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## Introduction

It is virtually impossible to mention the phrase ‘project management’ without introducing the concept of risk management. As Hillson (2016, p.11) states, “risks [are] particularly relevant to projects” suggesting that effective management of risk is an integral ingredient for project success. The close link that exists between projects and risks may be deduced by the definition of the word ‘project’. In simple terms, projects refer to unique endeavours undertaken with the aim of achieving desired outcomes. These endeavours typically specific start and completion dates, and involve resource, time and cost constraints. These characteristics imply that projects are intended to deliver identifiable benefits to the organisation; these benefits, however, are not enjoyed immediately even if the project is completed.

On the contrary, projects commonly create capabilities that call for operation or utilisation for the actual gains to be generated (Hillson, 2016 p.11). The interpretation of this is that projects have a risk element in that they contain a potential reward and possibility of loss. For this reason, project managers must be well-versed with risk management.

## LITERATURE REVIEW

### CONCEPT OF RISK MANAGEMENT

Understanding risk and managing effectively to boost project success is a topic that has been studied widely. Risk is regarded as an intuitive concept that is understood by everybody; the reason being that it is impossible to eliminate risk from human existence (**Hochrainer, 2006 p.9**). By definition, risk refers to a situation where there are prospects of something terrible happening (**Webb, 2003 p.17; Cagliano, Grimaldi & Rafedle, 2015 p.1**). It is also defined as “the combination of probability and consequences” (**Aven & Vinnem, 2007 p.20**) or a situation in which something that has human value lies at stake with uncertain outcomes (**Aven & Vinnem, 2007 p.22**).

In reference to the fact that all projects contain an element of risk, various viewpoints have been put forward to explain where this risk comes from. **Hillson (2016, p.14)** argues that risk in project arises due to the nature of projects themselves. According to this author, there are several features that apply universally to all projects, and which inescapably introduce uncertainty. These include uniqueness, complexity, change, assumptions along with constraints, stakeholders, and people. In the context of project management, stakeholders comprise the particular people groups that impose objectives, requirements and expectations on a given project (**Hillson, 2016 p.14**).

Besides the common characteristics shared by projects, the inevitability of risk in projects is also attributed to the external as well as the internal environment. Internal sources of risk refer to factors found within the organisation, and the project nature itself (**Heldman, 2003 p.148**). Examples of such sources include loss of vital employees, inadequate funds, work stoppages or labour strikes, unavailability of materials, unrealistic goals, and performance standards that cannot be measured (**Heldman, 2010 p.25**). On the other hand, external risk sources include factors such as legal concerns, social issues, political matters, and environmental concerns (**Heldman, 2003, p.148**).

### RISK CATEGORY

Regardless of the area from which risk comes, there are five commonly known categories of risk. The first category comprises business risks, which may be defined as the prospects for making profit or loss on a given undertaking. **Frame (2003, p.10)** cites this particular type of risk as to the motivating force for most

entrepreneurial ventures. The second category of risk is pure/insurable risk, whose exclusive focus is on bad things occurring. As stated by **Frame (2003, p.10)**, pure risk “addresses the possibility of injury or loss”. This explains why real risks are also called insurable risks; their consequences can be averted through the taking of insurance policies.

The risk may also be operational: those that are associated with the execution of operations. They include office management, computer facility operations, and assembly line management (**Frame, 2003, p.10**). In short, any occurrences that seem to pose a threat to operations are classified as operational risks. The other category of risk is project risk, which is founded on the fact that projects are inherently risky. Due to the uniqueness of projects, the risk becomes inevitable since the past does not provide a perfect guide into how the future will look like (**Frame, 2003 p.10**).

The other two categories of risk are political and technical. Political risk encompasses the circumstances existing in a decision-making process that is heavily influenced by the political agenda (**Frame, 2003, p.11**). Such circumstances include unfriendly governments and office politics (in an organisational setting). Conversely, technical risk is a term used in reference to a situation in which there is a substantial risk of failing to achieve specification targets, schedules or budget on new projects (**Frame, 2003 p.11**).

From the above discussion, it is evident that it is impossible to avoid risk completely. Going by **Hochrainer’s (2006, p.9)** observation that every human activity is pervaded by risk, it follows that the one area that all individuals-including project managers- should focus on is the choice of risk to take. **Hochrainer (2006, p.9)** states that “in every human decision or action the question is not one of taking or not taking a risk, but rather which risk to choose”. This brings into picture the notion of calculated risk, which is central to the whole concept of risk management. Considering that risk-taking is all about decisions and actions that are made without the knowledge necessary for making predictable assessments of outcomes, it is prudent that project managers make risk-taking decisions that are informed and calculated.

