
Project Earned Value Management at Domestic and Abroad

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Abstract

The project earned value management is a main method to control the project integration management, with its application and in-depth research, the domestic and foreign scholars in the theory and practice about the existing problems and made some improvement and innovation, this paper reviewed the origin of the earned value management and research status, and it evaluates the status quo, based on the analysis of China's future project earned value management development prospects.

Keywords

Earned value management, research status at home and abroad, evaluation, prospect.

1. Earned Value Management

The integration management of the project is the most important comprehensive and overall management of the whole project management science. However, the integration project management thought was the initiation, the main owner department where the U.S. Department of defense, Department of energy and NASA and other U.S. government projects, through the study of integrated planning and control method of the project duration and cost of the project, started the project integration management research. In 1958 by the U.S. Department of defense project organization in the United States Navy on the launch of the program evaluation and review technique (Project Evaluation and Review Technique, PERT/Time) is the first time method based on the technology of project integration management. Subsequently, the project plan review method (PERT/Cost) that considers both project duration and cost is not very successful. However, the U.S. Department of defense launched in 1967 by the United States Air Force Based Research and development of the "cost / schedule control system specification" (Cost/Schedule Control Systems Criteria C/SCSC), is the integrated management method of the actual project, and then on the basis of a "earned value management (Earned Value Management EVM)" the integrated management method of cost and schedule of the project. Now many academics and industry pundits believe that earned value management will be one of the dominant methods of project management in the twenty-first Century . Earned value (EVM) is an important method to analyze and control project performance, and it is also a comprehensive modern management method. The concept of "earned value" as the intermediate variable, the definition of the earned value, the United States well-known project analysts, the U.S. Department of defense C/SCSC one of the makers of Abba said: "the amount of work is the earned value project has been completed and unfinished work, a measure of is made the plan and it was value and practical value. Dr. Christensen, one of the researchers, the former US Air Force Institute of technology, the method of Earned Value Management in West Florida University said: "the earned value is designed to effectively measure and compare the finished work and plan to have a variable amount of homework . Thus, the earned value method in the whole project or work package plan value (PV), the actual value (AC) and earned value (EV) based on the estimation constructs including cost deviation and progress deviation (CV) (SV), a cost performance index (CPI), the schedule

performance index (SPI) the evaluation index system, and further to the completion time and the completion cost effectively forecast, and realize the integrated management of the project cost and schedule.

2. Overseas Research Status

Project planning review technology first appeared in the late 1950s. In 1958 the United States Navy launched PERT/Time on cost management improved the Polaris project, 1962 further introduction of cost control system, then introduced the integrated management method for project cost and duration, but not very successful. Subsequently, the U.S. Department of defense research organization in the United States Air Force in 1967 launched the "cost / schedule control system specification (Cost/Schedule Control Systems Criteria, C/SCSC)", which is the project of "earned value method (Earned Value Method, EVM) of the prototype. In 1995 the United States private sector will be allowed to carry out the "cost / schedule control system specification" (Earned Value Management) theory and method of evaluation and promotion of research work, through research and develop the "earned value management system" (Earned Value Management System VMS), has been recognized by the U.S. Department of defense in 1996 . Foreign project earned value management research mainly focuses on the project earned value management method named, project earned value management process of project implementation, make progress management, the research and prediction of future project status. In 1996 EVM open to the use of ordinary industrial circles, many scholars have to study the earned value management theory, with the widespread acceptance of its core ideas and basic views began to explore the effectiveness and practicability of the system, analysis of project earned value management in the implementation process, and its influencing factors further explore the nature of EVM, such as EunHong Kim (2003) for two years on a project in different tissue types to better implement the earned value management method, gradually reduce the earned value management defects exist, improve its utility and earned value management the acceptance of NADERPOUR (2011); to explore the measure and predict the progress of the project concept, methods and performance indicators, the earned value method, and the EVPM and the traditional earned value method were compared with ; Roger D.H. Warburton (2011) proposed a The software project earned value management time official method; Javier Pajares (2011) put forward the theory of earned value method and risk management of project cost control and schedule control based on index index; Howard Hunter (2012) through the application of earned value method in the RBSP project to explain the progress process and the implementation cost of . Many scholars on the basis of prediction, on the progress of EVM project \ cost analysis and prediction of how to improve the effectiveness of the project are studied, such as Denis F. Cioffi (2006) proposed an improved form of earned value analysis and the corresponding scientific notation ; Stephan Vandevoorde (2006) through the comparison of different indicators of earned value the project duration forecast method, and puts forward different projects in case of general formula; Attarzadeh (2009) proposed an application and assessment of project earned value method, to improve the prediction of earned value management system, project time and cost; Walt Lipke (2009) proposed and evaluated a perfect the method of project management, in order to provide a reliable method for prediction of the final cost and duration; Byung-Cheol Kim (2011) proposed a probabilistic cost prediction method and prediction framework In order to improve the reliability of [18], cost prediction; (2011) Leila Moslemi Naeni and Jos Lu s (2012) combined with fuzzy theory to put forward the earned value management model and schedule control model; Timur Narbaev (2013) is proposed to obtain the regression model based on the plan in order to improve the prediction of cost Fernando; Acebes (2014) through the earned value method and project risk analysis and presents an environment of uncertainty in the project control theory.

3. Domestic Research Status

The research of Earned Value Management in China started in 1990s. In 1994, the basic work and operation steps of the project cost / schedule comprehensive control of international model were

expounded by Hu Deyin system . Subsequently, Professor Wu Zhiming of Tsinghua University in 1995 to earn value of overall project management concept for 1999, proposed "project investment value of three monitoring indicators", in 2002 the "earned value method" to "China project management knowledge system outline". So far, the rich domestic scholars in the earned value management theory, which is representative of the Nankai University Professor Qi Ampang mainly engaged in project management, fully integrated risk management model and project performance difference analysis method and so on.

4. Conclusion

In summary, the applied research has made great progress, but the application of theory to practice is a complex process, which in our country the earned value method is the focus of future research: integrated management engineering. The quality and risk in the earned value method in the integrated research has made some progress, the earned value uncertainty into quality factors, consider the law, so as to realize the earned value theory on the quality of the project integration, according to the actual implementation of projects more objective evaluation information, expanding the earned value at the same time, functional analysis, improve the reliability of project implementation. However, for other factors, still need further research in considering the scientific and practical premise, can further introduce more intermediate variables, in order to achieve integrated management of project elements, which method can be applied to the practical application of the information processing; data forecast. Earned value method is analyzed and applied on the basis of large amount of data and information in total factor integration management. The function prediction curve of earned value method is very difficult in practical application. At present, some projects begin to use some project management software to evaluate, analyze and predict, and improve the management level. In order to improve the efficiency of project management, we should make the basic data acquisition and processing completed immediately. Therefore, the information management system based on earned value project management system and computer application gradually become the future development direction of integrated control. Many scholars in the experience of application of earned value method in the research shows that not only the earned value method stays at the theoretical level, must be specific and reliable practice process, the only way to truly earned value method to popularize in engineering practice.

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