

## Impact of the Risk Management and Quality in Successful of the Project

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### Abstract:

Many uneasiness, uncertainties, fears and ambiguities always exist in the management process of projects because of the presence of a number of unseen factors causing failure to the business projects, which in turn can result in substantial financial losses for the organization. The main aim of this paper is to answer the questions involving risks. How do they affect the project? How we can deal with them? How does poor risk management lead to failure of projects and how can one identify factors which cause the risk? Besides, the paper briefly introduces the basic ideas of the Analytical Hierarchy Process (AHP). It focuses on the application of AHP method for risk assessment in the project.

**Keywords:** Risk management, Project management ,Risk analysis, application of AHP, The analytic, hierarchy process.

### Introduction:

The success standards of any project involve achieving what is required on time, within the specific budget and the prerequisite criteria but one has to bear in mind from the beginning of planning that uncertainty factors exist in the period of any planned activity, which initiates changes in the estimations made at the beginning of every stage of the project. This is due to the imbalance in schedule and budget. But these uncertainties, changes or failures might have been avoided and/or mitigated by applying risk management.

### 1.1What is a risk?

First, let us assume that the project is a temporary one, a one-time event that meets certain criteria: it has a beginning and ending date, a timetable, cost, and quality restrictions (Charvat,2003) Risk refers to the possibility of a given threat, a specific potential susceptibility, and the subsequent effect of that hostile event on the organization (Stoneburner&Goguen,2002). In other words, a risk is an event making change in the estimate of the project life cycle which results in the fact that the predicted goals cannot be achieved within the available resources and time. Risk cannot be eliminated from a project. It is not standard and it depends on many factors. One size does not fit all projects or circumstances. Risks in an organization are referred to as natural tragedies, security breaks, imperfections of human resource, financial havoc, and unsteady business environments. (Alhawari&Talet,2012)

## 1.2. What Creates Risks?

Chapman and Cooper define risk as an ‘exposure to the possibility of economic or financial loss or gains, physical damage or injury or delay as a consequence of the uncertainty associated with pursuing a course of action’(Chapman&cooper,1983) (Dey& Kinch,2007). “Risks are part and parcel of projects”. (Dey& Ogunlana,2004) Some of the related literature confirms that risks accompany the project from the start of an activity to the end.

It is my conviction that risk results from a project planning being done with insufficient information initially combined with lack of problem understanding, delays in processing what is required and lack of resources However, the degree of risk varies with respect to its complexity and size. Five reasons contribute to increasing the likelihood of risk:

- Beginning a project with a budget insufficient for the desired level of technical achievement,
- Initiating a project before an adequate verification and/or before committing adequate resources
- considering an inclusive development process that prefers one or more options over others (e.g., technical performance over cost and schedule)
- Founding a design close to the possible limit of achievable technical performance at a given time
- Taking key project design decisions before understanding the relationship between cost, technical performance, schedule, and risk (Wileg,2009)

### **Classifying risks: -**

In a simple business context, risks can be classified into:

- 1- A business risk which provides a chance for profit and loss. For Example, competitor activities, bad weather, etc.
- 2- Insurable risk which presents only an opportunity for a loss. For Example, direct property damage. (Wileg,2009)

## 1.3. How can a risk be reduced or managed?

The project manager has to depend on rigorous judgment and proper tools while dealing with risk. The final decision on how to address risks is founded partly on the project manager's acceptance of risk, together with the contractual requirements and shareholder inclinations (Wileg,2009). However, it can be managed. Risk management is important to the success of any project; one has to consider the processes, methods, and tools for managing risks and continuously assess the potential risks or damages that may occur while executing the project. The Literature review indicates that risk management techniques must be developed in the early stage of a project and that the risks and uncertainties must be continually measured throughout the project life circle.

