

RISK MANAGEMENT AND EVALUATION AND QUALITATIVE METHOD WITHIN THE PROJECTS

Vlăduț-Severian IACOB

*Stefan cel Mare University of Suceava, 720229, Romania
severianvi@seap.usv.ro*

Abstract

Making any project requires consideration of risks that may occur during the life of it. Therefore management of risk situations / difficult can be considered as a fundamental component of project management. The contents of this study will consider the highlighting in a theoretical form of the main aspects of risk and its management. It will also bring into question the use of qualitative risk analysis with examples on the probability - impact matrix.

Key words: *risk analysis, risk management, project, risk matrix.*

JEL Classification: *O22.*

I. INTRODUCTION

Risk has become a daily presence in the lives of the individual whether or not engaged in economic activities or otherwise. Risk event is recorded by incidents / accidents leading to serious economic loss or loss of life. Avoiding such situations has as support the analysis and risk assessment in projects or companies.

During this period affected by the economic crisis, determining the types of risk and evaluating their levels becomes increasingly important higher. Thus, economic agents are encouraged to decide on the adoption of prompt action to shift from high risk levels at acceptable lower levels. This is envisaged to improve working conditions and environment.

Though conceptually developed and applied in countries with functioning financial markets, risk management, in its current form, is just beginning to be heeded in Romania (ANCS 2010). According to the source there are few "organizations with their own mechanisms for measuring and hedging, others do not know the advantages that you would get by applying the procedures already established."

As a rule, effective risk management requires the the evaluation of events in a two-dimensional approach, on the one hand, from the point of view of the uncertainty occurrence (probability), and on the other from the viewpoint of the effect result (impact).

Depending on the type of risk analyzed methods are used to estimate the qualitative, semi-quantitative and quantitative. Typically, for major risks it is recommended the use of quantitative evaluation methods that provide an accurate estimation of the possible consequences. Based on these calculations decision makers may establish specific measures to ensure better protection of potential receptors. For this material it will be used in risk assessment a qualitative method.

II. RISK IN PROJECT

1) The project

Human activities are geared towards meeting various needs, to get something to complete an objective or set of objectives. Each such activity can be considered "draft." Starting from here we can say that the projects exist for thousands of years, along with those who thought of project details and put in the work. The latter are constructors of 'world wonders' who gave a new face to human civilization.

The diversity of activities can generate different ideas for lots of projects. Practice and theory, as will be drawn from text, invariably demonstrated that, whatever they might be, the projects share a number of elements: a unique purpose, a period of time for completion (with start and end within), consumption of material, financial and human. Some projects may be continued or converted into other projects.

For defining the term "project" various specialists expressed their view in recent decades (Rutman and Mowbray, 1983; and Hedin Conrad, 1987; Hayes, 1989; Valade and Bamberger, 1991, Munns and Bjeirmi, 1996 Mățăuan, 1999). Profile authors of recent years (Lewis, 2000; Ciobanu, 2002; Turner and Simister, 2004; Borgăoanu, 2005; Bulat, 2011; Opran, et al., 2012) took over and improved the definitions keeping references to "specific elements: objective data specifically allocated resources, planned activities dedicated team fixed" (Pascu, 2005).

By some estimation, the project is "an action that has a beginning and an end and is undertaken in order to achieve the objective, in compliance costs, calendar and plan quality criteria" (Hayes, 1989). European Commission (1986) within the project in a "group of activities to be performed in a logical sequence to achieve a set of predetermined objectives formulated by the client" (Istrate, 2004). According to others, the project is "a set of actions performed over a period of time, with moments defined start and end with a clear purpose of the work performed by its own budget and a specified level of results obtained." (Lewis, 2000).

Currently the world is gripped by fever of the projects. Fashion of projects, at least in Romania spread in all areas mingling with the "need to get grants" (Negoiescu, 2003). Are projects in the economy, tourism, music, health, administration, etc.. Whether we talk economic operators or institutions or other organizations in the context of the existence of the funds made available by the European Union for development projects around the world do. But in addition to being a fashion drafting is a must, especially with a project that can not apply for these funds. Moreover, a weak project cannot be chosen for funding, which is why individuals and legal entities must prepare specialists in this regard. They will be the ones to ensure the overcoming of oppressive realities in many projects: low functionality after completion, poor communication within and outside the team, their budget and time inconsistency, inadequate employment (or further advance), insufficient documentation etc.

Situated in a particular space-time context, the project aims to produce "changes" for the better through a series of actions in which resources are allocated. Allocation decisions in any project must maintain a balance in the "iron triangle" (Weaver, 2007, Lock, 2010) represented by the term costs and objective (Figure 1).

