

Title	未来駆動型プロジェクト・ナレッジ・マネジメント - 開発設計におけるフロントローディング事例研究 -
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Abstract

Design and R&D Departments are becoming busier and busier as customers have greater requirements and there is demand for shorter development times. With the recent downturn in the economy and restrictions on the amount of overtime that can be done, engineers have fewer man hours to put into design, research and development that is oriented towards the capitalization of technology and Knowledge Management.

To overcome these problems, various companies have been making progress with innovations to the development process by applying work methodologies such as concurrent engineering and frontloading. Methodologies such as concurrent engineering, frontloading and cross-functional teams have much in common in terms of how they ask how to create and transfer knowledge for the development project, while also reforming the development process at the same time. Recently, we have even since the emergence of an academic discipline called “Project Knowledge Management.”

This study builds on this previous work and looks at case studies of product development in four companies. The first case study examines design conception at the early stages of development and comprehensive application of DFX principles. The second case study is an example of innovations to create links between design and production technology. The third case study looks at the utilization of a technology road map. The fourth case study looks at the utilization of a Virtual operation manual.

Based on these four case studies, we then propose a “Future-Driven Model of Project Knowledge Management” for managing knowledge in projects that involve the development of products and technologies, by deducing the following four logical implications for the practice of project knowledge management in developing products and technologies: 1) to adopt concurrent practices that incorporate frontloading activities; 2) to involve more knowledge-creating team members in the project; 3) to incorporate the future-driven vision for the end goal as project knowledge; and 4) to recognize the necessity of simultaneously reviewing both the process and the mission.

This study’s findings contribute to the practice of project knowledge management by identifying the following four points as keys to success: 1) ascertaining the characteristics of the project (such as scale, degree of difficulty, experience, expansibility, business

type/category, and the ambition of the goals); 2) implementing After Action Reviews and pro-active training for the project leader; 3) understanding and improving the precision of the mid-term plan for considering the vision for the end-goal; and 4) reviewing and defining the mission, and implementing activities to improve efficiency as part of this process.

This study looked at businesses that assemble electrical appliances and other devices, a type of business where change is very rapid. It remains unclear just how applicable these results might be to other types of businesses, such as chemicals, pharmaceuticals or food businesses.

From that standpoint, one challenge for future research is a need to test and refine the logical model by looking at case studies for businesses other than assembly businesses. “The steady implementation of project After Action Reviews” has become a keyword in the project management field of late. The most important future challenge is to follow up this research in both theory and practice so that support for globalization and considering the trade-off between sharing knowledge and disclosing technology to outsourcing and alliance partners can be built into the model.