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The Project Risk Management in Al Ruken Construction: A Basis for Developing Project Risk Management Plan

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ABSTRACT: *Understanding risks and its pre-identification is essential for many organisations of the modern era. It not only helps to ensure minimum negative impacts on organisations but also contributes to the resource management efficiency. This research explains the concept and the advantages of risk management in the context of construction projects. A mixed approach was used in order to gather relevant data regarding project risk management. The used data collection methods therefore included survey, case study and interview. The findings were then accumulated through a deductive approach to argumentatively reassess the collected data and drawn valid conclusions subsequently. The findings of this research hence proved that relevant awareness was lacking within the management, which would have helped in the proper strategic development as well as implementation of project risk controlling measures. The recommendations therefore drawn on the basis of the conclusions stress on the need to educate managers regarding the significance of implementing a well-planned project risk management framework.*

KEY WORD*: Project management, risk management, construction risks, technology*

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I. INTRODUCTION

In this chapter, the fundamental arguments of the research have been presented, while elaborating on the decided topic. Observably, the centre issue in this study concentrates on the theories of project risk management. The concepts related to project risk management is itself complex and multidimensional. Therefore, it was crucial tonarrow down the research problem, while ensuring that the implications of the study remains relevant to the larger scenario of project risk management. It was thus that the Al Rukenconstruction project was considered to apply the risk management theories, which subsequently contributed to the successful accomplishment of the research objectives.

1.1. Research Background

With aggressive technology development taking place in the field of project management, massive changes have been witnessed in the business environment of the 21st century. Such developments have certainly contributed to the overall efficiency of managing businesses, in addition to accelerated challenges for the organisations to enhance their competitive levels and sustainability. Considering that every small and large organisation is struggling to gain a position in the competitive market sphere to secure its existence, managers feel the intensifying pressure to identify and develop control strategies to overcome risks. The research therefore discusses the overall significance of project risk management with deep perspectives, with due consideration to the impacts of various factors such as market share, market competitive and foreign exchange alike.Being directly intertwined with the principles of project management procedures and planning, it also plays a crucial role in determining the financial profitability of the business at large.

1.2. Research Objectives

Concentrating on the various dimensions of Al Rukenconstruction project, this research aims at –

- Identifying the various risks associated with the processes or project management
- Recognise the impacts of risk factors, on the successful completion of the project
- Evaluate the effects of project risks on the risk management processes implemented for its successful completion
- Anticipating the possible connections between the effects of project risk and the impacts caused by the risk factors associated with the processes of project completion

1.3. Hypotheses

H0: The processes of project risk management and risks involved in the project completion framework are completely unrelated

1.4. Significance of the Study

The findings obtained through this research is expected to help the readers understand the significance of project risk management and plan accordingly to avoid controllable risk factors to obtain the highest standards of productivity.With all its information and evidences provided in a summarised manner, this research acquires its significance in terms of its applicability in further researches as well as in practical projectplanning.Hence, it proves useful to both students and managers alike, especially when concentrating on the do's and don'ts of project-based business operations.

1.5. Scope and Limitations of the Study

The scope of this research is versatile and expands into the real-life phenomenon as it does in the literary field. Nonetheless, there were certain limitations observed in the process of conducting this research, which might have had a degree of influence on its larger scope. Notably, this study was limited by time along with financial boundaries. These limitations have significantly obstructed the engagement of more sources and the research process of building enriched networks between the concepts. Nonetheless, rigorous assessment was made to draw precise inferences from the resources available in the short time period engaged for this study. However, it must be noted that even though relevant measures were taken to overcome the limitations of time and budget, this research may be lacking with an insufficient sample size and inadequate exploration of facts gathered through the literature search.

1.6. Conceptual and Theoretical Frameworks

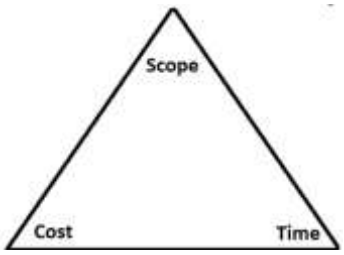

Figure 1- 1: Iron Triangle related to Project Management

The theoretical framework considered for this research emphasises the significance of cost, time and scope as essential factors responsible for the successful completion of corporate projects.It is thus that the above illustrated iron triangle was framed. Based on the same assertion, the conceptual framework for this study was constructed. The conceptual framework, as illustrated in figure 1-2, expands the theoretical frameworkby assuming a connection between project risk management and the outcome on project completion.

