

IDENTIFICATION AND PROJECT RISK MANAGEMENT

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***Abstract:** Risk management began to study in the middle of the last century. In the beginning was based on financial protection through insurance, and over time more and more attention were paid to preventive measures and risk management base on and develop. The risk follow us every day and it is always current, changing, dynamic, and it is essential that risk management is actually a process managed by the management. In this paper, an effort was made to create a systematic approach in setting up and management of project risk analysis. A review of risk management sub-processes of the project to be monitored and identifying by control and rated the potential risks on the project, in order to minimize its negative effects.*

***Keywords:** management, risk, project risk assessment*

1. INTRODUCTION

"It is easier to stay out than get out", Marc Twain

Project management means that management is constantly being made all over, on every aspects of the project. Given the fact that project is complex, unique business venture that should be achieved in the future, desired results can be completely predicted and achieved only if all the influencing factors are properly identified, described, and implemented into a model that will provide the scientific solution of the problems [1].

Events and occurrences that threaten to cause on the project difference between the assumed desired objectives on the one hand and the current situation on the other hand, we call risks. Risk refers to future conditions or circumstances beyond the control of the project team. This is a potential future problem that hasn't yet appeared. One can say that **risk is the situation in the future in which there are several alternative solutions with a known probability of recurrence.**

Overall project management approach must be quantified and constantly evaluated in order to be effective at all times. After the planning and preparation, the early phase of the project, there is a need to monitor and control risks. All risks have a direct or indirect impact on the safe management of all important process of the project. All big companies have established management teams to manage risk in projects, investment companies, infrastructure, health and social policy, employment policy, environment, etc. The risk is always present, variable, and dynamic and influence that the risk management is actually a process. Likelihood of risk

events is greatest in the initial phase of the project, which is the obligation of management to monitor and control identified and evaluated risk on the project that must begin immediately. Project monitoring activities have a significant and sustained intensity until the very end of the project.

Uncertainty management means managing the various sources of uncertainty, which increase and shape the risk. Understanding the nature and significance of uncertainty is a fundamental prerequisite for efficient and effective risk management. In contemporary literature is characterized by two basic approaches to defining risk - one is based on the causes of risks and its uncertainties, and the other on the impact on risk. It is considered that the risk a) is a negative deviation from the goal, b) an event that may or may not happen, and if it occurs, can lead to positive, zero and negative results and c) the potential danger of the possibility of losing resources.

2. RISK MANAGEMENT PROJECT

Identification, measurement and assessment in order to minimize negative effects on the financial result and a capital is a project risk managing. Risk management project is a very important part of the overall management concept, which can significantly affect the overall performance of the project. In order to reduce the possibility of realizing the adverse consequences of adverse events and thereby increase the likelihood of achieving the planned objectives, the results must be conducted using risk management methods and management techniques.

In managing project two principles of frequency can be stressed out, the reactive and proactive. Reactive project managing solves problems when they appear, while proactive management is trying to solve potential problems before they occur. All potential problems that may accompany such a project can be seen in advance, but problems needs to be managed.

It can be said that risk management is a set of management methods and techniques used to reduce the possibility of realization of unwanted and harmful events and consequences. In the forecasting and planning, financial manager must work with managers of other business areas, as together they can see the future and set up plans that will affect the future operations of the company and its position within the branches of the economy as a whole [8]. In risk managing, more accesses are possible and following should be taken into account;

- "It will be a piece of cake" approach is very bad and often leads to risk
- Those who point to the risk or expressing concerns are often marked as a "crybaby",
- When things unexpectedly go wrong, it throws us off balance and causing the crisis,
- You must always have access to manage this risk, not to let risk to manage you.

Risk management project, in a broader approach, can be expressed through the following sub-processes [2]:

- Risk identification,
- Analysis and risk assessment,
- Planning a response to a risk,
- Control of the reaction application to risk

2.1. Risk identification

The process of determining and reviewing the system elements and processes to identify and document the potential risks, is the identification of risk. In fact, the risk identification is the process of risk determination, classification, and ranking of risk events on the project.

