FACTORS AFFECTING TIME PERFORMANCE OF REFURBISHMENT PROJECTS IN SINGAPORE

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ABSTRACT

Refurbishment is becoming an important economic driver in Singapore's construction industry due to existence of high number of ageing buildings, limited vacant land for new development and the rapid changes of technology used. There are limitations and even drawbacks to these efforts as the time required to complete the refurbishment projects is frequently greater than the time originally specified in the contract. The main purpose of the study is to identify factors affecting the time performance for refurbishment projects in Singapore.

This study used mixed method approach with quantitative as the main data. Semi-structured interviews that involved twenty projects were carried out to verify the project characteristics of refurbishment in Singapore. The result of the interviews was used to identify the project characteristics variables for the next stage of data collection. One-hundred (100) questionnaires were distributed to main contractors who have experience in refurbishment and a contract value of minimum two-hundred-and-fifty thousand dollars. Of those, 33 replied and were found to be useful for data analysis.

Statistical Package for the Social Sciences (SPSS) was used to analyse the data. From the data analysis, three variables were found to be significantly correlated with time performance variable. They are non-payment of salary to workers causing slow down; conflict and disputes between contractor and superintending officer; and uncertainty and complexity of the project. From the correlation analysis result, a prediction model was developed using multiple regression analysis. The result indicated that to control the time performance of refurbishment projects in Singapore, three variables need to be given more attention through the equation of *Time Performance= 0.945+ 0.076Finance-NP + 0.035Contractual-CD + 0.076Site-UC.*

From the findings, it could be concluded that the time performance of refurbishment projects is affected by the project characteristics. Thus, more focus probably needs to be given to those factors in order to improve the time performance of refurbishment projects in Singapore.

ABSTRAK

Pembaharuan bangunan telah menjadi suatu pemacu ekonomi yang penting dalam industri pembinaan di Singapura. Ini disebabkan wujudnya banyak bangunan yang lama dan tapak pembangunan yang terhad serta perubahan teknologi yang semakin pesat. Walaubagaimanapun, masa persiapan yang terhad telah melemahkan projek pembaharuan bangunan. Oleh itu, tujuan utama kajian ini adalah untuk mengenal pasti faktor-faktor yang mempengaruhi prestasi masa untuk menjalankan projek pembaharuan dalam industri pembinaan di Singapura.

Kaedah Pendekatan Campuran telah digunakan dalam kajian ini, di mana kuantitatif-kuantitatif menjadi data utama. Temu bual separa berstruktur yang melibatkan dua puluh projek telah dijalankan untuk mengesah ciri-ciri projek pembaharuan bangunan di Singapura. Hasil temu-bual tersebut telah digunakan dan ciri-ciri projek telah dikenal-pasti untuk kajian peringkat seterusnya. Seratus (100) soal selidik berstruktur telah diedarkan kepada kontraktor-kontraktor utama yang berpengalaman dalam kerja-kerja pengubahsuaian dan pembaharuan dalam industri pembinaan, dan dengan kontrak bernilai lebih daripada dua ratus lima puluh ribu dolar ($250,000.00). Sebanyak tiga puluh tiga (33) daripada seratus (100) soal selidik didapati berguna untuk analisis data.

Cara “Statistical Package for the Social Sciences (SPSS)” telah digunakan untuk menganalisis data-data yang dikumpulkan. Dari analisis tersebut, terdapat tiga (3) pembolehubah yang didapati paling berkait-rapat dengan prestasi masa. Pembolehubah-pembolehubah tersebut ialah pembayaran gaji perkerja, konflik and pertikaian di antara Kontraktor dengan Pegawai Penguatkuasa dan kerumitan projek tertentu. Dari hasil analisis korelasi, satu model ramalan telah diwujudkan dengan mengunakan “Multi Regresion Analysis”. Hasil tersebut telah menunjukkan bahawa terdapat tiga (3) pembolehubah yang perlu diberi perhatian untuk mengawal pretasi masa (dengan menggunakan persamaan di bawah) dalam projek pembaharuan di Singapore.

Prestasi Masa = 0.945+ 0.076Kewangan-NP + 0.035Kontractual-CD + 0.076Site-UC.

Sebagai kesimpulan, ciri-ciri projek telah mempengaruhi masa untuk projek pembaharuan dalam industri pembinaan. Oleh itu, untuk meningkatkan kawalan pretasi masa dalam projek pembaharuan di Singapore, faktor-faktor tersebut perlu diberi tumpuan.

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Name of Degree: MASTER OF SCIENCE (BUILDING) –PROJECT MANAGEMENT

Title of Dissertation: FACTORS AFFECTING TIME PERFORMANCE OF REFURBISHMENT PROJECTS IN SINGAPORE.

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ABBREVIATIONS

BCA	Building & Construction Authority
BRE	Building Research Establishment
CIDB	Construction Industry Dvelopment Board
CIOB	Chartered Institute of Building
CIRIA	Construction Industry Research And Information
CTP	Construction Time Performance
EOT	Extension of Time
KPI	Key Performance Index
PSSCOC	Public Sector Standard of Contract For Construction Works
MAS	Monetary Authority of Singapore
MBAM	Master Builders Association Malaysia
MITI	Ministry of International Trade and Industry (MITI)
MRA	Multi Regression Analysis
NEA	National Environment Agency
NEDO	National Economic Development Office
QS	Quantity Surveyor
REDAS	Design and Build Condition Contract
RICS	Royal Institute of Chartered Surveyor
SDS	Singapore Department of Statistic
SIA	Singapore Instutute of Architect Condition of Contract
SIAC	Singapore International Arbitration Centre
SO	Superintending Officer
SPI	Schedue Performance Index
SPSS	Statistical Package for the Social Science
TFP	Total Factor Productivity
TPI	Time Performance Index