Designing an innovative risk management model for refurbishment commercial building projects

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ABSTRACT: Refurbishment concept has been recognised as an alternative for building that has reached to the end of their service life or failed to perform as required. However, refurbishment projects are riskier and complex than the new construction projects. This is due to the fact that refurbishment projects involve a high level of uncertainties. As the size and complexity of refurbishment projects have been increased, the ability to manage risks throughout the construction process seems becoming a challenging tasks. As of to date, this scenario has not fully discovered within construction management perspectives. Despite, several risk management tools are available, unfortunately the tools are still rarely used due to lack of knowledge in selecting the suitable techniques for refurbishment construction projects. Considering this drawback, a comprehensive tool to manage risks mainly on refurbishment projects for commercial buildings is necessary. Qualitative method through face-to-face interviews were used. The proposed tool would be beneficial to the developers in enhancing current risk management particularly in their decision-making process.

Keywords: *building refurbishment; risk management; risk management*

1. INTRODUCTION

Construction industry is highly risk prone with complex and dynamic project environments creating an atmosphere of high uncertainty and risk [1]. Construction workload is large especially for refurbishment projects because refurbishment projects are riskier, complex and less predictable task [2]. Refurbishment work includes upgrading, alteration, extension and renovation the existing buildings in order to improve their facilities and lifespan but exclude maintenance and cleaning work [3].

The data from the Construction Industry Development Board Malaysia [4] shows that refurbishment works, which is normally used by practitioners as a guide on the value of refurbishment work, accounted 1,227 total projects with total value of RM7,033.41 million in 2010. The numbers increasing in 2013, with total of 1,380 projects and total value of RM8,515.32 million. This means that, the demand for refurbishment projects in this country is also growing rapidly.

However, previous study highlighted that, most refurbishment work involves a high level of risk, uncertainty and coordination, which are likely to cause asymmetric information between contractors and residents in a refurbishment process [5]. Additionally, refurbishment projects are generally more uncertain than other construction projects [6,7]. Due to these uncertainties, refurbishment contractors often let the primary objectives of cost, time and performance to be flexible which means there are no targets [8].

Several studies have shown that there is relatively low implementation of formal risk management methods in practice. However, building's refurbishment evaluation is quite difficult to undertake because the systems of a building and the environment are complex [9]. In this case, there have been limited studies focusing on the risks management for refurbishment projects in Malaysia. Therefore, this study focuses only for the risks management in refurbishment projects, particularly for commercial buildings.

Refurbishment work can include upgrading, alteration, extension and also renovation. In fact, refurbishment can best be defined as the extending the useful life of existing buildings through the adaptation of their basic forms to provide a new or updated version of the original structure. Besides, refurbishment is the making use of usable in the ageing building stock, the skillful adaptation of the building which is valuable in its own right and not due to any historic mystique new or updated version of its existing use. Refurbishment works become an alternative when a building has reached to the end of its service life, or fails to perform as required in its use. The refurbishment and reinvention of existing buildings offers a number of benefits when compared to complete redevelopment based on some factors. It can be concluded that refurbishment as the upgrade, major repair works, renovations, alteration, conversion and modernization of existing building, but exclude routine maintenance and cleaning wok.

2. METHODOLOGY

This research adopted the quantitative method along

the research process. However, this paper only explains the results were based on the preliminary information gathering through extensive literature reviews. Based on a critical review of previous relevant studies, the initial framework was developed based on the existing drawbacks in risk management especially for refurbishment projects such as commercial buildings.

3. RESULTS AND DISCUSSION

Currently, there are limited significant tools that can measure risks for refurbishment projects in Malaysia. Therefore, based on the current situation, there should be a model that can take into consideration of all the type of risks because it has been proven that the risks might influence decision-making in construction projects especially for refurbishment projects. In order to overcome the problems, and to cope with the gap that appears in this research. The proposed conceptual model aims to identify key risks in refurbishment works particularly for commercial buildings. The proposed named of this model is Innovative Risks Management Model (IRiMM). A conceptual model developed based on the variables have been gathered in this research. The proposed integrated model for the risk management is shown in Figure 1. This research is useful for the developers in making the decision before a take and does the refurbishment works. Additionally, a proposed risk management model wuld motivate clients, consultants and other participants enhance their service and product quality and also increase the levels of trust towards the developers.

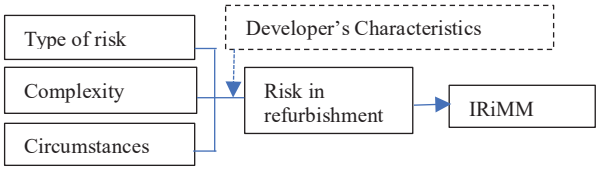

Figure 1: A Propose Conceptual Model of Innovative Risks Management Model (IRiMM) for Commercial Buildings Refurbishment (*Adapted from Ali et al. 2005*).

- ***Type of risks in refurbishment projects***

From the review of literature, it reveals nine variables for type of risks in refurbishment projects and one variable that gathered from preliminary interview session which are listed down as shown in Figure 1.

- ***Complexity of refurbishment***

The complexity of refurbishment projects is reflected in any of the difficulty, whether before, during or even after projects. One of the factors contributing to the complexity in refurbishment projects is building legislation. The changing and updating of some of the building regulations by the government has also affected the approval process in refurbishment projects, especially projects related to conservation.

- ***Circumstances in refurbishment***

Circumstances in any type of construction projects can happen, especially for refurbishment projects. To be considering the circumstances that might be happening in refurbishment projects, it can produce a better result of the level of risks.

- ***Developers' characteristics***

Developers' characteristics identified as an important factor in decision-making of refurbishment projects. Failure to make a good decision at a right place and a right time can affect the whole refurbishment projects. Literature review stated that six characteristics of developers' that can affect decision-making for refurbishment projects

4. CONCLUSION

In summary, a model of risks management that identifies the key risks in refurbishment projects is proposed based the existing weaknesses of the existing models. The proposed model might be useful for the developers in making the decision before undertaking any refurbishment projects mainly for commercial buildings. Additionally, a proposed risks management model will motivate clients, consultants and other participants to enhance their service and product quality and also increase the levels of trust towards the developers.

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