

**FAKTOR CABARAN DAN BATASAN DALAM AMALAN
FLEKSIBILITI RANTAIAN PEMBEKALAN SISTEM
BINAAN BERINDUSTRI (IBS)**

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UNIVERSITI UTARA MALAYSIA
Oktober 2015**

**FAKTOR CABARAN DAN BATASAN DALAM AMALAN FLEKSIBILITI
RANTAIAN PEMBEKALAN SISTEM BINAAN BERINDUSTRI (IBS)**

Oleh

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**Tesis ini dikemukakan kepada:
Othman Yeop Abdullah Graduate School of Business,
Universiti Utara Malaysia,
sebagai memenuhi syarat penganugerahan Ijazah Doktor Falsafah Pengurusan
Teknologi, Operasi & Logistik**

KEBENARAN MERUJUK

Tesis ini dikemukakan sebagai memenuhi sebahagian daripada syarat bagi memperolehi Ijazah doktor falsafah (Pengurusan Teknologi, Operasi & Logistik) dari Universiti Utara Malaysia, saya bersetuju membenarkan pihak perpustakaan Universiti Utara Malaysia menjadikan tesis ini sebagai bahan rujukan. Saya juga bersetuju membenarkan sebarang bentuk salinan sama ada secara keseluruhan atau sebahagian daripada tesis ini untuk tujuan akademik dengan mendapatkan kebenaran daripada penyelia saya atau dengan dengan ketiadaan beliau, daripada Dekan Othman Yeop Abdullah Graduate School of Business. Sebarang bentuk salinan atau penerbitan atau penggunaan tesis ini sama ada keseluruhan atau sebahagian darinya bagi tujuan komersial tidak dibenarkan sama sekali tanpa kebenaran bertulis daripada penyelidik.

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ABSTRAK

Fleksibiliti membolehkan rantaian pembekalan IBS bertindak secara berkesan dengan keadaan permintaan dan pasaran yang berubah-ubah. Tujuan utama penyelidikan ini adalah untuk mengenal pasti dan menganalisis faktor-faktor cabaran dan batasan dalam praktis amalan fleksibiliti rantaian pembekalan dalam IBS. Justeru, penyelidikan ini akan menilai kesan kepentingan hubungan dan koordinasi pihak-pihak yang terlibat dalam kitaran rantaian pembekalan. Manakala analisis punca-punca ketidakfahaman dan kurang kesedaran pengetahuan rantaian pembekalan terhadap praktis IBS turut dilaksanakan serta menganalisis penentuan kedudukan keutamaan faktor-faktor cabaran dan batasan dalam penerapan dan praktis fleksibiliti rantaian pembekalan IBS. Selain itu, penelitian faktor-faktor cabaran dan fleksibiliti rantaian pembekalan lain yang menjadi halangan kepada kelancaran praktis dan perkembangan rantaian pembekalan sistem binaan berindustri IBS di Malaysia turut dianalisis. Isu dan masalah fleksibiliti rantaian pembekalan IBS berlaku kerana kepincangan dalam pengurusan fasiliti (iaitu kemudahan dana modal dan pengangkutan), masalah-masalah berkaitan maklumat, sumber dan inventori serta komunikasi dan integrasi dalam kalangan pasukan pembinaan itu sendiri. Seterusnya ia menghasilkan masalah-masalah seperti ulang kerja, kelewatan, peningkatan kos, kekurangan komunikasi, penyelarasan, dan berlakunya pembaziran. Penyelidikan ini menggunakan kedua-dua analisis empirikal, iaitu kuantitatif dan kualitatif. Sebanyak 70 pemaaju dan kontraktor dijadikan sebagai responden dalam penyelidikan ini. Seterusnya, dalam analisis data beberapa teknik statistik digunakan antaranya ujian kebolehpercayaan, deskriptif dan frekuensi serta beberapa teknik lain turut digunakan. Faktor bagi keupayaan organisasi menunjukkan kesan yang signifikan ke atas keberkesanan praktis IBS. Pemboleh ubah bebas mempunyai pengaruh (27.7%) ke atas keberkesanan sistem IBS. Walaubagaimanapun, faktor bagi keupayaan organisasi menunjukkan kesan yang signifikan ke atas keberkesanan praktis IBS, iaitu $b=0.054$, $t=0.331$, $p<0.01$. Hasil analisis mendapati bahawa peneraju hanya memilih IBS setelah memperoleh tahap kefahaman dan kesedaran tentang kebaikan dan keberkesanan praktis IBS. Model rantaian pembekalan IBS turut dibangunkan. Masalah rantaian pembekalan IBS mampu diselesaikan dengan mewujudkan aliran fleksibiliti rantaian pembekalan yang sempurna dan berkesan. Penyelidikan ini diharap menjadi perintis kepada kajian lanjut untuk meningkatkan lagi prestasi pencapaian pembangunan industri IBS Malaysia ke tahap yang lebih baik dan cemerlang.

