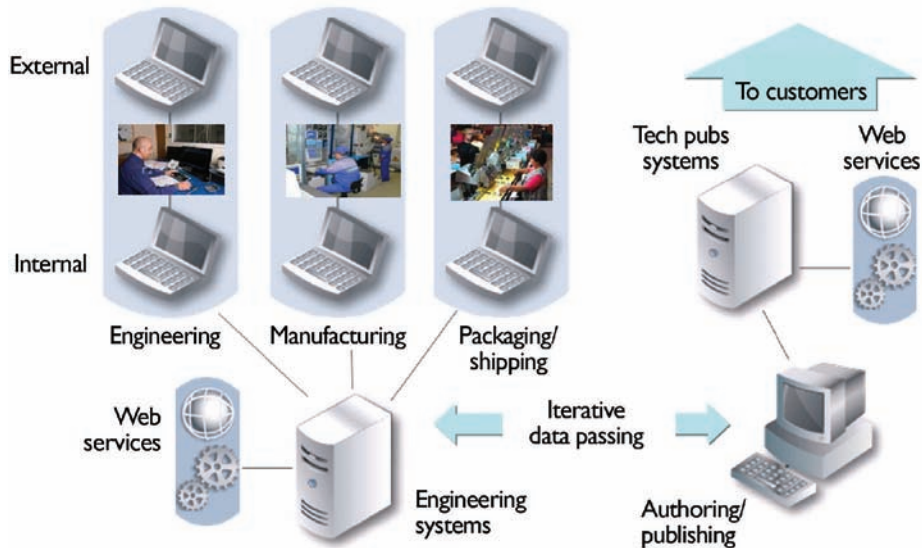
Integration of publication departments into engineering workflow, security and product configuration information managed in a PLM environment reduces the time necessary to create, edit and publish supporting documents. Publications teams have direct ties to engineering content, reducing the time needed to find updated engineering source data and allowing for earlier validation of the information they use to write manuals. By directly linking the engineering source into the documentation content, reviews and approvals are reduced, as only change-impacted content needs to be checked prior to running increasingly automated publishing processes to update the documents.

In many enterprises that have not adopted PLM strategies, documents have been the basis for collaboration and information transfer between lifecycle phases and departments or organizations for decades – first in paper, and more recently, electronically. Many of us have been enthusiastic about the move from paper to electronic data transfer, and lauded this as an improvement in process, simply due to a change in media; and in many ways, it was.

However, in most repository implementations, static documents are still used to manage and share requirements, designs, bills of transfer, process diagrams, policies, etc. Relational and transactional data is available in traditional portal-style applications and access can be managed. Users are provided search mechanisms and information can be routed from one engineering application to another.

<sup>1</sup> <http://www.cimdata.com/index.html>

## Traditional exchange of information between systems and disciplines



This change is, for most, simply a reduction in time in the process – few additional advantages or efficiencies are gained simply by switching to an electronic transfer. In some cases, the electronic-only approach creates larger problems, as the correct version of the electronic image must also be determined. Once the data is captured and transferred between departments or systems, users are dealing with a static snapshot in time and the data or document quickly becomes a versioned, static artifact.

Once that artifact is passed to another group, dependent stakeholders are usually not aware of changes, resulting in design and production errors or inconsistencies between product and supporting documentation. The static information in these documents quickly becomes “out of sync,” leading to excessive rework costs, and time-to-market delays while changes are researched and documents are updated.

## ► Enabling dynamic publishing

The ability to dynamically relate and insert transactional and design data into documentation, whether online or print, provides for current and more accurate content. At a minimum, organizations need to be able to relate engineering source data to document content. But ideally, organizations should be able to incorporate it directly, creating dynamic content and dynamic publishing processes that have a direct impact on cost and time-to-market for new products.

XML has been used for some time by publishers to support the re-use of content between documents and repurposing to different media, and to reduce localization and translation costs when change is managed at a lower level of granularity.

