
CHRONOLOGY OF DEVELOPMENT STEPS DURING A PARALLEL INTEGRATION OF A NEW TECHNOLOGY, A CASE STUDYBaumgartner D., Buergin C. - *ETH Zürich (CHE)*

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The specific case study contains a development of a knee prosthesis based on new biomechanical findings while applying a new technology in form of an innovative plastics material. Presented procedure represents a compromise between a strictly separated technology acquisition process and a product oriented technology acquisition.

A FRAMEWORK FOR CAPTURING DESIGN ANALYSIS KNOWLEDGE FOR REUSE USING PROCESS MODELSGoh Y.M., McMahon C.A., Booker J.D. - *University of Bath (GBR)*

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Engineering companies are increasingly relying on information-intensive methods and tools to support decision-making in product design and development. Design analysis is a critical stage where extensive information is drawn from various stages to aid design embodiment. The availability and management of information to support modern analyses with confidence has, however, proven a significant challenge so far. A process modelling approach is proposed for recording instances of design analyses in a structured and formalised manner to improve information traceability and reuse. This paper explores the initial ideas and issues in defining an extended product model based on previous work, literature survey and case studies.

A MANAGEMENT MODEL FOR THE DESIGN PROCESS IN VEHICLE SAFETY DEVELOPMENTKreimeyer M., Neumüller K., Lindemann U. - *Technical University Munich (DEU)*

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Management of development demands for focused decisions considering all major impacts onto the process. However, different activities in product development often remain with little structure. Common management sciences propose management models to compensate this shortcoming. Yet, they remain very abstract and are often too generic to serve as a means of orientation in a particular business. In cooperation with industry, a management model for the automotive design process was developed. The goal was to permit the consideration of challenges in the global context and handling them more effectively by sensitizing the manager for the most relevant aspects. For this, a framework to establish a strategy and to execute it were integrated.

DECLINING PRODUCTIVITY IN PRODUCT DEVELOPMENT: AN EXPLANATION OF "PIPELINE GRIDLOCK"Larsson F. - *Technical University of Denmark (DNK)*

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When a company pursues too many projects compared with the resources available, and thus have to spread the scarce resources too thinly over the product development portfolio, it may result in congestion in the development pipeline. The phenomenon, often referred to as "pipeline gridlock, has serious negative implications for the productivity in product development. This research suggests that the the existing explanations for pipeline congestion can be enriched by adding a consistent mindset, which explicates a number of circumstances and their sequential linking in an overall pattern of inherent causality, which forms a explanation for the phenomenon pipeline gridlock.

DESIGN ENGINEERING PROCESS FROM CONTENT-BASED POINT OF VIEWNevala K., Saariluoma P., Karvinen M. - *University of Oulu (FIN)*

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The paper introduces an empirical case of content-based approach to a real design engineering process in paper machine design. Content-based analysis is established by Saariluoma in 1990s. The design process is explained by analyzing the contents of thinking of individual engineers. Functional logic of the organizational culture guides the thinking processes of individual engineers. A new notion of a task definition window is introduced. We claim that approaching the total process through individual mental sceneries gives a positive contribution to the traditional design engineering research methodologies, to the methods of organizational management and even better understanding of the real nature of design engineering creativity.

RISK MANAGEMENT IN PRODUCT DEVELOPMENT – CURRENT METHODSOehmen J., Dick B., Lindemann U., Seering W. - *Technical University Munich (DEU)*

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The paper explores Risk Management in Product Development, with the main focus being the review and discussion of current methods. A literature review is combined with an industry field study. Risk Management is seen as one possible answer to addressing the challenge of increasingly complex products and processes, as well as to external regulations. A comprehensive process outline for Risk Management is briefly introduced. Selected methods for Risk Management are discussed and assessed along this process e.g. Identification by Failure Modes, Risk Matrix, Scenario-based Tracking. It is concluded that in order to develop a truly holistic Risk Management approach, more work needs to be invested into defining a general framework for discussion.

DEFINITION AND RESEARCH FOCUS IN PRODUCT DEVELOPMENT PROCESSESSchabacker M., Guo H., Vajna S. - *University Magdeburg (DEU)*

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Processes that form Engineering are marketing, product development, production process planning, prototyping, and testing. They form a complex process net, in which some activities run serially, some run in parallel. This paper gives an overview about process terms and research areas of the members of the DS SIG "Modelling and Management of Engineering Processes" for a better understanding. The objectives of the SIG are to discuss and to evaluate significant influence factors that fix and improve the quality of Engineering processes. Such factors are e.g. strategies, approaches, methods, procedures, and tools for modelling of, building up, for optimizing of, for working with, and for managing dynamically Engineering processes.

EXPERIENCE BASED COST MANAGEMENT IN THE EARLY STAGES OF PRODUCT DEVELOPMENTZrim G., Maletz M., Lossack R. - *Kompetenzzentrum - Das virtuelle Fahrzeug
Forschungsgesellschaft mbH (AUT)*

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Function orientation and process cost management allows a transparent and complete estimation of costs in the early phases of product development based on developer's experience. The present approach utilises the experience of developers and shows the relationship between the functions, components and processes of a product with specific requirements. PDM/PLM-systems build the backbone for data based engineering and could be expanded with cost management features. The next step is to integrate the described model in PDM/PLM systems for cost estimation on the basis of functions and requirements in early stages of product development.