Chapter 57
Improving Objectivity in Project Risk Management

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ABSTRACT

Project risk management requires subject matter expertise to identify and assess relevant and sometimes unique risks. Insufficient experience data and fast evolvement of emerging risks in the field of project risk management make qualitative analysis more prevalent in project risk assessment. Therefore, expert knowledge and experience play a critical role in project risk management. On the other hand, the resulting subjectivity often leads to inconsistent risk assessment. Undesired consequences include cost underestimation, risk underestimation and resource misallocation. This chapter discusses the causes and adverse impact of subjectivity in project risk management and methods to improve objectivity. It covers common human biases in project risk management and introduces measures to improve objectivity in project risk management using expert diversification, risk culture, process mining, fuzzy logic models, and back testing.

INTRODUCTION

Advanced quantitative models have been widely used in risk management. However, for risks with limited data and understanding, subject matter experts' opinions are still heavily relied on to identify, assess and manage risks. As an important component of enterprise risk management, project risk management focuses on the risk of a specific project to assure consistent evaluation, informed decision-making, and successful implementation. Most projects that need significant risk management efforts are new projects with different goals, resources and business environments. Therefore, expert opinion is critical for identifying new risks, providing risk assessment result or building new quantitative risk assessment models, and designing risk monitoring methods and risk mitigation strategies. However, opinions are also affected by human biases because of limited data, incomplete experience, irrational behaviors and psychological needs. Subjectivity leads to inconsistent risk assessment. Undesired consequences include

cost underestimation, risk underestimation and resource misallocation. Therefore, it is important to understand the causes of unnecessary subjectivity and take necessary actions to mitigate its undesired effects in project management.

This chapter is organized as follows. The second section describes common human biases that cause subjectivity in project risk management. The next five sections discuss five methods to mitigate the impact of unnecessary subjectivity:

- Expert team diversification,
- Healthy culture process mining,
- Inference based on fuzzy logic models, and
- Back testing.

The eighth section contains some ideas of future research including behavior analysis. The final section summarizes the main ideas of this chapter. It is hoped that readers will gain a better understanding of the importance of maintaining objectivity in project risk management and know how to improve the level of objectivity.

HUMAN BIASES

In quantitative risk analysis, people rely on sufficient experience data, statistical models and statistical inference to draw conclusions. Contrarily, human inference is normally used in qualitative risk analysis which is common in project risk management. Human inference is affected by factors such as;

- The data volume that can be handled by a brain,
- knowledge,
- Past experience,
- Risk aversion,
- Moral motivations,
- Heuristic learning, and
- Emotions.

Biases exist in human inference because human beings are not always rational and sometimes very emotional. Many project risk assessment tasks are done using a heuristic approach. A heuristic approach finds a satisfactory solution rather than the optimal solution. It can minimize the efforts of formal analysis and is often used in human inference to reduce the load of making a decision or providing an opinion. It relies heavily on existing data, knowledge and experience. However, the stability of the result is vulnerable to personal factors such as:

- Specific experience in the past,
- Knowledge of the subject matter,
- Untested rules of thumb,
- Emotion and personal feeling,

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