Risk identification presentation begins with locating and defining hazards, identification and recording of all risk events, of course, they all are important, and no one shall be omitted. Logging is done according to some criteria such as origin, type of costs that may affect, during the formation and so on. After completion of the risk identification, a register of all identified risks is established.

The identification of hazards and their evacuation is a creative process that includes research and recording process to make a short list of events that are being developed and evaluated in phases, each phase contains another interdependent source of uncertainty as authors of given tables said (Table 1).

Table 1 is describing everything that falls into the domain of decision making under conditions of risk, in terms of the role of managers in all this. Experience, as the given brief overview of sources of uncertainty in the generic structure of decision-making process, suggests there is a relatively large area so managers could make good decisions.

Table 1: Sources of uncertainty in the management structure of decision-making (Ibid)

The stage in the process of decision making	Uncertainty
Controlling of the environment and current operations in the organization	Completeness, truthfulness and accuracy of the information received, the meaning of information, interpretation implications
Identifying the problem The scope of the decision Determination of performance criteria	Significance of the problem, the urgency, the need for action, the appropriate frame of reference, the scope of relevant organizational activities, who is involved, who should be involved, the scope, degree of separation from the other decisions Relevant performance criteria, which criteria, the appropriate metric, the appropriate criteria and exchange between the different criteria
Identifying of alternative directions Prediction of the results of action directions Selection of courses of action Implementing the selected alternative Control and considering performance	The nature of available alternatives (scope, timing, logistics), what's possible, the level The level of desired details, available time for identifying alternatives Consequences, the nature of influential factors, the scope of factors, effects and interactions between the influencing factors (variability and timing), the nature and importance of committed assumptions How to measure and how to compare the predicted results? How will the alternatives work in practice? What to control? How often to control? How to take future actions?

In the process of risk analysis processing of each identified risk (establishing cause and effect), analyzes the existing control measures in the system, and is the quantification of risk

is performed. Quantification of each identified risk definition includes quantitative and qualitative risk assessment.

One way to prioritize and quantification of risk is to define each risk the group numeric values as follows.

- Make a list of all potential risks,
- Evaluate the likelihood of risk probability (Risk Probability Number-RPN) by measuring:
 - The likelihood of risk
 - The impact of risk on the project,
 - The possibility of spotting risks

In order for risk identification could be done properly, it is necessary first to make a risk-sharing in general. Risk sharing is based on causes of or according to and the consequences.

In general, risk sharing can be done in two basic types:

- Business risk,
- Pure risk
 - The direct loss of assets (natural disasters)
 - An indirect loss of property (equipment maintenance, etc.)
 - Loss of liability (damages and compensation for loss)
 - Personal losses (Employee compensation due to injury)

2.2. Analysis and risk assessment

When defining the project, a full assessment of project risks should be made. The project manager can do an initial list of project risks based on its own knowledge in collaboration with team members and stakeholders for the project. Procedures to measure the size of risks that can cause a loss, and the impact of the danger of the project observed the methods of risk assessment. The rating of the size of the risk depends on:

- Flexibility of the project (flexible investment - increased risk, inflexible - lower risk),
- Available technologies (new technique - more likely, an old technique - lower risk), and
- Size of the project (major project - a higher risk, a small project - a lower risk)

Each project is unique and therefore there are no uniform criteria for the assessment of its risks, but most authors agree that it contains two components - market risk of the project and the project risk for a business system.

In practice, most commonly applied methods of measuring of individual risk are:

- Scenario analysis (see [3]),
- Sensitive analysis (see [4]),
- Monte Carlo simulation (see [5]), and
- Analysis of decision tree

Risk analysis pays special attention to high-risk events.

