UNIVERSITI TEKNOLOGI MARA

CAUSAL RELATIONSHIP FRAMEWORK BETWEEN RISK FACTORS AND PROJECT PERFORMANCE IN DESIGN BUILD CONSTRUCTION PROJECTS IN MALAYSIA

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AUTHOR'S DECLARATION

I declare that the work in this thesis was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the results of my own work, unless otherwise indicated or acknowledged as referenced work. This thesis has not been submitted to any other academic institution or non-academic institution for any degree or qualification.

I, hereby, acknowledge that I have been supplied with the Academic Rules and Regulations for Post Graduate, Universiti Teknologi MARA, regulating the conduct of my study and research.

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ABSTRACT

The issue of low performance in design build (DB) projects is a common phenomenon nowadays. Risk identification is a critical phase of project risk management which involves not just identifying individual risks but also the interrelationship among these risks. Previous studies have mostly focus on the identified risks through individual risk ranking by using risk matrix. Risks factors should not be segmented and managed independently because risks are dynamic and highly interdependent. Nonetheless a network of various risk path which represents the causal relationship among the risks, has been recognized as a better way to reflect the real conditions of construction projects than using just risk checklists. In this research, a considerable effort was made towards the establishment of a causal relationship framework of Risk Factors and Project Performance (RISPER) in DB construction projects. In the process of developing and validating the RISPER framework, four research objectives were outlined and three stages involved in this research. Stage I; data were collected through a questionnaire survey which focused on the objective (1) to explore risk factors in DB projects. Stage II; structured interview with case DB projects were conducted which focused on the objective (2) to identify the risk factors affecting the project performance in real DB projects. Stage III; objective (3) to establish a causal relationship framework between the risk factors and the performance of DB construction projects and finally objective (4) to validate the causal relationship framework established between risk factors and the DB construction project performance using Partial Least Square (PLS) Structural Equation Modelling (SEM) analysis. In the findings from objectives one and two showed that in individual risk factor the financial problems are main factors as the most critical affect to the project performance in DB projects. Then, the confirmatory factor analysis result from objective three revealed that the design factor; financial factor; information factor and legal and regulation factor; have given significant and negative impact on project performances. The validation from 12 experts also agreed that the four risk factors influence low project performance in DB project in Malaysia. Further, the time performance was found to be most critical in DB project in Malaysian construction project. The findings contribute to the body of knowledge in design build risk analysis, and the findings also enable stakeholder to prioritise the most influential factors in regards to project performance from front-end planning for DB projects.

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