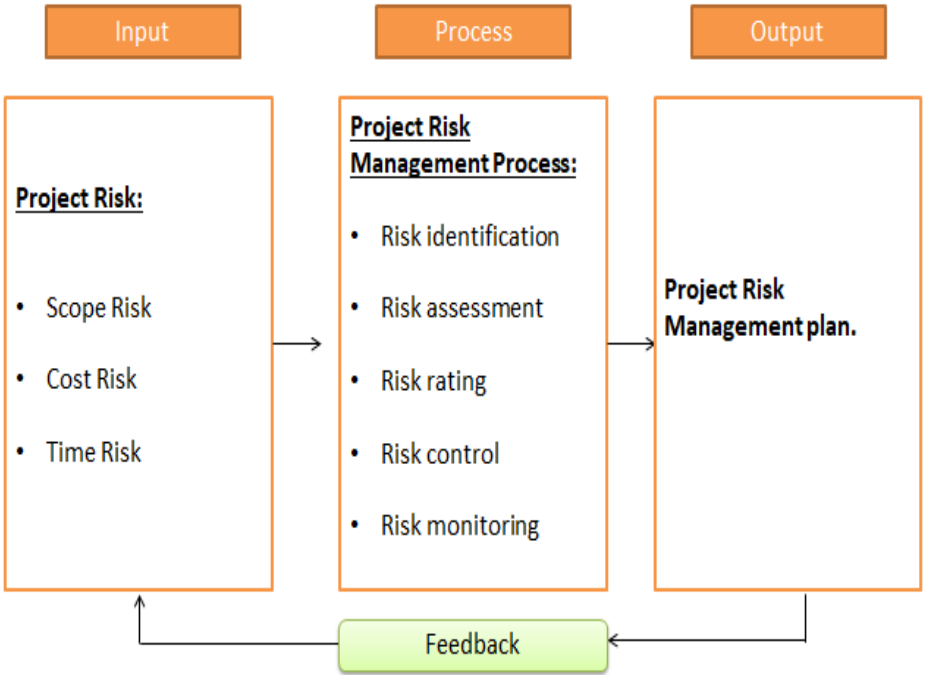

Figure 1- 2:Conceptual Framework

The conceptual framework also takes reference from the project management framework developed by Aarti Dahiya, 2014 for the project management institute. The project management framework correspondingly includes project management plans to identify and define the key riskelements and suggest worthy solutions accordingly. The below diagram thus explains the dependent and independent variables taken into consideration for this research.

