

DS V6 Whitepaper

Component Supplier Management

A Global Foundation Approach

A Product Lifecycle Management Whitepaper
Prepared by Dassault Systèmes



Executive Summary

Global competition and ever-evolving business models make component re-use and standardization key imperatives for High-Tech companies to remain competitive. This includes High-Tech OEMs (consumer electronics, communications, and specialized electronics) as well as the critical Electronic Manufacturing Services (EMS) providers who must manufacture and deliver the final product. Critical to product innovation is managing an integrated part development process from design to procurement and driving a strategic sourcing strategy that ensures component compliancy and enables “Design Anywhere, Manufacture Anywhere (DAMA).” These initiatives deliver both agility and savings when successfully executed.

High-Tech companies understand that implementing a Component Supplier Management (CSM) solution has proven benefits for increasing research and development (R&D) efficiencies, ensuring New Product Introduction (NPI) success, improving time to market, and positively contributing to the bottom-line and long-term competitive advantage. Yet even with the recognized value of CSM, many organizations have failed to completely capitalize completely on this area of competitive advantage and leverage the full potential of CSM.

This whitepaper explores several key factors that contribute to an effective CSM strategy across the enterprise. First, the rapidly changing landscape of High-Tech organizations due to acquisitions, growth, and competition, makes it hard to implement standardized processes while minimizing the impact on the effectiveness of the organization. Secondly, the availability of out-of-the-box (OOTB) solutions for processes such as component selection, design collaboration, and sourcing strategies remained fragmented until now. Everyone would like to be able to access a single version of the truth that gives them the right information at the right time to make the correct decisions early in the design process that is critical to product success. So what are the barriers that exist? This whitepaper, will examine the root causes of these gaps and how we can close them and implement a successful CSM strategy.

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When 'Business as Usual' is Bad for Business

Becky is the product manager in charge of product development for the eMedia line of products. She has just received a new requirement from a key customer for a new communications port to support the latest ultra-band standard. As with all electronic components, time is of the essence. Teams are pulled together to accelerate the requirement into a feature and design specification, and engineering is 'put to work' to burn the midnight oil to get the new feature into the latest product release.

Unbeknownst to Becky and her organization, several months prior, the same requirement was also introduced for two other product lines within other design teams at her company. Now, the three design groups have completed and prototyped their designs and two of the groups used different Commercial-off-the-Shelf (COTS) parts to meet the same product requirements from the customers.

Let us imagine some of the inefficiencies that have been 'enabled' for this organization:

- Unnecessary time spent qualifying different suppliers for the COTS commodity parts now in the supply chain. Time wasted setting up different part numbers for what is actually the same part for two of the designs
- Duplication of materials as one of the designs has used another COTS part for what fulfills the same Form/Fit/Function (F/F/F) as the other COTS part the other two design teams used
- Aggregation of volumes for Purchasing will be difficult, as now all demand planning for these parts are driven from different Enterprise Part Numbers (EPNs) in the Enterprise Resource Planning (ERP) system of record for operations and procurement
- Disabled the opportunity to re-use components since different firmware codes and Printed Circuit Board (PCB) designs have been created

In this case, Becky's company will maintain design revisions, sourcing suppliers, as well as maintenance, service, and documentation, for all three products for quite some time in the future, at a great hidden cost to the overall enterprise.

Root Causes of the CSM Gap

So we need to ask ourselves, why do examples like what happened to Becky happen in High-Tech organizations? In fact, this example is only one use case of many that occur when CSM strategies in global companies are executed poorly. In the following sections, we will look at several areas that impact CSM implementation and practices and how we can 'close the gap.' These areas include:

- Building off a central repository to manage, share, and access the information and data from a CSM solution while fostering global collaboration across the extended enterprise

(including strategic suppliers and design partners)

- Offering a CSM solution that can offer consistent and standard OOTB processes while maintaining the required flexibility required by an agile organization
- Taking a cradle-to-grave approach to CSM that enables end-to-end traceability throughout the product and CSM lifecycle, from requirements to product definition, design, testing, manufacturing, service and retirement

Defining a Global Foundation Approach

An organization's ability to re-use Part, Intellectual Property (IP) and items is critical to operational excellence. Yet more often than not, component re-use across an extended enterprise and supply chain has been very difficult to achieve. What are some of the drivers of this gap in CSM implementations? In many organizations, parts and IP libraries are well maintained at a local, geographic, or sometimes at the divisional level, using isolated, disparate methods for storing local data. This however makes searching across the global enterprise a huge challenge to overcome. In addition, the qualification of new parts and designs are usually rushed usually to meet specific deadlines without thought for 'second-life' and re-use.

To leverage CSM in global environments, organizations must have some way to store, manage, and allow access to component parts and IP libraries across all relevant users, regardless of location, throughout the product's lifecycle. This system should contain or aggregate all the data required for good decisions, including linkage to the requirements (why is this part requested?), compliance data, engineering data, historical cost data, supplier and qualification information, manufacturing data, as well as quality information. These are key parameters that need

to be accessed real-time in a role-based context to be effective as a part of an adopted CSM process. In addition, this information must be easily accessible from anywhere in the world, as the distribution of design, manufacturing, and out-sourced design continue to expand for both large and small organizations.

