An Insight Into Riskit Method

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Abstract

All software development projects involve risk and the ability to take and manage risks is a critical success factor in managing software-related businesses. It seems that the majority of software managers manage risks intuitively. However, as intuitive risk management is perceived as unreliable and inconsistent, more systematic risk management programs and methods are gaining ground in the industry. This paper gives a brief description of the most comprehensive risk management method known as RISKIT METHOD, which is based on principles and avoids many of the limitations and problems that are common to other risk management approaches in software engineering.

Keywords: BOEHM, Riskit, Risk Management, Risk, Riskit Pareto Table

I. INTRODUCTION

Risk is an uncertain event or condition that has a positive or negative impact on the project’s goal. The risk is an unexpected event that has adverse consequences of future events. Thus Risk Management is the process to identify, address, and mitigate the risk before it damages the project. There are various methods that have been developed to analyze the risk factors within any given project. Some of them are as follows:

- BOEHM
- RISKIT
- SEI-SRE (Software Engineering Institute – Software Risk Evaluation)
- SERUM (Software Engineering Risk, Understanding and Management)
- SERIM (Software Engineering Risk, Index Management)

Each of the above methods can be used as a very effective business tool in making sure that the risk element of a project is cut down to a minimum. Different methods are effective on different types of a project. However, this paper mainly gives a description of a Riskit Method.

II. RISKIT METHOD

The RISKIT method was developed in August 1996 by Jyrki Kontio, Helena Englund, and Victor R. Basili at Maryland University, United States. The RISKIT method is more dependable as it provides more reliable results which are very effective and useful and provides confidence to the software development team. The Riskit Method is a comprehensive risk management method based on theoretical principles. It is used for real and time-constrained projects. It avoids many of the constraints and difficulties that are common to risk management approaches in software engineering. This scheme clearly shows that this method can be used for any software development process as it gives more accurate results.

A. Definition of Risk in Riskit Method:

The Riskit method defines risk as a precise and unambiguous. The common definitions are probability of loss, the actual loss, a factor associated with a threat, etc. The two main attributes of risk are: Probability and Loss. The Loss depends upon expectation which in turn depends upon the stakeholder.
Fig. 1: Definition of Risk in Riskit Method

Figure referred from “An Industrial Case Study of Implementing Software Risk Management by Bemd Freimut, Susanne Hartkopf, Jyrki Kontio and Werner Kobitzsch.”

The following summarises the activities of the sub processes of the Riskit Method

Fig. 2: The RISKIT Process

Figure referred from “An Industrial Case Study of Implementing Software Risk Management by Bemd Freimut, Susanne Hartkopf, Jyrki Kontio and Werner Kobitzsch.”

B. Risk Management Mandate Definition:
The risk management mandate is a project statement on the breadth of risk management in a project. The project owner is a person or a group of people to whom the project manager reports and it is the responsibility of the owner to define the risk management mandate. The definition consists of the responsibility, authority, frequency, scope and focus of risk management in a project. The output of this process is the risk management mandate approved and documented.

C. Goal Review:
It is the responsibility of the Project Manager to review the stated goals for the project and to determine all admissible stakeholders and their coalition with their goals. The inputs of this process are the resources such as Project owner, Project Stakeholders and Project personnel, schedule, budget and Risk Management Mandate. The output for this process is the Goal Definition in which the goals are refined and stakeholders are indicated, their significance are defined and their relation and belief levels with goals.
D. Risk Identification:
The possible threats to the project are recognized using various approaches. The Project Manager indicates the large number of practicable risks to the project with the help of Project Personnel and Risk Management facilitator. The input to this step includes Project Authorization Information such as goals, resources, Risk Management Mandate, budget, schedule. The Risk Checklists are also included and the lessons learned from similar projects. A raw numbered list of risks is the output for this process. The tools used for Risk Identification includes Brainstorming Techniques, Goals and Stakeholders driven identification approaches, interviews and meetings.

E. Risk Analysis:
The risks are categorized and integrated. The adverse consequences for all risk scenarios are estimated. The purpose of this step is to perceive and prioritize the risks. The risks and their components are analyzed so that their probabilities and impacts can be calculated. The Project Manager performs this process with the help of Selected Project Personnel and Risk Management facilitator. The input to this process includes a list of risk items and the output includes the prioritized list of risk scenarios.

Risk Analysis is decomposed into three sub processes:
1) Risk Item Clustering which consists of grouping, decomposing, merging or deleting risk items into manageable clusters.
2) Risk Scenario Development includes developing risk scenarios for main risks using the Riskit Analysis Graph.
3) Risk Prioritization – It prioritizes scenarios with respect to their seriousness based on the estimates for probability and utility loss for each scenario.

The following is the figure of Riskit Pareto Table which is a technique to prioritize the risks and it results in a partial ranking of risk scenarios.

![Fig. 3: Riskit Pareto Table](image)

Figure referred from “An Industrial Case Study of Implementing Software Risk Management by Bemd Freimut, Susanne Hartkopf, Jyrki Kontio and Werner Kobitzsch.

The value of Riskit Pareto Table ranking technique is that it gives a dependable and uniform ranking approach that only rank risks.

F. Risk Control Planning:
The purpose is to suggest and determine cost effectual risk controlling actions. The Project Manager has to explain, emphasize and to figure out risk controlling actions for the most salient risk scenarios. With the help of Riskit element review and Riskit controlling action taxonomy the partially prioritized risk scenarios are converted to Risk monitoring metrics.

G. Risk Control:
The Project Manager with the help of Project Personnel and external resources as required aims to implement the risk control actions which are defined by the risk control planning process. The input is the selected risk controlling actions and the output is the implemented risk controlling actions or reduced risks.

H. Risk Monitoring:
The purpose of the Project Manager is to detect the project and risk situation. Risk Management Mandate, Goal Definitions or the Riskit Analysis Graph are used to produce a Risk Status Report which monitors the risk situation in a project.

The Riskit Analysis Graph is a graphical formalism that is used to define the different features of risk more formally. It can be seen both as a conceptual template for defining risks as well as a well defined Graphical Modelling Formalism.
III. ADVANTAGES OF RISKIT METHOD

This method is flexible as it can not only be applied to software projects but also to marketing, business planning, and to various fields which are related to technology.

IV. DISADVANTAGES OF RISKIT METHOD

It does not provide a way to integrate and agree various stakeholders' aspects on the risk results. This method doesn’t provide the difference between Risk Estimation and Risk Metrics which provides difficulty to forecast the possible risks.

REFERENCES