

PLM System Implementation Methodology in Practice

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Abstract

PLM system is inevitable in whole industry now. But, many technologies and solutions adoption for each PLM area causes the integration difficulties and maintenance problems now. Specially, in case of the company that produces wide range of product, each business unit deploys special PLM system to meet their own needs. It brings difficulties to integrate whole PLM system, so it is not easy to implement the enterprise PLM system. However the enterprise PLM system is inevitable to secure the cost reduction for the system maintenance, efficient system operation and real time KPI analysis. This paper describes a practical implementation process of the enterprise PLM system including PLM scope, solution selection procedure, POC, PLM system implementation and deployment.

Key words: PLM, Benchmarking, RFP, POC

1. Introduction

Product Lifecycle Management (“PLM”, henceforth) is one of the innovation initiatives. It is not a bunch of IT systems but a philosophy, and PLM system regarded as inevitable enterprise IT system as ERP and SCM. Because, Products define a company [1], and manufacturing companies keep on trying to innovate the way to make products which define the company.

PLM has been used in variety of industrial disciplines, also in the electric and electronics industries, with different solutions used according to the product type. It is not easy to integrate entire engineering IT systems and build an enterprise PLM system, even in a company that produces a single product family.

Moreover, making an integrated PLM system is a challenge to a company like the global enterprise electronics company which produces a variety of products including TV, IT devices as smart phone, semiconductors, home appliances as washing machines and refrigerators, because each of the business units requires different PLM solutions that fit for their own purposes.

This paper describes the definition of PLM, the process of the PLM system implementation including PLM scope, solution selection procedure, POC, PLM system development and deployment.

2. Definition of PLM

PLM is known that first advocated in their annual report (2000) by Dassault Systèmes, and now being treated as a common noun as with CAD / CAM / CAE / ERP / SCM. The definition of PLM is defined by the number of companies and organizations; Fig. 1 illustrates a "Word Cloud" form shown by varying the size of the word according to the frequency in the sentence number of definition of PLM by Gartner, CIMdata, Dassault Systèmes, Siemens PLM, PTC and SAP PLM.

Looking at this word cloud, a few key words are well noticeable like ‘PLM, Business, Product, Process, Definition, Information and Management’. Referring to mean a combination of these words, PLM can be defined as "Defines and Manages the Product and Process Information for Business".

In order to achieve effective horizontal integration at a global company with employees working in the global longitude, executives connected to the company's knowledge base and establish social ties between employees and it should form a kinship. These are supported by a standardized technical framework, Prof. Sumantra Ghoshal created a framework for the enterprise integration as Fig. 2 [2].

This framework includes 'Intellectual Integration', 'Emotional Integration', 'Social Integration' and these are linked to 'Operational Integration'. PLM is central to the role of 'Operational Integration' as well as ERP and SCM.

3. PLM Scope

The scope of PLM needs to be defined in an early stage of the project according to the status of the company. In the early years, PLM was defined as a set of CAD, PDM and digital manufacturing solutions [3, 4]. But recently CAD is no longer a main actor in the PLM world, but a step of 'plateau of productivity'[5]. Other emerging technologies are portfolio management and requirement management. PLM functionality can be defined in various ways [6, 7, 8, 9]. In this study, we introduced 12 function blocks.

In a system perspective, each of the 12 function blocks can be defined as R&D strategy management, project management, performance management, portfolio management, development engineering, manufacturing engineering, marketing and product planning, requirements management, development quality management, product information management, technical asset management and out-sourcing and collaboration. Fig. 3 illustrates the PLM function blocks defined.