## CALCULATING RISK

A simple, working definition of the term ‘calculated risk’ would be that of risks that do not jeopardise the individual or organisation’s safety as well as reputation (**Yate, 2008 p.198**). The interpretation of this is that calculated risks are those that are based upon their future outcomes’ probability as well as the impact of these outcomes (**Rafinejad, 2007 p.328**). The process of calculating risks has two features; first, the project manager or any other individual seeks to obtain an understanding of the existing knowledge and to compare this with

the necessary knowledge. Secondly, the impacts, as well as benefits arising from the risk, are assessed and compared with the consequences that are likely to arise if the risk is not taken (**Rafinejad, 2007 p.328**).

For an organisation or individual to take calculated risks, several conditions are necessary. To begin with, there is a need to have in place clear, enforceable rules that set operational boundaries at every organisational level so that authority is delineated. Second, effective communication must be in place to enhance process efficiency. Equally important, calculated risk-taking is viable only in organisations that promote such a culture (**Rafinejad, 2007 p.328**). This is to say individuals within a given organisation must be empowered to take risks and manage them regardless of how many times they may fail. At the same time, open communication and free information flow must be maintained.

Calculated risk implies that people and organisations tend to be very cautious before making decisions to take the risk. The idea that people consider the impact that risk will have on their safety together with reputation suggests that risk-taking is determined by, among other factors, one's personality. In their article titled 'Personality and Risk-Taking: Common Biosocial Factors', **Zuckerman and Kuhlman (2000, p.1000)** state that there are certain personality traits that make people inclined towards risk-taking. Examples of such traits are impulsivity together with sensation seeking. By nature, people who derive intense sensations from new experiences regardless of the legal, financial and physical implications of these risks have a general disposition to risk-taking. In the same way, impulsive individuals- those that react rapidly to situations without planning or weighing the possibility of loss exhibit a risk-taking behaviour.

The relationship between risk-taking and personality may be explained using the Five-Factor Theory of personality, which postulates that personality traits fall into five categories: openness to experience, neuroticism, conscientiousness, extraversion, and agreeableness (**Whitbourne & Whitbourne, 2011 p.178**). The foundation of this model is the trait theory and its premise that people's lives are strongly determined by their personalities. Based on the Five-Factor theory, a risk-taking disposition is to be found in extraverts and individuals that are open to experiences.

## **RISK MEASUREMENT AND RANKING**

Before embarking on any project, the measurement and ranking of risk is a very crucial step to take. In simple terms, two crucial phases in project management are risk identification and risk analysis. As the name suggests, risk identification is concerned with the processes of uncovering and exposing the different areas that pose risks to the project. Best practice in risk identification dictates that this crucial process must be undertaken as a

collective effort in which employees, stakeholders and project sponsors come together (**Heldman, 2003 p.153**). Conventional techniques used in risk identification are brainstorming, diagramming, flowcharting, and use of checklists together with issues logs (**Frame, p.50**).

The identification phase is followed by risk analysis, which may either be qualitative or quantitative. The former is the review of all the risks identified in a given project with the objective of measuring their significance to the project, while the latter entails the numerical evaluation of the probability of risk and its resulting losses (**Schibi, 2014 p.188**). Once the impact of risk on success as well as objectives of a project have been measured, it is essential to rank these results according to their impact. Commonly used methods for ranking risk include the high-medium-low scale and cost basis.

## CASE STUDY

To illustrate the concept of risk management in projects, this paper uses a hypothetical case study of a company that deals in the supply of construction materials in Sweden. The company-NightOwl Enterprises- was established three years ago; it stocks, sells and distributes construction material such as cement, tiles, and plumbing material all over the city and its environs. At present, there are 200 employees in the firm executing different duties. NightOwl Enterprises has identified the most lucrative segments to capitalise on; it has set up 58 stores in fast-growing residential as well as commercial areas in Sweden. In the last financial year (June 2018-June 2019), NightOwl made net sales worth \$34 million.

The ownership and management team at NightOwl Enterprises perfectly understands the impact and significance of risk management to project success. Accordingly, one of the critical functional units in the company is the project management department, whose principal responsibility is ensuring that all activities related to project development are well coordinated at all times. In executing its mandate, NightOwl's project management unit draws its guidelines from the GIP-Guide for the Introduction of New Products. The GIP identifies risk management as an essential component in the introduction of new products owing to the truth project aspects like logistics flow and commercial objectives are affected by risk. In other words, NightOwl's project management team recognises risk management as a key to successful project development and implementation.

NightOwl has come up with a project risk management strategy wherein the company's objectives are spelt out from the perspective of risk. The strategy also sets out the process that the project management unit will follow

in identifying, analysing and responding to risk. It is worth mentioning that NightOwl's risk management strategy is founded upon the methodology proposed and laid out by the Project Management Institute, which postulates that risk management in projects includes three main processes: **risk identification, risk analysis and response to risks (Pandian, 2006 p.21)**.pursuant to this model, NightOwl's project risk management strategy is structured as follows:

### **STEP 1: GATHERING OF DATA PERTAINING TO THE TARGET MARKET**

Before proceeding to identify the specific risks associated with the business of stocking and distributing construction material, NightOwl Enterprises seeks to establish how viable the project is in various locations. To this end, the project management team first sends out a team to survey possible areas for locating its business. Here, details about the number of potential customers, the presence of competing firms and accessibility are obtained.