Risk management should not be limited to the early stages but should cover all stages of a project. There are significance differences between one project and the other depending on several factors: size, type of the project, project requirements, schedule and budget for implementation it. Risk management is necessary when the level of risk is high and when there are more uncertainties and fears through implement the project as illustrated in Figure1

## 1.4. How poor risk management can lead a project to failure?

In contrast, poor risk management is one of the biggest causes that can lead to the failure of project. Imbalance functionality, quality and timeliness, can bring about many problems to project management. Thus, poor risk management does not allow a project to achieve its goals, and it can cause other risks to the existing ones. A survey on software development companies in Mauritius and South Africa exhibited

that amongst all knowledge areas, the poor rating for risk management was definitely a probable cause of projects failure (Kathy Schwalbe, 2003). Angel Egbuji (1999) suggests that poor risk management is a result of not performing good decision-making process, so the poorer the quality of decision making the poorer the quality of actions to be taken, normally resulting in disasters for an organization.

Firstly, the risk affects one or more element of project management as shown in Figure 1; for example, the budget may affect the production in a project because it can lead to an increase in the estimated costs and schedule of the project, Moreover, it may make changes in terms of the product quality and delivery time. In case of poor risk management, the risk is ignored or it is not addressed efficiently; that will lead the project to failure or in the best cases, it will be implemented with a large budget and without any profit



Figure 1, Elements of Project Management (Perera&Holsomback,2005)

## 2.The effect of risk management on a project: -

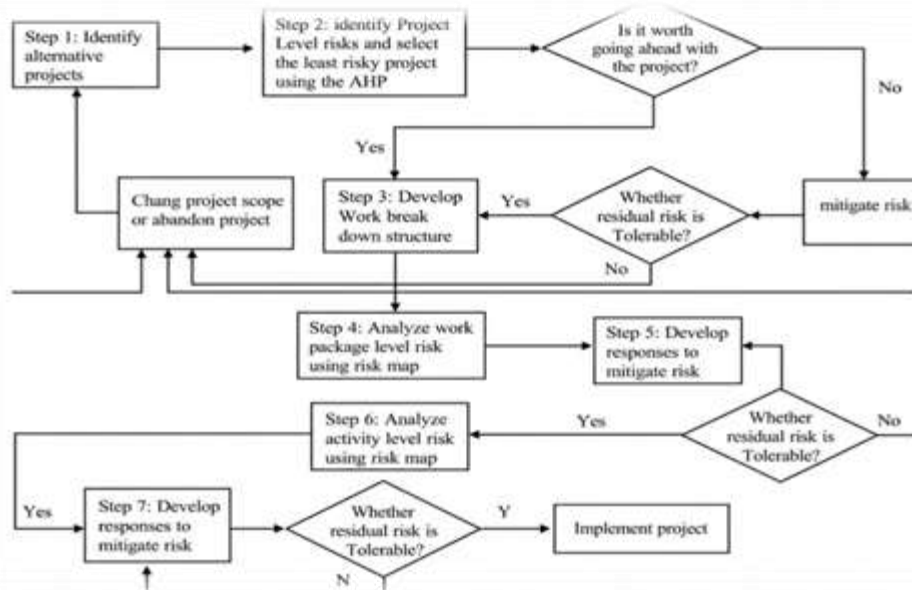
Most project management methodologies include risk management, which can be used to:

- Create an understanding of the potential risks and their effects,
- Provide an early warning system when the risk event is imminent
- Provide clear guidance on how to manage and contain the risk event, if possible
- Restore the system/process after the risk event occurs
- Provide a means for escape and rescue should all attempts fail (Wiley,2009)

## 3.The risk management processes: -

According to Calhoun (2000), risk management can provide a disciplined environment for proactive decision making to:

- Assess constantly what could go wrong (risks);
- Determine which risks are important to deal with;
- Implement strategies to deal with those risks; and
- Measure effectiveness of implemented strategies.’ as show in figure 2.