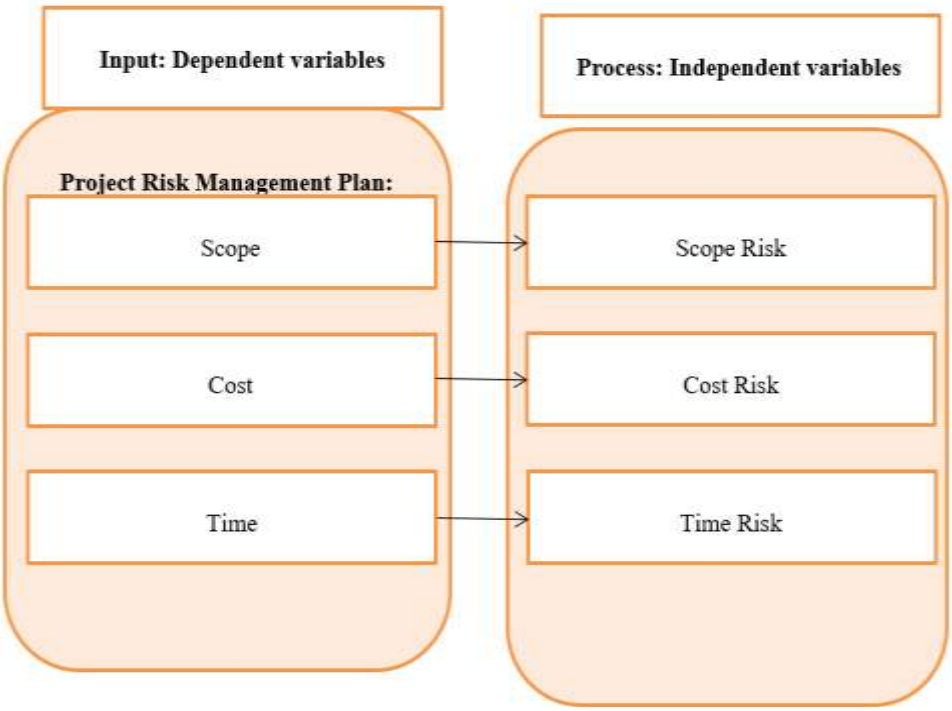

Figure 1- 3:Dependent and independent variables

II. LITERATURE REVIEW

The principles of project risk management fundamentally aim at facilitating as well as ensuring adequate control and monitoring of the project implementation phases. The concept of project risk management also emphasises the necessity to facilitate vulnerability approach in the completion process to achieve efficiency in addition to quality management (Kliem&Ludin, 2019). It is thus that the expanded dimensions of project risk management also integratethe disciplines of operations and quality management. Arguably,the merger of project management principles with those of quality management, may have a strongcontribution to the successful implementation of the business process. This can in turn help with the reduction of associated project risks, and therefore increase the scope to achieve desirable project deliverables (Cagliano, Grimaldi&Rafele, 2015). In the modern era, many corporate projects have to undergo multiple phases of project management, which commonly include the commencement phase, the organisation phase, the preparation phase, the phase of implementation and the closure phase. Referring to the Four D model (includingDentition, Design, Doing and Deliverance) in this context, the principles of project management can be denoted to emphasise three specific aspects, comprising lays an emphasis on three aspects, such as cost, time and scope. The aspect of cost herewith involves the various elements of resource planning, cost budgeting, cost estimation and cost control. These elements can be apparently observed in construction industries, especially when implementing thevarious norms of resource planning as well as cost estimation, in coherence with the tome and scope of the project simultaneously (Muriana&Vizzini, 2017). Project risk management is also argued to be based on the strong implications of having risks integrated into the project completion process that is quite likely to have a negative influence on project efficiency, quality standards as well asproductivity (Sikula, Mancillas, Linkov&McDonagh, 2015).It therefore, focuses on removing known and controllable vulnerabilities in the process of achieving the highest standards of productivity (Cleden, 2017).

III. RESEARCH METHODOLOGY

In this chapter, the various strategies applied in this study to gather information and subsequently interpret the information this obtained to draw valid conclusions, have been ascertained.Stating precisely, this chapter will briefly explain the research design, the sampling technique used, respondents chosen for the study,

the used research instruments, procedures used to gather data and analyse it. In addition, the data process and statistical treatments used to obtain the findings sought.

The variables considered for this research are measurable through qualitative tools rather than being dependent on behavioural, attitudinal, opinionated and belief-based tools.In keeping with this research design, the data was collected using primary sources, such as questionnaires. To define the sample size accordingly, the probability sampling technique was used, which helped gather information from a total of 65 respondents (refer table 3-1), comprising finance managers as well as market representatives representing the Al Ruken Construction Company. Using the deductive research method further,new theories were extracted from the literatures reviewed along with the primary quantitative data obtained through the survey.

Respondents	Population	Percentage of responses
Managers	16	25%
Employees	49	75%
Total	65	100%

Table 3-1: Respondents of the study

To accumulate and interpret the data therefore, two instruments were used in this study, i.e. the survey approach and the case study approach. The survey approach was implemented using a survey questionnaire to gather information from the respondents, while simultaneously recording and assessing the data through SPSS. For the case study approach, the study used risk rating measurement tools, project risk impact, project risk mitigation and risk assessment tools, illustrated in the diagrams below.

