

Title	ソフトウェア開発プロジェクトの変動マネジメント手法 形式知化と知識継承
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## Abstract

As the importance of IT system has been increased, how to share the knowledge of project management is important. In a software development project, software size, progress and productivity tend to differ from the project plan for various reasons. However, it is difficult to know the precise varying status of the project quantitatively, because the real situation of the software development project cannot be grasped easily. If the granularity of the grasped progress and cost are rough and not accurate, project manager cannot find the delay of progress until the delay expand, and the control of the project might fail.

To solve these problems, this study focuses on the knowledge transfer for the management of project variance. First, it proposes the method for the variance of software development project, which paternize the past project knowledge and systemization of variance visualization. Next, it proposes the knowledge structured model to generalize the knowledge structure based on the project variance management method. This method enables the smooth project management by utilizing the past project knowledge. And the knowledge structure model will contribute the organizational knowledge externalization and knowledge transfer of project management.

The key success factor for the software project management is to grasp the variance of the project early and take the appropriate action to prevent the increase of the variance according to the cause of the variance by utilizing past knowledge. EVM (Earned Value Management) method is one of the quantitative management method which can manage the schedule and cost systematically. However, main usage of EMV has been to grasp the status of the project monthly or weekly. It is difficult to grasp the precise and detailed WBS related progress and effort because it takes much effort to collect the data and to analyze detailed information. This study proposes the method to make the variance of the project visible quantitatively and daily to solve these problems. This method makes the variance visible every day by the unit of function and person by systemizing data collection and automating progress calculation using man-hour and software size by the unit of detailed WBS. It has been shown through a case study that this method helps project manager to control the project smoothly by finding problems early, analyzing the causes of the problem, and forecasting the cost.

Next, this study proposes the knowledge structure model as the framework for the externalization of the knowledge, by generalizing and systemizing the knowledge element regarding the project variance management. In ISO21500 and PMBOK, knowledge is classified by the project phase and category of the management process. They can be used for grouping the knowledge for project management, but they don't provide the concrete knowledge structure and the relations between the knowledge from the viewpoint of monitoring or control of the project. The knowledge model is structured with knowledge layer by modeling the project management from the viewpoint of controlling the project variance, and by defining the dynamic relation between each knowledge layer. As for the project management knowledge, there are the easy one to make explicit and the difficult one. The knowledge classification model is proposed for software development. It is shown that the knowledge structure model contributes to the knowledge externalization and knowledge transfer in the organizations.

Keywords : Quantitative Project Management, Variance of Progress and Cost, EVM, Knowledge Externalization, Knowledge Transfer