**Fig. 2.** Integrated framework for project risk management. (Dey& Kumar,2010)

### 3.1. Risk assessment by the analytic hierarchy process AHP Methods: -

Uncertain events and risks cannot be totally eliminated; however, they can be controlled and managed by applying risk management methods. Risk management (RM) methods are classified into two categories: The first category attempts to reduce risk circumstances, while the second category deals with risk treatment after a risk appears (Mininno&Davide,2007) The analytic hierarchy process (AHP)” is a structured technique for organizing and analysing complex decisions, based on mathematics and psychology. It was developed by Thomas Saaty in the 1970s and has been extensively studied and refined since then” (Wikipedia).

#### 3.1.1. Risk assessment by AHP involves:

1. Defining the problem
2. Tackling the problem by considering all actors, objectives and results
3. Identifying the criteria that influence our behaviour
4. Structuring the problem in a hierarchy of different levels constituting goals, criteria, sub-criteria and alternatives
5. Comparing each element in the corresponding level and calibrating them on a numerical scale. This requires  $n(n-1)/2$  comparisons, where “n” stands for the number of elements with the consideration of those diagonal elements that are equal or ‘1’ and the other elements that will simply be reciprocals to the earlier comparisons.
6. Performing calculations to find the maximum Eigen value, consistency index CI, consistency ratio CR, and the normalized values for each criteria/alternative.
7. If the maximum Eigen value, CI, and CR are satisfactory, then a decision is taken based on the normalized values; else the procedure is repeated till these values lie in a desired range (Kumar&Vaidya,2006), as show is figure 3.

#### 3.1.2. Evaluate AHP method:

It is a useful technique for decision making that has been widely used as an efficient multi-criteria decision analysis (MCDA) tool or a weight estimation technique for different cases. (Kumar,2006). Rather than prescribing a "correct" decision, the AHP helps decision makers find one what best suits

their goal and understanding of the problem. It provides a comprehensive and rational framework for structuring a decision problem and for representing and quantifying its elements, for relating those elements to the overall goals, and for evaluating alternative solutions (Wikipedia). The Analytic Hierarchy Process (AHP) is most useful where teams of people are working on complex problems, especially those with high stakes, involving human perceptions and judgments, whose resolutions have long-term repercussions (Bhushan&Kanwal,2004). Moreover, AHP enables the decision makers to measure the relative importance of projects, including their benefits, costs, risks and opportunities so resources can be allocated to get the best bang for the buck (Saaty&Kendrick,2007). While Steven&Walton (2002) describe that advantage and disadvantage of use AHP THAT "Like any good decision tool, AHP is not designed to substitute for clear thinking by the decision-maker. It does, however, better organize their thoughts and make them more presentable to others. The real strength of AHP, though, is that it treats the decision as a system, which is difficult for many decision-makers to do,The advantages of AHP to the user include its reliance on easily obtained managerial judgment data, its ability to reconcile differences (inconsistencies) in managerial judgments and perceptions".

On the other hand, the AHP has several disadvantages. The use of the AHP is based on the assumption that the presentation of the substitutes concerning each of the criteria can be assessed on the basis of a common ratio scale. Moreover, if the election of risk factors is irrational, and their definitions are vague, or if the relations among the factors are not harmonious, the quality of risk Recognition with AHP will be reduced, the premise may even present wrong Recognition results (Fei& Fasuo,2008). "The list of potential risks in every category is neither complete nor exhaustive, it represents most of the typical risks associated with a project. It would be impractical to describe every possible risk." (Mustafa& Al-Bahar,1991).