1. Step: Breaking down of the project (WBS)
2. Step: The assessment of risk (maintenance of the probability)
3. Step: Application of quantitative and qualitative methods

Risk assessment is a procedure that performs measurement of the size of risk, which can cause a loss or failure, and the impact of the danger of reporting project.

a) Quantitative risk assessment

To each identified risk has been assigned a qualitative risk assessment. The height of the risk is expressed based on numerical analysis, rather than the approximation in terms of low, medium and high.

One way of determining priorities and quantifying of the risk is assigning numeric values to each risk in the following order:

- Make a list of all potential risks,
- Evaluate the risk probability (Risk Probability Number - RPN) by measuring:
 - The risk probability.
 - The impact of risk on the project,
 - The possibility observing the risk

Quantitative evaluation is expressed through the formula:

$$\text{Risk} = \text{risk probability} \times \text{consequence provoked by the emergence of risk}$$

The likelihood is expressed through the frequency of events per activity unit or time, and the consequences caused by risk expressed through monetary value (loss of income, the cost of activities, etc.). Based on the obtained value of its risk, the assessment must be carried out.

b) A qualitative assessment of the risks

To each identified risk has been assigned qualitative score of the risk level. It involves defining the magnitude of danger, risk probability, and therefore its determination. Some influences that can lead to risk can be quantified by numerous values (lose of the integrity, authority, reputation, etc.), so the quality rate is used, usually based on a subjective assessment and it is used in the decision making process.

Expressing the level of risk qualitatively approximate the fastest and does not include the strictness of detailed numerical analysis. Since the amount of risk may be high, medium, or low and its impact is very different, each event must be evaluated individually because the probability of appearance may be small and impacts can be large and such an event should be treated as high risk.

2.3. Planning of the response to risk

Identification and risk analysis gives us information about the risks that await us in the project, when and where it may appear, what is the likelihood and the degree of exposure to risk.

When the risk has been identified, reaction of the project risk manager involves several approaches in response to risk:

- Neglecting (ignoring) risks,
- Risk monitoring,
- Standing risk,
- Reducing risks,
- Transferring of risk

Ignoring the risk is such an approach where the project manager sees potential risk event and decided to take nothing. This approach can be used for low impact or risks for those with low probability of occurrence.

When monitoring risk the risk of the project is not managed proactively, but the risk is monitored and incidence of the change with the advancement of the project is observing.

The characteristic of the filing of the risk is the fact that risk is not ignored, but the possibility of risk events and the consequences that it carries is accepted.

Avoiding risk means eliminating the conditions that cause the problem. In the scope of the access of reducing risks, the risk manager performs changes in the project to reduce the possibility of a risk event and its impact on the project. Access to risk transfer implies that the responsibility of managing the risk can be eliminated from the project by allocating risk to other identity or third party.

3. RESUME

In the complex conditions of continuous changes, finding appropriate ways of exploring the consequences of decisions taken is essential. Future circumstances or conditions beyond the control of the project team, i.e. a potential future problem that has not yet appeared causing a risk event on the project. One can say that risk is the situation in the future in which there are several alternative solutions, and certainly does not mean performing a negative effect on the only negative consequence whose realization is uncertain. The risk is the danger that this event, poor procedures and unused opportunities may adversely affect the project realization.

Risk management is a phase and ongoing and the continuing activity of several activities - a systematic identification, analysis, evaluating and reaction to risk events by all participants in the project. It contributes to making rational and possible measures of the risk controls and eventual protection.

Relationship of the project management to risk, i.e. its impact is twofold - *first*, affect the study of the influence of risk factors and, *second*, reducing the risk level. The importance of risk for the future of any business that is the subject of project management is great. Reviewing of the actual risk is acquired by investor confidence that the project will be completed successfully and creates the conditions for its support in overcoming problems that during may occur the project.

Finally, it should be noted that project management should not be linked only to the organization, but it applies to the individual activities of short-term or long-term nature.

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