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Knowledge Transfer in R&D Project Management

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Abstract

Degradation of research and development activities is recognized as one of the top-priority issues in Japanese manufacturing companies. There are several reasons for degradation including disability to follow structural change of innovation and to gain exclusive profit from innovative technologies. Quality of project management also affects effectiveness of R&D activities. This paper focuses on project management knowledge of R&D managers and proposes a method of project management knowledge transfer in order to increase the success probability of R&D projects. My model and method consist of knowledge externalization and knowledge internalization.

"Structured project analysis" is a method of knowledge externalization which reviews a finished project and produces a structured case. In the structured cases, three types of structure (stage gate framework, review checkpoints and cause-and-effect relations) are introduced into the traditional text-based cases. The structured project analysis clarifies success and failure factors of the project with these structures.

The extracted project management knowledge is stored in a project case database. However, it is not trivial for project managers to internalize the knowledge using the case database. This paper also proposes the "internalization workshop" method for managers to internalize the project management knowledge based on the analogical transfer approach. The method selects success and failure scenarios (future chance and risk items) from the case database which have some similarities to the ongoing target project and shows them to the managers. Then, the method prompts the managers to imagine and analyze future scenarios of their target project by analogy and take actions to them.

This project management knowledge transfer method requires software tools to support externalization and internalization. I have developed two supporting tools, Project Case Database (PJ-CDB) and Project Editor/Browser (PJ-EB).

Furthermore, I proposed a new measure to evaluate the effectiveness of the proposed knowledge transfer method, and apply the measure to an actual project. The proposed method has been used in an actual R&D organization. I think it can be applicable to other R&D organizations with some customizing.