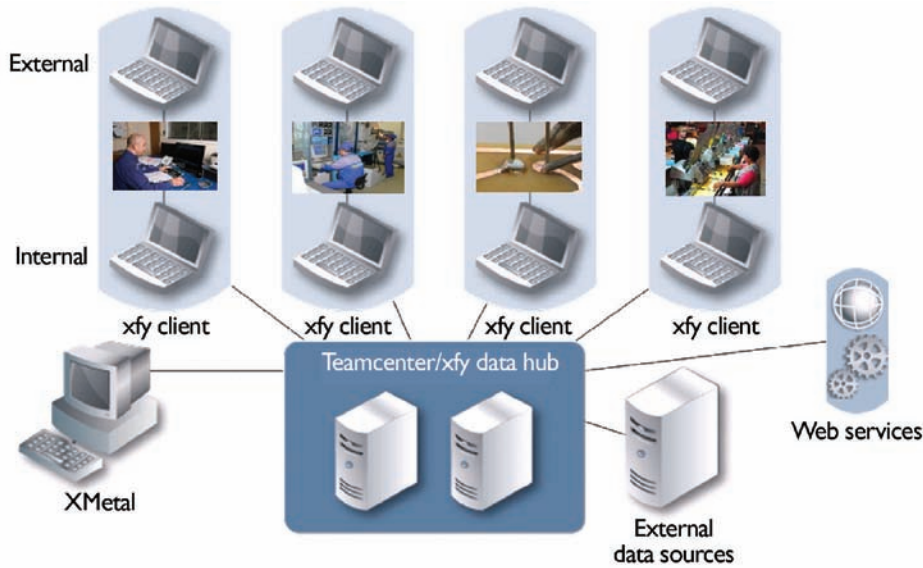
Using XML in conjunction with PLM moves the concept of re-use and repurposing from simple boilerplates to a higher level across product disciplines – i.e., engineering data can be re-used and repurposed directly from its source. Manufacturing and processing instructions can be extended to feed work instructions and training manual tasks. Applying structural consistency and automated builds based on product configuration which is managed in As-Designed, As-Built and As-Delivered Bills of Materials provides current source data for creating Illustrated or Electronic Parts Catalog (IPC / EPC) specific to the products shipped to different customers, thus improving customer value and utility of documentation. Extending the As-Maintained product details to after-market services, whether OEM or consumer-managed, reduces equipment down-time for users and storage and parts inventory for manufacturers. Achieving the optimum generation of product and accompanying documentation requires a PLM strategy that incorporates the capabilities of XML authoring and dynamic publishing.

Teamcenter® software, the leading PLM software suite, provides a single source of product and process knowledge management that advances global collaboration between engineering disciplines. Design, logistics, manufacturing and service engineers and their management can view real-time engineering information in a secure environment, with change management, notification and workflow that encompass all product data. Changes to system requirements can immediately influence product design, and changes to design can dynamically update work instruction and manufacturing processing instructions.

With the release of Teamcenter Content Management, technical publications teams can be incorporated directly into the engineering workflow, and pull content directly from the engineering source, then enhance the content using XML and authoring applications like XMetaL.