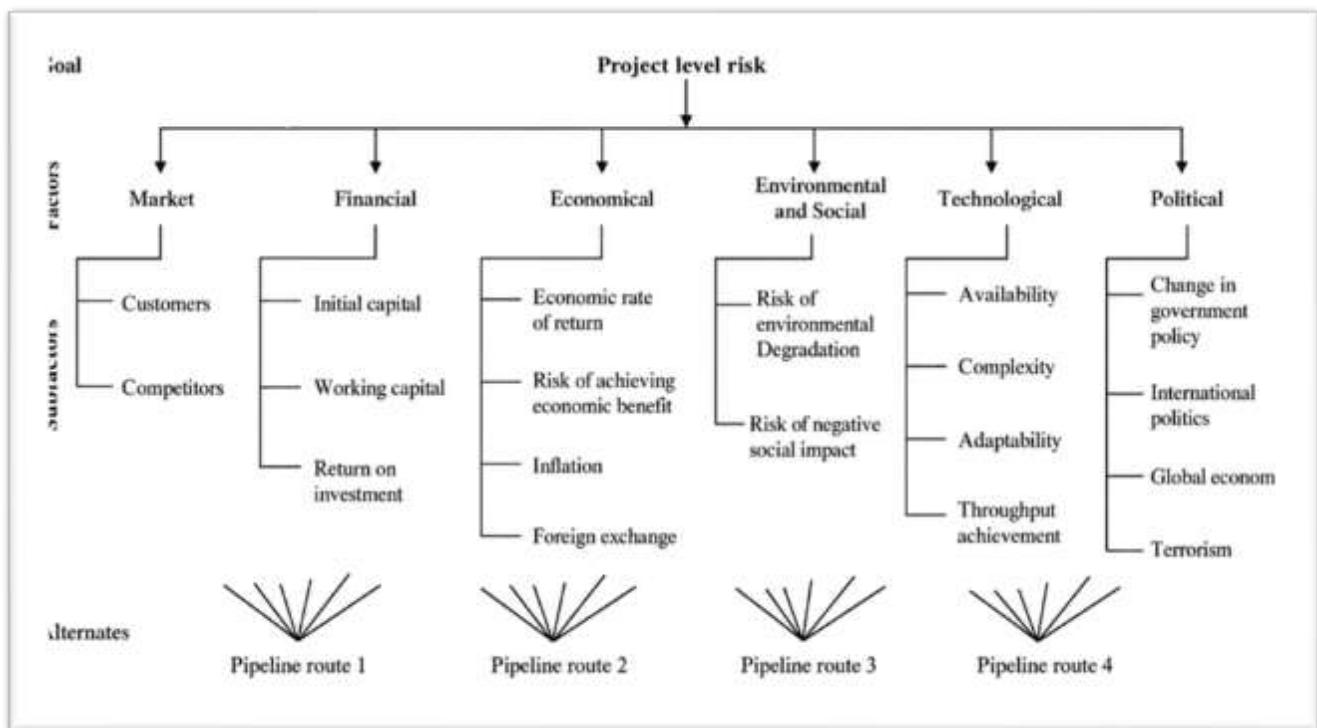


Fig. 3. Project level risk analysis using the AHP. (Dey& Kumar,2010)

**Conclusion: -**

1. Successful projects are always those that are planned and estimated before the project starts; they absorb the changing requirements during the project implementation successfully minimizing the wrongs and risks and that address critical activities
2. The risk management process, however, should be designed to do more than just identifying potential risks. The process must also include a formal planning activity, analysis to estimate probabilities and to predict the impact of identified risks on the project. There always remains a need for a risk response strategy for countering selected risks, and for an ability to monitor and control the progress in reducing these selected risks to the desired level (Wiley,2009)
3. Most of the Literature reviews state that project planning and scheduling must always include methods for risk simulation in order to create successful projects
5. Consideration should be accorded to founding a program/project risk management depository to provide an easily accessible venue to store program/project risk information; thereby aiding every step of the risk management process. “This would also provide a risk record archive, make tracking and analyse risk, past methods, and results available for all to view, including any lessons learned” (Perera&Holsomback,2005)
6. we can say that AHP is effective technique to assessment the risk, the evidence is that it used in 1970 and is still used so far with high quality

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