In addition, a good CSM solution should offer re-usable processes for assessing component options, processing part requests for either COTS parts, or new designs. A solid CSM strategy should also offer consistent review processes to ensure completeness. Finally, the CSM process should provide feeds to the global part and item library as well as procurement and sourcing practices and processes to ensure optimization and synchronization across the enterprise.

Many companies in the High-Tech arena continue to evolve through organic growth, mergers, acquisitions, and collaboration in the design chain; all making for re-use, standardization, and CSM a moving target. We can see why this can be a challenging task for many organizations. An enterprise CSM platform assures that new businesses and stakeholders can be integrated easily in the solution as needed.

Providing OOTB Capabilities for the Flexible Organization

A good CSM solution should provide solid OOTB capabilities for the types of parts and items that most High-Tech organizations wish to manage. These can include mechanical, electrical, software, make/buy, molded, and other typically encountered part types or classifications.

These OOTB capabilities help establish formal processes to determine what work will need to be done for a specific part request (is there design work that needs to be done, for example). Also, specific owners can be assigned based on the part type and role (in this case, the design work needs a mechanical designer in San Jose, CA, and an electrical designer in Tokyo, Japan). Also the 'deliverables' from the process can be captured as a part of the CSM process—for

example computer-aided-design (CAD) models and specifications for a new part design, or datasheets/part change notices/end-of-life notices for a purchased electrical part. All of this helps to eliminate manual processes and the 'sneaker-net' of creating and collecting the information needed for proper standardization and re-use. The process, if set-up correctly, should allow us to gather all the information about the item or part as a part of the CSM process evolution, rather than after the fact, or through manual (and often inaccurate) processing. Finally, many processes such as eco-design (RoHS, REACH, China-RoHS, etc.) can be included in the OOTB process, rather than be accommodated in a stand-alone niche system.

A solid system for CSM should also allow additions to accommodate a specific organization's local or differentiating requirements. The constant flux for High-Tech companies require a "flexible" approach to CSM. This includes the capabilities to accommodate divisional or geographic requirements where it makes sense. Rather than forcing everyone into the same box, a good CSM approach should allow for differentiation where it makes business sense or allows for competitive advantage. For example, in some cases, the processes of a merged or

acquired organization may prove to be the 'best-practice' that needs to be adopted into the enterprise solution over time.

In the end, OOTB capabilities should provide the baseline and a solid foundation for most companies' CSM needs, however there must be flexibility included to accommodate change. This assures that companies do not lose the differentiation often sought after with partnerships, mergers, and consolidations so common in High-Tech industries.

How a Cradle-to-Grave CSM Solution Enables End-to-End Traceability

Another area of enablement for companies wishing to deploy a true global CSM solution for a competitive advantage is by enabling the power of cradle-to-grave CSM. This allows for true end-to-end traceability throughout the product lifecycle. Now, the effect of part, IP, and item decisions can be evaluated both up and downstream. For example, in our earlier user-scenario with Becky, a cradle-to-grave CSM strategy would have allowed her to know that a similar requirement had been documented in other products or geographies. This could have led to direct traceability between the requirement and existing parts and firmware designs as well as COTS parts already in use. Armed with this information, Becky and her related design teams could have focused their efforts on other product improvements, further enhancing

the product competitiveness while streamlining downstream procurement and manufacturing processes—significantly improving the bottom line with the same set of resources.

In addition, the impact of cradle-to-grave CSM "where-used" capabilities cannot be underestimated. For example, this could allow obsolescent decisions to be optimized based on the number of products impacted, manufacturing and inventory data, as well as targets for supply chain optimization. For example, does operations have a target to reduce the supply base for specific commodities by 30% in the calendar year? These targets can be met more easily, when CSM "where-used" capabilities give easy access to all of the related products, assemblies, parts, and product record information.

Dassault Systèmes V6 Platform Enables a Global CSM Strategy

A Single Platform for Global Part, IP and Item Management

Based on the Dassault Systèmes (DS) V6 platform, the ENOVIA® V6 High-Tech Accelerator™ for CSM offers a break-through in the ability to break down the barriers that have stifled global implementations of a good CSM strategy in the past for High-Tech companies.

The DS V6 platform is the world's most capable platform for enabling true global collaboration for all CSM processes and OOTB activities. Globally distributed teams and supply chains cause disconnects between both processes and data. Typical implementations of CSM allow for silos of information to reside in various places and are not accessible or reused across the company.

With DS V6, a single platform and database can be used in real-time to access, collaborate, and find the right information to make the right decisions at the right time.

Ready-to-Use, Flexible and OOTB CSM Business Processes

The DS V6 ENOVIA High-Tech Accelerator for CSM solution offers all of the OOTB processes for most of the classifications needed in a High-Tech enterprise. This includes coverage for mechanical, electrical, software, molded and make/buy part types. Also critical is the ability to extend the system easily to accommodate any new part, item or IP types as required.