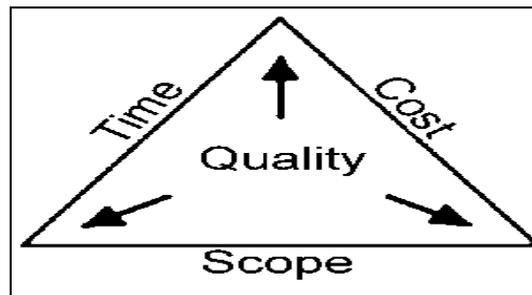


Figure 1 - The Project Management Triangle

The basic idea of this theory is that one can not alter the sides without damaging at least one of the other. Preservation of quality requires that at least one point to be variable. The purpose of this model is to strengthen the principle and work in accord with it. The project manager is not necessarily forced to remain "trapped" in exactly the original constraints of the project but should show openness and "flexible handle triangle" (Ambysoft, 2012).

2) Project management

Speaking of processes (transformations allocations) and decisions within a project, we can say that already reached the "space" of project management. This could be considered a "process of engagement and resource management oriented organizations change" (Iacob, 2013). The project is on clear principles of management and coordination is done by a team led by a project manager. His vision on the objectives will ensure project success. In this sense, a rigorous analysis submitting project goals SMART (Specific, Measurable, Achievable, Relevant, Time-based), the manager and his team will properly understand the requirements and tunes stakeholders and apply appropriate and timely steps to retrieve results.

The success of the project is also given by the "customer satisfaction, competition, profitability of the project, the available market for third parties" (Kerzner, 2003). Also, other "ingredients" of success should not be omitted: the organizational adaptability, executive commitment, ensuring of planning and control, leadership of the project manager and his selection criteria (Javed, 2009).

In other words, project management, is a logical sequence, planned activities required to successfully complete a project. In this approach, given the constraints of time, resources and cost, the project team aims to achieve the project objectives and obtain feed-back for each phase of the (construction project plan, manage and track the implementation of activities; completion of the project).

3) *Risk notion associated to projects*

Current social and economic system is encumbered by complex structural relationships. These is changing along with the development science and technology. Tensions in the social and economic relations are generating significant changes to how they are treated in the theoretical and practical aspects of the concept of risk in the project (strategic, plans, management), business (business strategy, corporate governance, etc..) society (food security, economic performance, terrorism etc) and not least the individual level (insurance, pensions, personal investments, health, etc)

Being common to both areas, the term "risk" is dealt with in different interpretations reason why it is considered that there is not still a broad consensus on the meaning of the word. Terms relating to risk are made by various national and international standards and professional organizations (AS/NZS4360 1999 Project Management Institute 2000 British Standards Institute 2000 Institution of Civil Engineers 2002). There are also ongoing disputes between practitioners on the concept of risk (Hillson and Webster, 2004).

Even though there are different formulations and views regarding period in all transcend the idea of the existence of two dimensions of risk (Hillson and Hulett 2004; Mitruț, 2005). One of these dimensions refers to the probability (uncertainty) and that risk has not occurred, and the event may not occur, another dimension of the impact (effect) on the objectives if the risk occurs.

Mathematically, the event of loss designating potential risk (R) product is the result of the severity of the effect (G) and the probability of (P).

$$R = G \times P$$

Though perceived as potentially bad (Mitruț, 2005) which may affect the integrity of individuals, property or the environment, risk and may establish such "effects of the event (ie results), their chances of occurrence (probability) and impact, or severity of perimeter affected" (Druică, 2011).

Given the the definitions and interpretations of different authors they may come off the main features of risk:

- risk is associated with all activities of human activities;
- the risk of possible loss is the idea;
- Risk impact can be considered constant if the risk event occurs;
- the risk arising from uncertainty, uncertainty comes from lack of data event;
- risk can be a temporary incapacity or permanent to adapt to the environment of the company;
- Risk is a measure of vulnerability that can generate business success or failure;
- an event considered of risk can be controlled if they obtain information on the actual effects of their occurrence and magnitude, location and time of occurrence;
- Risk is the essence of every company's inability to accurately predict the future development of activity.
- invested capital has to be paid if the widening corspunzător risk taking.

In the projects, any deviation from a planned initiative is a manifestation of risk. Any risk manager knows that risk costs. Seen in the light of its consequences, the possible materialization of the risk requires taking responsibility. The risk of developing pressure different effects both within the project and the economic unit and the others. Therefore, his team and the project sponsor project manager should develop and refine an of risk plan. This document permits the identification, formulation, calculation, preparation of response measures, monitoring and control of project risks.

