PRODUCT LIFECYCLE IN SMALL AND MEDIUM-SIZED ENTERPRISES

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Abstract— Generally product lifecycle management (PLM) is characterized as an integrated management process of product information and related processes across the product lifecycle. PLM affects development time of product and optimize the cooperation of all components of the development process of products. Therefore attention has to be paid to this fact in production and research. Currently, still only a few small and medium-sized enterprises (SMEs) uses real benefits that PLM offers. It is caused by several factors that may have information, technical and financial character. Purpose of this article is aimed to refer to the problems mentioned above and highlight the benefits that PLM brings. It also describes the major barriers to the implementation of PLM in SME and propose possible solutions.

*Keywords—*Lifecycle, product lifecycle management, medium-sized enterprises

I. INTRODUCTION

PROGRES in the area of information technologies have opened possibilities for the support of current needs of the industry, such as the acceleration of innovation cycles and reduction of costs. First EDM (Engineering Data Management) and PDM (Product Data Management) systems emerged in the late 1980s as engineers recognized a need to keep track of the growing volumes of design files generated by CAD (Computer Aided Design) systems. Links between the PLM (Product Lifecycle Management) systems and other software, such as Computer-Aided Design (CAD), Computer-Aided Manufacturing (CAM), Enterprise Resource Planning (ERP) and Supply Chain Management (SCM) etc. ensure diffusion, traceability, archiving and reuse of information. PLM is a holistic business concept including not only items, documents, and BOM's, but also analysis results, test specifications, environmental component information, quality standards, engineering requirements, change orders, manufacturing procedures, product performance information, component suppliers and so forth. Modern PLM system capabilities include workflow, program management and project control features that standardize, automate, and accelerate operations. PLM is a collaborative backbone allowing people throughout all extended enterprises to work together more effectively. Operational efficiencies are improved with PLM because groups all across the value chain can work faster through advanced information retrieval, electronic information sharing, data reuse and numerous automated capabilities, with greater information traceability and data security. This way, PLM can result in impressive cost savings and better overview of the lifecycle which gives opportunities for companies to boost revenue streams by accelerating the pace at which innovative products are brought to the market. The return on investment for PLM is based on a broader corporate business value, specifically the greater market share and increased profitability achieved by streamlining the business processes [1].

II. TECHNOLOGY SOLUTION FOR PRODUCT LIFECYCLE MANAGEMENT

In general, PLM systems must ensure two elementary functions:

1. Enterprise knowledge management
2. Exploit enterprise knowledge

PLM systems are usually developed as an integrated set of user applications. Architecture of comprehensive solution includes three components: central infrastructure, system for development and integration application and enterprise applications. Central infrastructure is core on which other applications of the PLM system are based. Basic functions of product lifecycle management are using following tools: debugging tools for data flow, data vault, database management system, administrator tools, standard tools for cooperation, visualization tools, data flow management tools, etc. PLM systems usually support 15 and more CAD formats, XML and many industry standards such as VRML, IGES, STEP, JT and others. Enterprise applications automate working operations and completely cover all phases of the lifecycle [7].

Processes across the entire product lifecycle management are complex and it is difficult to support various levels of cooperation. It is necessary to identify technological solutions to facilitate the implementation of