With the DS V6 platform, companies have the ability to allow easy and dynamic changes to business process behavior, data elements, and even user interface appearances. This gives the enterprise the ability to leverage OOTB CSM capabilities while enabling the flexibility required by an agile organization. Now required and differentiating capabilities can be implemented as

needed while maintaining the baseline of standard capabilities that allow for global processes standardization and optimization. In the end, the capabilities of the DS V6 platform give your organization the flexible tools that lower total cost of ownership (TCO) while fulfilling unique business needs.

“Cradle-to-Grave” CSM for End-to-End Traceability

The single platform approach of DS V6 also offers the benefit of true RFLP (product **requirements**, product **functions**, **logical** components, and detailed **physical** components) enabled CSM. This means that the impact of new, modified, or obsolete parts, items, or IP can be tracked from the initial customer or market requirements to feature based product configurations. In addition, these feature based product configurations can be traced to both system (logical) and physical (engineering bill of material [EBOM] and manufacturing bill of material [MBOM] views throughout the product lifecycle.

This allow for accurate and real-time impact analysis. For Becky in the earlier example, the requirement for the new ultra-band feature could have been traced to existing designs. This could have saved many issues related to redundant design work as well as inefficiencies in downstream processes to manufacturing and sourcing (loss of ability for volume aggregation, for example).

In another example, the impact of change to existing designs or the impact of part/item obsolescence can be determined before the change is implemented. This can identify risks that cross product lines, geographies, or even divisions and brands. Now true global impact analysis can give us the ability to evaluate trade-offs related to cost, risk, quality, and almost any other key factor on which to base our CSM decisions.

Conclusion

DS V6 offers a break-through in the ability to implement a real-time global CSM solution with its ENOVIA® High-Tech Accelerator™ for CSM. The challenges posed by globally distributed teams and supply chains can be met by the single platform and single database solution offered by the DS V6 solution.

DS V6 provides an application and global environment for efficient components supply optimization which:

- Brings together engineering and sourcing functions to facilitate cost-effective part development decisions
- Drives economies of scale by maximizing part re-use and component standardization across products, models and geographies
- Implements strategic Sourcing and (VPA) Volume Price Agreement (VPA) strategies
- Improves component qualities and compliance with company policies and multiple geographical standards and regulations
- Reduces development time through consistent end-to-end component development and introduction process
- Improves supply chain performance through supplier standardization and AVL/AML (Approved Vendor List/Approved Manufacturer List (AVL/AML) management
- Supports global business operations and DAMA (Design Anywhere Manufacture Anywhere) strategy

By breaking down the barriers that exist between product marketing, R&D, design, manufacturing, procurement, quality, and other key stakeholders, the previous individual silos of information can now be brought together in a single system, accessible or reused across the company and your strategic partners, suppliers and customers. Superior OOTB process capabilities and unsurpassed flexibility make for the lowest cost solution while offering the greatest benefit. Now, the true impact of creating, modifying, or obsolete parts, items, and IP, can be evaluated for real bottom-line contributions.

For more information on how the DS V6 CSM solution can help your organization manage integrated part development processes from design to procurement to drive global strategic sourcing, ensure component compliance and enable DAMA agility and savings, please contact your local DS solutions specialist, DS business partner or visit us at www.3ds.com.

About ENOVIA

ENOVIA is a recognized leader in delivering collaborative PLM solutions. We enable companies from a broad range of industries to dramatically accelerate innovation, time-to-market and revenue generation by collaboratively developing, building and managing products. Our solutions facilitate the sharing of concepts, content and context across product lifecycles and throughout value chains of employees, customers, suppliers and partners.

ENOVIA collaborative PLM solutions help global enterprises bring together people, processes, content and systems to achieve a compelling competitive advantage. Our interoperable solutions unify and streamline processes across the product lifecycle, enabling companies to easily and cost-effectively work on projects within and outside of their enterprises. Our adaptable, scalable technology is built to accommodate the ever-changing marketplace.

About Dassault Systèmes

As world leader in 3D and Product Lifecycle Management (PLM) solutions, the Dassault Systèmes group brings value to more than 90,000 customers in 80 countries. A pioneer in the 3D software market since 1981, Dassault Systèmes develops and markets PLM application software and services that support industrial processes and provide a 3D vision of the entire life cycle of products from conception to maintenance. Our offering includes integrated PLM solutions for product development (CATIA®, DELMIA®, ENOVIA®, SMARTEAM®), mainstream product 3D design tools (SolidWorks®), 3D components (Spatial/ACIS®) and SIMULIA®, DS' open scientific platform for realistic simulation. Dassault Systèmes is listed on the Euronext Paris (#13065, DSY.PA) stock exchange. For more information, visit 3ds.com.

PLM Solutions for Your Business

Contact us today to find out how leading companies worldwide are using ENOVIA PLM solutions to beat the competition and speed time-to-market.

Dassault Systèmes Enovia Corp.
900 Chelmsford Street
Lowell, MA 01851
978-442-2500