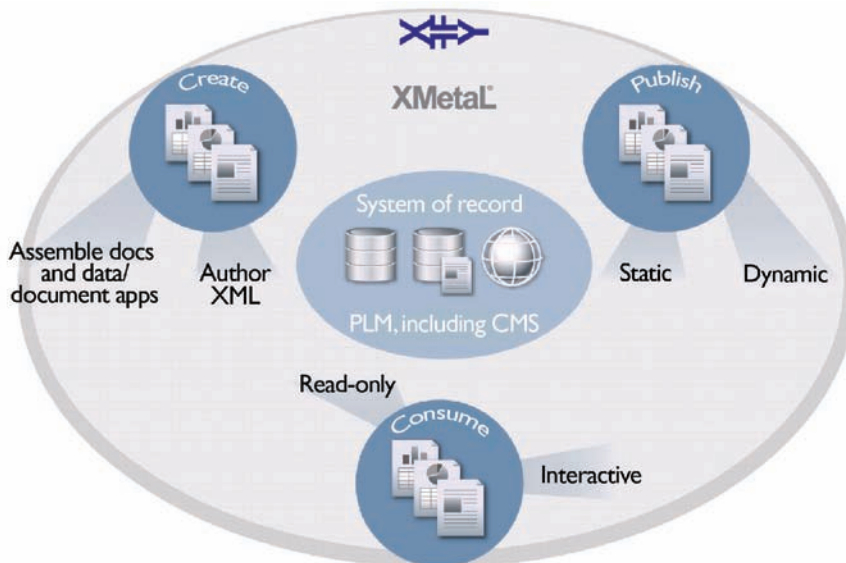
XMetaL is a market-leading structured authoring application that allows organizations to dramatically improve the quality and consistency of product and technical documentation, policies, procedures and other published content, while improving re-use and reducing the time and cost of content creation, localization and maintenance. XMetaL provides an intuitive environment that technical and non-technical authors can use to rapidly create valid XML – while sheltering them from the complexity of XML tagging and syntax.

## PLM-based information management and publishing



xfy is a document-based composite application framework that allows organizations to rapidly unify content and data in a single dynamic document. For example, information from a logistics database, customer requirements documents, and the XML content management system can be combined to assemble customer-specific user manuals using current materials from a variety of applications. With no technical knowledge, business users can rapidly assemble rich document-based applications that bring together isolated content and data from disparate sources. xfy dynamic documents are, in essence, applications.

## xfy-enabled dynamic documents, combining content and data as live applications



Applied within the Teamcenter PLM environment, XMetaL and xfy allow organizations to turn static and inefficient documentation lifecycles into automated and optimized processes that take time, cost and risk out of product development.

## ► Conclusion

By moving content management into the Teamcenter PLM environment and applying XMetaL and xfy technologies, users can continue to reap the benefits XML has proven in documentation processes and PLM has proven in engineering over the last two decades, while extending the benefits of each to the other discipline.

Teamcenter now owns the full product definition and supporting documentation and is the true single source for all product information. Users can take advantage of mature, production-proven, integrated products at all levels, including PLM core capabilities of version, change and relationship management, access rights and security constraints.

Users enter information once, at the source and re-use throughout the product lifecycle, including the extension to documentation traditionally kept in separate content management systems for producing owner, training and maintenance manuals for product consumers. By relating content to product structures and engineering content, risk is further reduced as organizations can ensure consistent structure, format and terminology across departments, and use XML effectivities to further manage the differences needed for multiple audiences. XML technologies are used to facilitate rapid publication of product variant documents and publish to multiple formats easily and in real time, and work with content directly from the engineering environment as well as traditional XML technical manual content.

### **About JustSystems**

*JustSystems is a leading global software provider with three decades of successful innovation in office productivity, information management and consumer and enterprise software. With over 2,500 customers worldwide and annual revenues over \$110M, the company is continuing a global expansion strategy that includes the launch of its new enterprise software offering called xfy (pronounced 'x-fye'), and XMetaL content lifecycle solutions.*

*JustSystems has worldwide office locations including global headquarters in Tokyo, Japan and regional offices in Palo Alto, California; London, UK; and Vancouver, Canada. The company currently employs over 1,000 people. Major strategic partnerships include IBM, Oracle and EMC. Learn more about JustSystems by visiting [www.justsystems.com](http://www.justsystems.com).*

### **About Siemens PLM Software**

Siemens PLM Software, a business unit of the Siemens Industry Automation Division, is a leading global provider of product lifecycle management (PLM) software and services with 5.5 million licensed seats and 51,000 customers worldwide. Headquartered in Plano, Texas, Siemens PLM Software's open enterprise solutions enable a world where organizations and their partners collaborate through Global Innovation Networks to deliver world-class products and services. For more information on Siemens PLM Software products and services, visit [www.siemens.com/plm](http://www.siemens.com/plm).

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