Identify the Project Risk Methods	Expert Judgment SWOT Analysis Diagramming Assumptions Analysis Checklist Analysis Information Gathering Documentation reviews

Table 3-2 : Identification of Project Risk methods

Rating	Description	Impact	Action required
4.01 – 5.00	Avoid	Critical	Must eliminate the risk
3.01 – 4.00	Transfer	High	Attempt to transfer the risk
2.01 – 3.00	Retain	Moderate	Retain and manage the risk
1.00 – 2.00	Ignore	Low	Can be ignored

Table 3- 3: Risk Rating

Score	Rating	Range	Description
5	Critical	4.21-5.00	**Inability to achieve business objectives.** -Loss of significant business capability.
4	High	3.41-4.20	**Constrained ability to achieve business objective.** - Significant but recoverable reduction in business capability.
3	Moderate	2.61-3.40	**Moderate impact on the achievement of business objectives.** -Temporary, but recoverable reduction in business capability.
2	Low	1.81-2.60	**Limited impact on the achievement of business objectives.** -Temporary delay to achieve business.
1	Minor	1.00-1.80	**Relatively impact on the achievement of business objective.**

Table 3-4: Risk Impact

Response	Strategy	Example
Exploit	Used when a team wants to ensure that the risk opportunity is realized and remove any uncertainty.	-Developing a project team with the most talented resources. -Upgrading technology to reduce cost and project duration.
Enhance	Used to increase the probability or impact of a positive risk occurring. The strategy requires identifying and maximizing the key drivers.	-Fast tracking activity or overall schedule by adding additional resources of shifts to achieve an incentive.
Share	Sharing a positive risk involves allocating some or all of the ownership of the risk and opportunity to a third party who has the best chance of meeting the objective.	-Subcontracting to firm with technical experience and adding incentive targets. -Risk sharing partnerships.
Accept	To take advantage of the opportunity if it becomes available but not actively pursuing it.	-Meeting incentive dates naturally. -Discounted equipment or material costs.

Table 3-5: Risk Mitigation

Risk Assessment		Description	Project risk element
Step 1	Risk Identification	Hazards can be identified by using a number of different techniques such as walking round the workplace, or asking your employees.	-Cost Risk -Time Risk -Scope Risk
Step 2	Risk Analysis	To understand who might be harmed and how, such as 'people working in the construction site.	-Employees -Subcontractors -Chairman -Project completion
Step 3	Risk Evaluation	To understand what is required to protect the risk of occurring.	-Financial/Project managers should be able to make a decision or to discuss the issue with the chairman
Step 4	Risk Treatment	To record the findings that will lead to identification of the hazards.	-Financial/Project Manager recording the risk
Step 5	Risk Monitor and review	Risk assessment should be reviewed and updated when required	Project manager to update and note occurred risks for further cautious

Table 3-6: Risk Assessment

On the basis of these parameters, the below illustrated data evaluation scale was used for the data processing and its statistical treatment.

Scale	Range	Interpretation
5	4.21-5.00	Strongly Agree
4	3.41-4.20	Agree
3	2.61-3.40	Moderately Agree
2	1.81-2.60	Disagree
1	1.00-1.80	Strongly Disagree

Table 3-7: Data evaluation scale

IV. FINDINGS AND INTERPRETATIONS

The findings gathered through this study, both through the questionnaire survey and the literature review, revealed that project management strategies have a strong impact on the productivity of the business.The results stress on the fact that project risks are adversely related to the efficiency and profitability of a project, often causing business disruptions and system failures, which needs to be mitigated in order to enhance the overall effectiveness throughout the project completion process.Project risks can be categorised into many forms, also including challenges in terms of lacking staff efficiency and supply chain obstructions.

By accumulating the findings of both literature review and questionnaire survey, interpretations can be drawn suggesting that project risks must essentially be identified and assessed on time, considering that it causes major disruptions in the process of successful project completion. The timely identification of risks can therefore help to increase alignment between the project goals and applied strategies besides having better control on the resources available to support the project implementation phases. It therefore, combines the principles of finance management, human resource management, as well as the overall operations management with the intend to ensure stronger coordination between the departments and subsequently, contributing to the success potentials of the project.

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