### **STEP 2: RISK IDENTIFICATION**

Once the team is satisfied that it is viable to do business in the target locations, the actual work of identifying risks begins. In this stage, the company project development department will identify and list all the risks that have the potential of affecting project objectives. The characteristics of all these risks are written down. While doing so, the project development team maintains objectivity, acknowledging that it is possible for new risks to emerge out of the decisions as well as actions that the company makes. The risk identification process in NightOwl Enterprises also takes into account the influence of external factors –or the so-called exogenous risks.

To make sure that the identification exercise is carried out to the fullest extent possible, NightOwl employs the techniques of brainstorming, checklists, and issues logs. In addition, the company has also embraced the technique of experience-based risk assessment in which people with expertise and vast experience regarding the construction business are consulted. Whichever technique is used in identifying project risks, the project development team at NightOwl Enterprises uses several documents to store the information collected, and which is deemed necessary to the management of risks stemming from the project.

One of the documents kept and used by the team is the risk register, which stores all information relating to risks identified as affecting or arising from the project. The company values its risk register, taking care to update it regularly as and when new project risks are identified. Besides the risk register, NightOwl also makes

use of a risk breakdown structure, a document showing how the various projects are classified and prioritised. The company also keeps a risk response plan as part of its risk identification endeavours. In this plan, all information that provides a better understanding of risk triggers, secondary risks, and impacts of the risk on the project is recorded. The other type of document used in risk identification at NightOwl Enterprises is the risk audit, wherein the information pertaining to the occurrence and management of risk is recorded. If the project development team detects or identifies some deficiency on the proposed methodology, this information is entered in the risk audit.

Based on its detailed risk identification, NightOwl Enterprises has been able to detect several areas that pose a risk to the business project. These include delays in materials supply, defaulting clients and lack of timely payment for supplies, environmental considerations, e.g. air pollution as materials are transported to different customers, inadequate staff, and inaccessibility of some sites.

### **STEP 3: RISK ANALYSIS**

Having come up with a list of the potential risks associated with the project, NightOwl Enterprises spends significant time and resources in computing the overall risk for every undesirable event. The approach used to measure and rank risk is a simple one that uses a scale of 1-3 for probability and consequences. Events whose probability of occurring is one are said to be low-risk events, while those with a score of 3 are considered to be high-risk. Similarly, where it is established that the risk produces a financial impact with a less than 10% margin, the risk is said to be of little significance. Financial impacts amounting to over 30% margin are considered very risky with the possibility of generating a considerable loss. Based on the above criteria, NightOwl Enterprises' project development unit has constructed a 1-25 risk scale, where a score of between 1 and 4 points is considered to be a tolerable risk. A project whose risk score is between 5 and 9 points is described as having controlled risk, while any risk above 10 points is deemed unacceptable.

### **STEP 4: RISK RESPONSE, MONITORING AND PLANNING**

NightOwl Enterprises combines the third and fourth stages of the risk management process proposed by **Uhl and Gollenia (2016, p.89)**. To the company, developing a risk response plan and the ongoing monitoring as well as reporting of performance go hand in hand. Although these transparent two distinctive processes, the reason why NightOwl combines them is that the risk response plan is partly tackled in the risk identification

phase as part of the documentation made in this phase. As such, the company's project development and management team consider risk monitoring together with control as the fourth essential step in its risk management strategy.

In phase four of the risk management process, the key activities include implementation of the risk response plan as well as keeping all identified risks under control. The department also keeps an eye on residual/secondary risks while also assessing how effective the entire strategy is. Most importantly, the project development team at NightOwl has adopted three common response to risk: transfer, retention, and reduction. Talking about retention, the company keeps documentation of risk existence together with contingency plans tabling the action that will be taken should unwanted occurrences emerge. For example, regarding the risk of delayed delivery of substandard material, the company accepts to pay a certain amount of money to clients in compensation. The other key risk response mechanism employed by NightOwl Enterprises is risk transfer, which simply refers to "the existence of [a] party who will be willing to bear the risk" (Krechowicz, 2017 p.6). As is typical, the company has ensured its business activities such that in the event of a fire and other undesirable occurrences, the insurer will take up the loss. Its risk reduction strategy includes periodically recruiting additional members of staff, keeping adequate stock levels, and ensuring that customers get value for their money. Regarding the latter, the company offers free transport to its clients that are located reasonably close to its stores.

## CONCLUSION

It is quite difficult for organisations or even individuals to grow and attain their actualisation goals unless they invest in projects they consider to have prospects for good returns. However, any decisions on implementing projects must be preceded by thoughtful consideration of all possible risks and their impact on the project. Risk comes from different sources, both within and outside the organisation. Regardless of the size or nature of the project, proper risk management is a process that involves risk identification, analysis, drafting and execution of a response plan, and ongoing monitoring together with control.

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