Kata kunci : Sistem Binaan Berindustri (IBS); Fleksibiliti; Rantaian Pembekalan; Pembinaan; Kejuruteraan.

ABSTRACT

Flexibility ensures effective implementation of the Industrialised Building System (IBS) supply chain with the demand and changing markets. The main purpose of this research is to identify and also analyze the challenging factors and constraints upon the flexible practises of the IBS supply chain. Thus, this research measures the importance of connection and coordination among the related parties in the supply chain cycle. Besides, the factors on misconception and also lack of awareness about the supply chain practises are also being studied along with the analysis of the affecting challenging factors and constraints upon the flexible implementation of IBS supply chain. Furthermore, thorough analysis is made regarding the challenging factors and other supply chain flexibility that prevent the continuity and development of the Industrialised Building System (IBS) in Malaysia. Issues and problems in IBS supply chain flexibility arise due to the flaws in the facility management (that are capital funding and transportation), information problems, resource and inventory, and also communication and integration within the building team itself. It creates future problems such as repetitive works, work delays, costs increment, poor communications, standardizations and wastage. The research uses both empirical analyses of quantitative and qualitative orientations. About 70 developers and contractors are taken as respondents for this research. A few statistical techniques are used in the data analysis, which are reliability test, descriptive, frequency, and also several other techniques. The capability of organization is a significant factor to ensure the effectiveness of the implementation of IBS practises. Independent variable holds influence (27.7%) on the IBS system. However, the capability of the organization is the most significant factor on the IBS system with $b=0.054$, $t=0.331$, $p<0.01$. Based on the analysis outcomes, the developers only choose IBS after they realize and understand the benefits and effectiveness of IBS practises. A model of IBS supply chain is also developed. Any IBS related problems can be solved through the establishment of impeccable and efficient flexibility supply chain. This research is hoped to be the precursor to further work in enhancing performances of industrial development of IBS Malaysia towards a better and outstanding level.

Key Words : Industrialised Building System (IBS); Flexibility; Supply Chain; Construction; Engineering.

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SENARAI SINGKATAN

CIDB	Construction Industry Development Board (<i>Lembaga Pembangunan Industri Pembinaan Malaysia</i>)
CIMP	Construction Industry Master Plan (<i>Pelan Induk Industri Pembinaan</i>)
PRP	Pengurusan Rantaian Pembekalan (<i>Supply Chain Management</i>)
IBS	Industrial Building System (<i>Sistem Binaan Berindustri</i>)
IT	Information Technology
KDNK	Keluaran Dalam Negara Kasar
KMO	Statistic Value Kaiser-Meyer-Olkin
LTAKL	Lapangan Terbang Antarabangsa Kuala Lumpur
MIIE	Malaysia IBS International Exhibition
NGO	Non-Governmental Organizations
OK	Objektif Kajian
PAS	Perkongsian Awam Swasta
PIIP	Pelan Induk Industri Pembinaan
PKNS	Perbadanan Kemajuan Negeri Selangor
PTE	Program Tranformasi Ekonomi
RMK	Rancangan Malaysia Ke-
UPP	Unit Perlaksanaan Dan Penyelarasan (<i>Implementation and Coordination Unit -ICU</i>)

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BAB SATU

PENGENALAN

1.0 Latarbelakang Kajian

Jadual 1.1 di bawah menunjukkan analisis halangan-halangan pelaksanaan IBS di Malaysia. Analisis daripada Nawi *et.al* (2011) mendapati bahawa di Malaysia mempunyai kepelbagaian pola halangan yang paling kerap berlaku kepada IBS. Antara isu yang mempunyai pola halangan tertinggi ialah pada isu B: (kekurangan skil dan ilmu) iaitu terdapat tujuh (7) pola halangan dan diikuti dengan isu J: (kekurangan kod dan standard) serta isu L: (kekurangan pensijilan, penilaian, dan pendidikan) dengan masing-masing mempunyai enam (6) pola halangan.

Manakala isu yang mempunyai pola halangan yang rendah terdiri daripada isu I: (salah faham peraturan dan bangunan) yang hanya mempunyai satu (1) pola halangan, diikuti dengan isu C: (isu perundangan dan budaya); isu K: (keupayaan pengilang dan isu-isu penglibatan, serta isu N: (isu pembinaan), dengan masing-masing mempunyai dua (2) pola halangan. Keadaan ini jelas menunjukkan bahawa sehingga kini masih lagi belum terdapat satu kajian saintifik dan terperinci berkaitan dengan penambahbaikan rantaian sistem bekalan IBS di Malaysia. Daripada analisis jadual tersebut dapati belum ada kajian yang saintifik dan terperinci dilakukan terhadap penambahbaikan fleksibiliti rantaian sistem bekalan IBS di negara ini.

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