III. RISK MANAGEMENT WITHIN THE PROJECTS

Every project is unique, having unique goals and pose risks to its significant elements, they no longer experienced previously. This applies in particular if the conditions and events uncertain if they occur, will generate project risks that may affect project objectives. Naturally in a new project management can be solved potential risks based on experience from other projects under similarity statements. Even so, there is no a "collection of lessons" (Hilson and Hulett 2004) drawn from various projects to overcome certain types of risks or to resolve difficult situations, each project manager has to face the challenges of the project which leads.

To complete the project is necessary to cross all stages and phases of life cycle. Proper conduct of planned actions to achieve the objectives of the project are conditioned: framing the terms, provision and use of resources to budget, achievement of milestones, etc.. Hasty action, or inaction undocumented proper coordination project manager of the team can make difficult situations stated objectives or of risk.

This is why risk management is a very effective way to manage critical situations. Based on, the teams are able take positive measures to minimize the consequences of the risk materializing.

Risk management in projects goes through the following stages (AS / NZS 4360:2001, Fraser and Cooper, 2005; Mironescu, 2005): establishing the context in which risk occurs, its correct identification, risk analysis, risk assessment, risk control; figure 2.

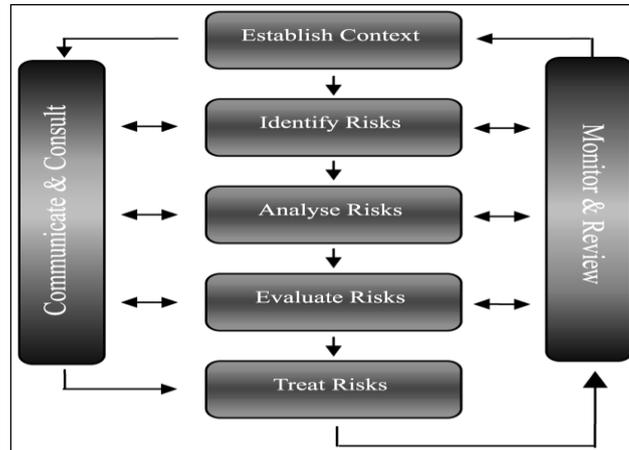


Figure 2 - Risk management stages

Each stage has its importance in the risk management process.

First stage. Determine the context of management, organizational and strategic establishing the composition and risk assessment procedures. Also here will be given precise ways of consultation and communication with stakeholders or affected.

The second stage. It is by far one of the most important steps in project risk management. here risks configuration occurs associated with the identification of hazards and consequences. It's where risk management occurs. one can not think anything related to a particular risk and is not useful to make action plans if that risk status does not belong to the context. Risk identification begins where the problem comes. It is necessary to study the basic organizational goals, the similar risk scenarios if any. As a result of these analyzes may create a risk map. Road to the success of the project is provided through the permanent risk of this map.

Identification of risk in projects or organizations with a holistic approach is not suitable. Such treatment is counterproductive and does not stimulate creative thinking team. Moreover, in order to correctly identify potential risks, decision makers should pay equal attention to every significant aspect of the project. Thus, about the technical side of the project, possible risks such as misunderstanding of drawings, degree of difficulty in assembling two components, improper use of new technologies, etc. Regarding project management can identify risks of misallocation of human resources, indiscipline etc., It can also be identified organizational risks, eg conflicts on access to, resources, funding interruptions, non succession of works, project no longer wanted etc. Besides these, there might be external risks, other than those forming part of the force majeure, eg adverse weather conditions, as country risk, changes in legislation, changes in market outlets etc..

The third step involves qualitative and quantitative risk analysis, establishing opportunities for control and effect of control measures regarding the consequences and estimating the probability of of risk. There will also be assessed frequency and severity of risk.

In the evaluation of the risks, costs and benefits are estimated activity being communicated to stakeholders. Evaluation criteria should be concise and the for the efficiency of the measurements must be small. In the assessment must be captured all sides of activity.

The treatment of risk consists in defining measures that should be taken if the risk occurs. Development of of mitigation measures is to respond to threats and to introduce corrections. Solutions to be applied should be well grounded. The good news is that they should be obtained by known methods and to give assurance that the application will not generate new problems. Risk treatment involves drawing up a plan in which there are predefined the concerned risk mitigation procedures. This plan is part of the risk management plan.

