BOM DATA MIGRATION FROM ERP TO PLM

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1. Introduction:

The Product Lifecycle Management (PLM) concept holds the promise of seamlessly integrating all the information produced throughout all phases of a product's life cycle to everyone in an organization at every managerial and technical level, along with key suppliers and customers. PLM systems are tools that implement the PLM concept. As such, they need the capability to serve up the information referred to above, and they need to ensure the cohesion and traceability of product data.The PLM concept pulls together information and business processes from multipledisciplines within the enterprise and across enterprises. While product design plays acrucial role in the product lifecycle, PLM is not just a series of add-on tools forComputer Aided Engineering (CAD) and Product Data Management (PDM). But it isnot just another module for ERP, either. PLM is a suite of applications that can beused by a company to get the highest value from their products to improve theirbusiness results. This paper is about integration of PLM and ERP, and seamlessly transferring the BOM data from ERP to PLM.

2. Why do organisations have separate PLM and ERP Systems?

Even though some ERP vendors offering many capabilities as PLM, the companies are going to integrate standalone ERP and PLM systems, may be due to following reasons.Many companies are using old ERP systems which cannot give the capabilities like PLM.The PLM and ERP are evolved to do different tasks. So even though some ERP vendors are providing same capabilities, those are not as per the company requirement.Also, even though ERP vendors providing the capabilities of PLM, they cannot give as much facilities as PLM which is specially made for those.

3. Bill of Materials

The majority of integration topics are around how to handle BOM during all scenarios. The processes and implementation practices related to Bill of Materials are impacting in a significant way how a company will operate multiple systems (CAD, PDM, PLM, and ERP).
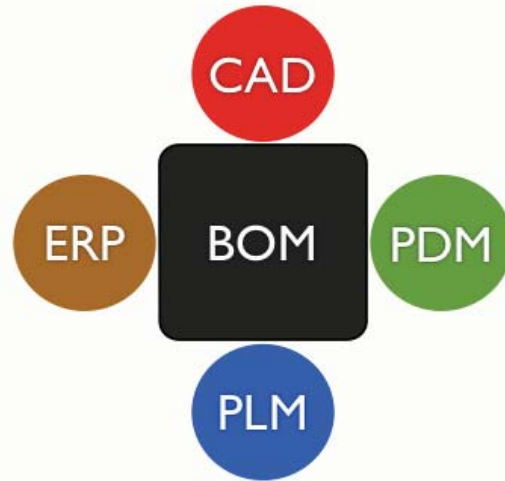
Bill of Material is also a centerpiece of all battles around how manage product data in various forms in multiple systems. It comes in a form of BOM synchronization between systems, definition of multiple BOM views, Product representations and many others.

Challenges in Integration Project

According to study there are mainly three challenges,

3.1 Challenge 1: BOM Transfer

Bill of Materials are everywhere like in Drawings, CAD Systems, Engineering databases, ERP and Manufacturing systems. Even sales configurations, requires a certain representation of BOM. The top waste, people want to eliminate is a need to entering information manually from one system to another system. Therefore, to automate the transfer is No.1 priority for many integration projects. However, it requires mapping of data and a lot of "hand-wiring".

3.2 Challenge 2: How to keep Item Data in Sync

Item information (or how ERP-related people saying Item Master) is a second important topic for the integration. In most of the companies, it is originated and maintained by ERP/MRP systems. However, when company is moving more towards cross-functional processes, the need to have item master information replicated and, sometime originated outside of ERP system, is growing.

3.3 Challenge 3: Where is my single BOM?

This is of the most challenging topic. Lots of companies are spending lots of time trying to decide how to maintain different flavors of BOMs in multiple systems, how to synchronize it and how to define what is the "ultimate single BOM". Some of the companies are taking a different approach

and starting to manage so called "multiple BOM". Companies are spending lots of resources trying to find,what is the right BOM management strategy, like synchronized BOM, non-linear BOM perspective or other. Lots of tools (including customized tools) are focusing on how to maintain bill of materials handling across multiple representations.

4. PLM, ERP and Integration

The increasing competitiveness in global market highlights the importance of design quality, productivity, multi-company collaboration, optimal price levels and. To improve their ability to innovate, get products to market faster, and reduce errors, the manufacturers have been continuing to improve their product development and management abilities predictability. The prerequisite of winning competition is the high productivity of labour and capital usage.

Product Data Management systems are widely used in industry now after significant research and development effort made over a decade. However, the primary applications of these tools so far have been limited to the engineering side of the enterprise, although PDM systems are designed for, and capable of, managing enterprise-wide information especially with the latest Web-based technologies.

The data gathered from the companies yielded information that all of the PLM implementations were first with CAD technologies, later with PDM technologies, and finally with global enterprise wide PLM technologies. In all instances the first tools used in the PLM implementation were the CAD tools and once it was realized that there were going to be massive amounts of digital data developed that had to be secured, stored, and able to be retrieved for reuse then software tools were developed to accomplish these tasks. Finally as computer hardware became extremely powerful and economically feasible for implementation at the desktop level and software tools matured, coupled with the growth of the Internet, global enterprise wide PLM technology adoptions became widespread.PLM is not just another module of the ERP system. At the risk of simplifying thingstoo much, PLM enables innovation and relies on flexibility and loosely structuredinformation while ERP enables control and relies on discipline and structure.

Integration with an ERP system enables the project team to interact with accounting and material resource planning functions of the enterprise to optimize the design from the earliest phase. Integrating with the supply chain in the cases of companies where a significant amount of work is sub-contracted reduces the amount of time and money spent on engineering change. However, in order to access information from the ERP system, the team have to construct a program that can send queries to retrieve the correct information from SAP and also to construct process plans in order to analyse its

manufacturability.Integrating the business processes and information flow across the enterprise and the supply chain is a key component of enabling PLM. Many of the benefits from a PLMimplementation come from better communication between departments and tradingpartners and the integration of different people and perspectives on the new productintroduction processes. An enterprise level view of the design process promises toresult in a design that takes into account the strengths and possibilities of alldepartments and business partners involved, and a design that can be efficiently andeffectively introduced into current operations.

5. Conclusion:

PLM is a suite of applications that can be used by a company to get the highest value from their products to improve their business results. Typically CAD legacy and related product data, and data stored in PDM systems, cannot be easily and economically moved into a new PLM tool. Integration is more than just transferring data between two systems. Integration requires that both information and business processes be supported across multiple systems. So as both ERP and PLM systems have their own benefits, they should be integrated. BOM is a centerpiece of everything. Wemay lose control of 3D drawings versions and do everything in 2D. We can maintain change tracking manually. We may decide not to manage requirements. However, we cannot lose the control of items and bill of materials. So to reduce the problems with BOM, the BOM data should be migrated from ERP to PLM.

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