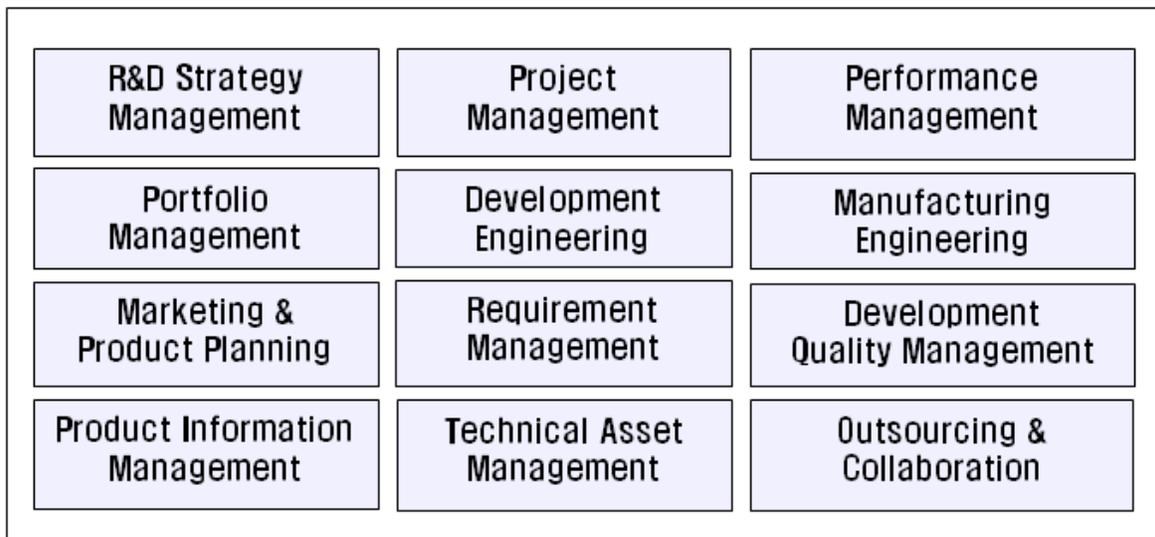


Fig. 3. PLM function blocks.

4. The Process of the PLM System Implementation

After defining the scope of the enterprise PLM system, we need to look into candidate PLM solution vendors for each function block. There are 4 criteria of PLM vendor selection, which are 'Functionality', 'Architecture', 'Cost' and 'Company'. After the POC (Proof of Concept) stage, the most preferred candidate vendor is selected for PLM project.

'Development Planning', 'Implementation', 'Quality Assurance' and 'Deployment and Change Management' are 4 stages of PLM implementation. Master data and MDM policy has to be determined before 'Development Planning' stage of PLM implementation in Fig. 4 [10]. In this stage all kinds of new technologies such as SOA should be considered [11].

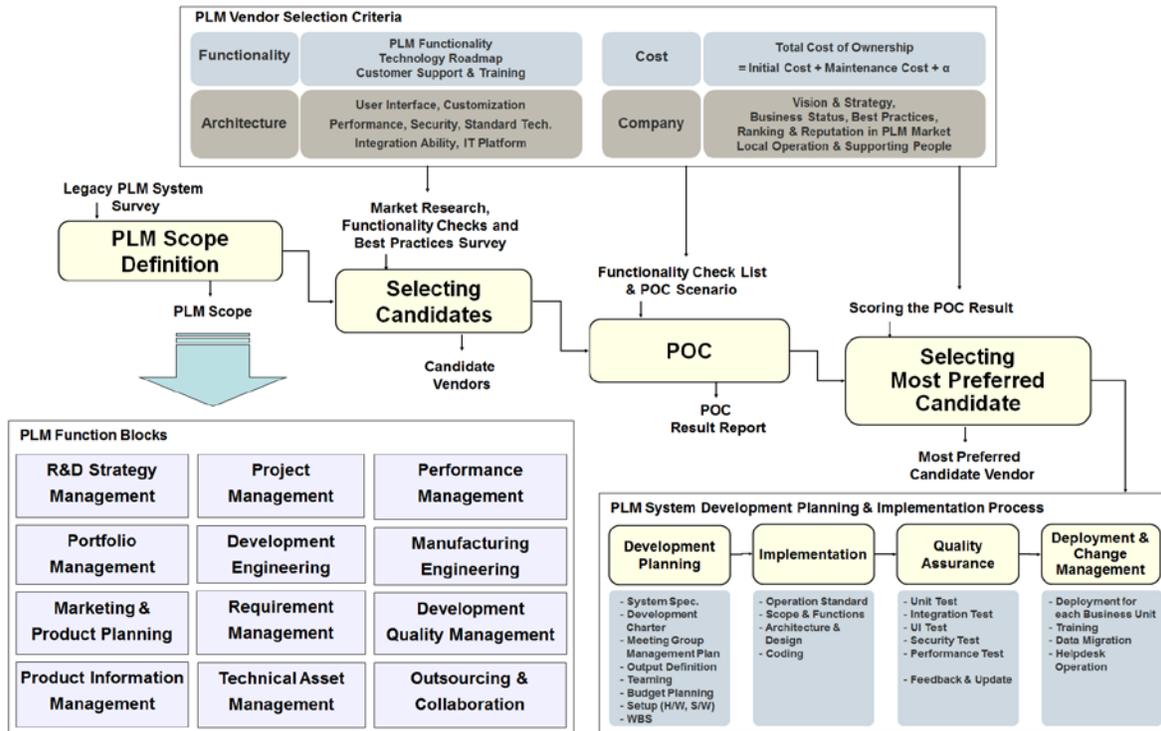


Fig. 4. The implementation process of the enterprise PLM system [10].

5. Conclusion

The implementation process of the enterprise PLM system including PLM scope, solution selection procedure, POC, PLM system development and deployment was described in this paper.

Some lessons are learned through the whole stages. There are no solutions that target on the exact scope we desire and therefore we need to customize solutions. The commitment of high level executives is essential to this kind of big project. Voices of all prospective users are valuable enough to be reflected

Finally, implementing the enterprise PLM system is like 'city planning', while small scale PLM system is just 'building a house'. And, it is as difficult as "changing the tires while the car is running".

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