Risk monitoring is the stage where:

- seeks reduction expected in response to the implementation of measures to correct the effects of risk.
- if there is risk responses are implemented as planned
- is constantly checking the validity of the assumptions considered in the project
- identify possible new risks or search symptoms of known risks
- occurs following the evolution of degrees of exposure

IV. QUALITATIVE METHODS OF RISK ASSESSMENT

Risk assessments are qualitative, semi-quantitative and quantitative. Qualitative assessment results are usually descriptive and do not imply an exact quantification of risk. The qualitative assessment often provides support for further investigation of quantitative, but can also provide information needed for risk management. The success of the evaluation is given by the way it is documented and summarizing the data to be processed. Sometimes the results of qualitative assessments are available to risk managers and other interested parties, being required only to a of risk assessor order to make an estimate of the size of an odd risk. A qualitative assessment is formal being preferred to quantities for several reasons, as follows:

- gives the perception of speed and ease of implementation;
- appears to be more accessible and more easily understood by policy makers and others;
- There are insufficient data to make a quantitative assessment;
- There is no mathematical competence and facilities to assess risk.

Though numerical data are preferred in making decisions, the qualitative evaluation results satisfy a range of needs, although sometimes such an assessment is not faster or easier to achieve.

Principles of assessment are the same and apply uniformly in the evaluation methods to ensure continuity from data collection. Therefore, a risk profile achieved by qualitative methods can easily be improved further by a quantitative assessment given that it is interesting and useful to decision makers. That does not mean that the results of qualitative investigations do not provide enough information. Conversely, assessment of qualitative risk can capture perspectives previously unidentified.

If there is planned a quantitative evaluation is recommended to make a qualitative one and can be identified as that currently available data, the uncertainty of the data, the probable magnitude of the risks associated etc. The conclusion is that when a qualitative risk assessment has been made, a great deal of work for a quantitative assessment can be considered as complete.

One of the methods commonly used in qualitative risk assessment is the impact probability matrix. The two variables such matrices are in fact risk component. Actual technique of this method is the assignment of scores (values) for likelihood and impact of risk categories identified by the risk manager or project team members. The product of the two variables will give risk exposure.

This method was used in the project "Seminar: Trends in the restructuring and modernization of agriculture in the area of the Local Action Group (LAG) Mountain Valley 2013" to form an image on the risk of not having the audience on scheduled courses.

The first step was to set the impact on a scale of 1 to 5, Table 1:

Table 1. Impact Analysis

Magnitude of impact	Impact definition	Score	Rating
High impact/ High probability	Very high They are the biggest risks that entrepreneurs should pay attention.	5	A
High impact / Medium probability Medium impact / High probability	High These risks have either a high probability of occurrence, or a significant impact	4	B
Medium impact / Medium probability	Medium There is a medium chance that the risks appear noticeable impact.	3	C
Medium impact / Low probability Low impact / Medium probability	Low These risks can occur in some situations and have a low to medium impact.	2	D
Low impact / Low probability	Insignificant There are risks with low probability of occurrence and low impact. Can therefore be neglected.	1	E

The the second step was to define the probability of risk occurrence:

Table 2. Likelihood score risk

Likelihood level	Score
Very low	0-20
Low	21-40
Medium	41-60
High	61-80
Very high	81-100

The the third step was to determine the risk exposure resulting values in Table 3.

Table 1 Calculation of the degree of risk exposure

Nr. crt.	Risk	Occurrence likelihood		Impact		Degree of risk exposure	
		Probability	Score	Probability	Score	Rating	Score
1.	Without learners	Very low	20	Very high	5	E	12,5
2.	A small number	Low	40	High	4	D	22
3.	Reasonable number	Medium	60	Medium	3	C	31,5
4.	Full house	High	80	Low	2	B	41
5.	More than places	Very high	100	Very low	1	A	50,5

For the last step was built a risk matrix as shown in Figure 3.

		IMPACT		
		Low (insignificant, just note)	Medium (reasonable impact, to be monitored)	High (will have a significant impact)
LIKELIHOOD	Low (unlikely to occur)	E	D	C
	Medium (may occur at a time)	D	C	B
	High (likely to occur)	C	B	A

Figure 3 Probability impact Matrix

The analysis matrix shows that the risk of not having learners for maximum fear is a risk class C, so a medium risk.

V. CONCLUSION

Scroll of text brings the reader consistent information, well documented and structured in relation to the concepts of risk and risk management projects. Closely related to these are made clarifications about the projects and how they are managed under the influence of pressure SLE "triple constraints" time - cost objectives, known as the "iron triangle" or "golden triangle".

In the process of risk management is made an overview of the steps through which it is achieved mainly emphasizing the importance of identifying risk.

Risk is assessed by qualitative and quantitative methods. To obtain information relative safety in a descriptive lighter way on risk, managers turn to qualitative methods of evaluation that are agreed and that can be easier explained to others. The article concludes with a practical example of the use of probability-impact matrix or risk the matrix as it is known in the literature.

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