

A Conceptual Model of the Relationship between Risk Management Maturity and Organizational Learning

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Abstract—Construction projects in Malaysia involved prevailing risks that impact the performance of project embodies management triangle (i.e. time, cost & quality). A mature risk management approach would be appropriate to overcome these risks. The organizational maturity attempts, in its main goal, to gain higher performance in different project management aspects including project risk management. Organizational Project Management Maturity Model (OPM3) is a maturity model introduced by Project Management Institute (PMI), which proposes continuous improvement including all project management nine areas. The correlation between risk management and organizational learning has been highlighted by various researchers. However, the relationship between the two approaches and OPM3 have not determined yet. Furthermore, literature has not introduced any learning practices useful in order to enhance organizational project risk management. Considering the present literature on the subject, this paper attempts to advance a theoretical model of the correlation between organizational learning practices and project risk management maturity. Three moderating factors are also presented and discussed in the model, namely: Employees' Experience Level, Organization Size, and Technological Turbulence.

Index Terms—OPM3, risk, learning, maturity, performance.

I. INTRODUCTION

Construction projects are usually exposed to a higher degree of risk and face a significant amount of uncertainties [1]. Project performance of the construction project is greatly subject to risk factors and most projects failed to deal with the risk with efficiency [2]. Thus, construction industry requires taking advantage of learning practices in order to increase project performance [3]. The project/ risk manager needs to possess a sufficient knowledge in order to successfully conduct risk management [2], [4].

Several studies in the field (e.g. [4]-[6]) guided us towards understanding that the present learning practices are closely influence project performance and risk management maturity. There are different learning practices that could create great advance for organizations to enhance their project risk management and performance. However, there is a lack of special studies that articulate the relationship between learning practice and how it can enhance risk management maturity. Therefore, the purpose of this paper is to propose a conceptual model of the relationship between organizational learning and risk management maturity using Organizational

Project Management Maturity Model (OPM3) as a tool to identify the parameters of the model. In addition, the paper attempts to demonstrate the intervening variables that influence the relationship.

The result of the above mentioned enhancement would be organizations' empowerment to transform projects risks to opportunities and as a result benefit both their project performance and the advancement of the construction industry.

II. ORGANIZATIONAL PROJECT RISK MANAGEMENT PERFORMANCE AND OPM3

OPM3 is an acronym for the Organizational Project Management Maturity Model—a standard for organizational maturity developed under the administration of the Project Management Institute (PMI). This model provides the base for organizations to understand organizational project management and to measure their maturity against a comprehensive set of organizational project management Best Practices [7]. OPM3 also helps organizations wishing to increase their organizational project management maturity to plan for improvement [8].

Risk is a concept defined in various ways [9]. In the environment of construction industry according to the citations of Wang's et al. [9] research, risk might be defined as the likelihood of the occurrence of one particular event/factor or composition of events/factors which occur throughout the whole process of construction project to the disadvantage of the project. Based on Faber's work [10], the uncertainty associated with estimations of outcomes – it includes a chance that results would be better than anticipated as well as more problematic than expected. According to Lifson and Shaifer [11], an absence of predictability of final result or consequences in a decision or process endeavors identified by Hertz and Thomas, 1983 [12], and etc.

Subject to the comparison study done by Jia et al. [13] the risk management process among different professional recognitions are closely the same while at same time some consider a certain parts out of their scope or not point it out. Among the processes included in the conceptual model, RM planning is the beginning point of the general RM procedure; it is typically beneficial to control and enhance four consecutive processes in the primary RM cycle to roll forward with management plan oriented self-improvement in the whole project progression flow from project inception through design and construction to project competition. RM reporting is the finishing point of the complete RM procedure; it is commonly useful to review the RM with consistent outputs pertaining to pre-defined risk control points, and

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helps organizations to understand current scenarios combined with take communicating measures in their RM practice.

However, because this study is focusing on OPM3, which is a product of Project Management Institute (PMI), we choose the six processes of risk management in our conceptual framework to be referenced to PMI's PM Bok. As a result the six processes regarding risk management are namely: Risk Planning (R.P), Risk Identification (R.I), Risk Assessment (R.A), Risk Qualification (R.Q), Risk Response Planning (R.R.P) and Risk monitoring & Control (R.M&C).

III. ORGANIZATIONAL LEARNING PRACTICES

According to Santos-Vijande *et al.* [14], an organization's capability to learn is a critical essential component to remain competitive in modern day industries and with no exception for construction industry. Organizational Learning (OL) acts as a pioneer for an organization's ability to allow room for changing conditions of demands; this critical practice assists organizations to improve customer and project performance [14]. Research results confirm OL to be a significant accessory in present day for organizations to deliver customer value as well as enhancing their organizational performance by means of efficient and effective approach to situations and flexible adaptation to rapid industry growth.

IV. OPM3, RISK MANAGEMENT AND LEARNING PRACTICES

Organizational Project Management Maturity Model (OPM3) includes risk management practice in the self-assessment section questions, thus the success of risk management practice is considered a variable for organizational project management maturity. In addition, OPM3 is an importantly helpful approach for organizations aiming to improve their project management performance in the societies moving towards being knowledge based. However, the model does not focus critically enough on enhancing risk management performance by taking advantage from organizational learning approaches. All the same OPM3 insists on the great importance of gaining the knowledge to the proper utilization of OPM3 towards continues improvement of organizational project management performance; however not putting sufficient stress on the utilization of experience which is important element for organizations to improve project performance. As the construction industry is characterized by its enormous, complex project data, how effective the knowledge dissemination and information sharing functions within the organization are, they would provide high level value for the organization and enhance the organizational performance [15].

A. Moderators (Employees' Experience, Size of Organization, Technological Turbulence)

Employees' experience of how risks are being managed and with what learning practices they are stored for future access is in direct relationship with the level of organizational

maturity. For these organizations, there should be a continues learning from experience for all the employees no matter what role they carry in project or what level in organizational they are at [16].

The size of organization indicates the type and size of the projects performed by the organization. The greater the projects are, the higher is the level of risks and uncertainties. An organization with many projects gains more learning outcomes from each project and as a result the importance of the learning practices becomes apparent. Where the amount of data and multifariousness of issues are present, there would be higher need for proper learning practices to be implemented inside the organization so the valuable data could be retrieved when there is a need to it in future. Shipton *et al.* [17] investigated the impact of organization's size on innovation. Innovativeness is a result of learning in the organization and level of learning practice in large organizations compared to smaller organizations is greater. This shapes the organization's behavior upon the future faced risk in projects.

According to Floricel and Miller [18], over the past 20 years, the working environment in which large-scale construction projects (e.g. power plants, highways, bridges, tunnels, and airports, etc.) are developed, has become increasingly characterized by turbulence resulting from technological changes and innovations. Organizations and project managers should cleverly benefit their projects from technological advancements while at the same time need to avoid letting technological developments and turbulences put bring any threat towards their projects.

V. CONCEPTUAL MODEL

Broad researches have been done on the areas of learning and risk management. It seems that organizational learning positively influence risk management practice. But it is still not clear how learning practices can improve construction organizations' project management risk maturity and improve the overall organizational project management performance as a result. Based on the available literature in the field, we propose a conceptual model of the correlation between organizational learning practices (OLPs) and organizational project risk management performance (OPRMP), as shown in Fig. 1. In the model, there are three moderating factors, namely I. Employees' experience level, II. The organization size, and III. Technological Turbulence [19], effecting the correlation between the two. The model demonstrates the variables that measure OLPs and OPRMP. These will help to develop a measurement instrument of the two concepts and determine their level in a future empirical study (based on questionnaire survey target construction organization).

VI. RESEARCH METHODOLOGY

In order to justify the conceptual model it will be first put into a questionnaire to take the professional point of view about the existence of such relationship. The questionnaire

will be distributed between different construction companies that are active in Malaysian construction industry. It is also considered that the responding professionals must be coming from different companies with varying levels of organizational maturity in order to find out the performance criteria influence, which in case of this research focuses on risk management performance of the respective organizations.

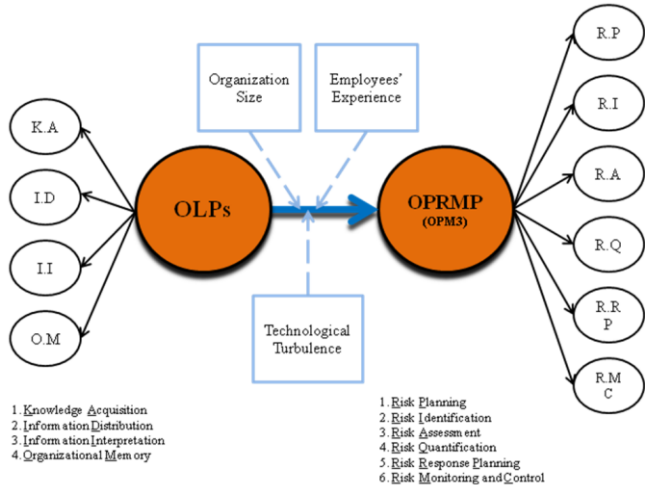


Fig. 1. A conceptual model of the relationship between Organizational Learning Practices (OLPs) and Organizational Project Risk Management Performance (OPRMP)

VII. CONCLUSION

The OPRMP model has been developed based on the review of several studies covering three areas namely: Project Risk Management, Organizational Maturity and Organizational Learning. The development of this model could help in measuring the practice of learning in organizations and test the hypothesis that it has an impact on risk management maturity of organizations. The developed hypothetical model should be put into test in order to be amended or considered reliable. Future quantitative study would help to test the whole model and develop the measurement items of each construct.

This paper suggests that construction firm organizations can benefit from implementing OPM3 while at the same time put an effort to benefit themselves from learning practices towards a continues improvement of their project risk management performance and as result a higher level of organizational project risk management maturity of construction organizations in Malaysia. The result of this improvement of organizational projects risk management performance for construction firm organizations would be to overcome the issues related to each of the criteria of the project management triangle (time, cost, and quality) and forward to reach to the desired level of performance needed to meet Malaysia Master plan requirements and/or even further.

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