

## FINANCIAL BARRIERS IN ACHIEVING CIDB IBS ROADMAP IN MALAYSIAN PRIVATE SECTOR CONSTRUCTION INDUSTRY

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**ABSTRACT.** Industrialized Building System (IBS) was originally introduced by Malaysian government to solve the problems of providing affordable housing for the people, and later this construction method was further under studied to cover other possible areas to resolve other construction problems in Malaysia. Compared with other countries such as Japan and Singapore, the implementation stage of IBS in this country is rather low which may due to Financial Barrier that limits its utility. This research is aimed to investigate the extent of Finance Barrier which cause the private sector from implementing IBS and achieving the targets set by CIDB in its Roadmap. The effectiveness of the policy, its related recommendations and strategies to ensure the ability of Roadmap to resolve the construction problems were also under studied. Data and information obtained from questionnaire distributed to 66 respondents from private sector were analyzed using Frequency Distribution Analysis Method. The findings of the research show that Financial Barrier is indeed a critical factor that limit the IBS application in achieving the targets set by IBS Roadmap, and thus, it is urgently required the respective parties, especially from CIDB to prioritize its strategies that effectively to resolve the financial problems and also further promote the potential of utilizing IBS construction method in Malaysian construction industry.

**KEYWORDS:** Industrialized Building System, CIDB, Roadmap, Private Sector and Financial Barrier.

### 1. INTRODUCTION

According to UKCG Report [1], it highlighted that the nation economic is greatly influenced by the construction sector while it boosts the government revenue, investments and employment opportunities for the country. Besides that, the increment of demand onto construction products due to increasing population and life quality of population also pressurizes the supply of residential buildings in Malaysia [2]. Thus, it is undisputed that the significant portion of Gross Domestic Product (GDP) is contributed by construction sector of the nation.

In order to resolve the issue of high demand of construction products, Industrial Building System (IBS) has been implemented in Malaysia since Year 1960, however it was not general or widely promoted until in Year 1998 when IBS Strategic Plan Blueprint was endorsed by the government in order to realize the mission of fully industrialize the construction sector. Since then, Construction Industry Development Board (CIDB) has been vigorously endorsing IBS implementation in construction projects in Malaysia. IBS Roadmap was even drawn up by CIDB

which consists of strategies, steps and measures in order to promote the widespread and increased content use of IBS in local construction projects.

However, implementation of IBS is very low though it has been implemented more than 40 years. Bernama [3] reported that the usage of IBS components in the private sector is less than 10 percent up to April Year 2014, far from the target or expectations set by CIDB IBS Roadmap Year 2011-2015. Due to these circumstances, Kamar [4] has conducted a survey to ascertain the key problems faced by the local construction industry. It has been concluded that the most significant barrier faced by the contractors in implementing IBS is the financial issue despite of other barriers such as level of awareness.

Therefore, this paper is aimed to determine the implications of financial issues which prevent the private sector to achieve the targeted goals and objectives set by CIDB to implement IBS system in their respective construction projects.

## 2. LITERATURE REVIEW

During the post-World War 2, most of the countries either in Europe or Asia suffered from the devastated and ruin situations. These war torn countries would require urgent needs to re-build their country, and thus, the ideas of IBS technology has been received much attention by these countries. According to the findings from Thanoon et al [5], it shows that there is a significant increment of IBS application in oversea countries recently compared to conventional construction methods, and thus, this indirectly determines that the contribution of IBS in assisting recovery efforts of the construction industry has been much important. For instance, Nagahama [6] reported that the construction of prefabricated homes in Japan is up to 20 percent of all the home being constructed within April 1999 to March 2000, while the government of Singapore has established the Housing and Development Board (HDB) as the solitary authority to explicitly resolve the housing issues for the urban poor through implementation of IBS [7]. Therefore, this innovative construction trend has influenced Malaysian government to look into this technology and further encourage its usage to replace the existing traditional methods of construction.

IBS Roadmap 2003 – 2010 was formulated to play a role as a guideline for all industry players to follow the action plans in order to move the construction industry forward. However, according to IBS Survey [8] conducted by CIDB, it reported that only 15 percent of IBS usage level in Malaysia construction industry, and until Year 2014, only 10 percent IBS usage level was achieved in private sector. In order to resolve this issue, IBS Roadmap 2011-2015 was reinforced to replace the precedent roadmap. Significant efforts from the public sector can be traced from the announcements made from 7th to 9th Malaysian Plan which showed the budgets of IBS development has been intensified. Both Ministry of Housing & Local Government and Public Works Department have emphasized that all the public construction projects should adopt IBS components. These include completion of 490,000 units of low cost houses from Year 1970 to 2003. In the year of 2005 alone, 100, 000 units of houses were constructed by implementing IBS approach [9].

However, the IBS Roadmap 2011-2015 has ended, but the usage of IBS especially from the private sector still is not encouraging [3]. The IBS Survey 2010 [10] shows that contractors G7 are the key barriers that limit the implementation of IBS. The outcome of the survey shows that cost and capital investments are the top 2 key barriers for these contractors to implement IBS.

According to Haron's case study onto school buildings [11], he found out that the conventional construction costs are lower than IBS construction methods. This is may be due to the high

competition among the contractors and sub-contractors whereby they will use the low cost strategies to win the bid, and unfortunately, these groups of builders believed that conventional construction methods are able to bring promising results based on lower construction costs. Comparatively, the number of IBS suppliers was limited, and thus, the costs of IBS components are higher. Moreover, the number of skilled and semi-skilled labour for IBS installation is also limited, and therefore, they may demand for higher wages which further increase the construction costs.

Nawi et al [12] further points out that contractor need to allocate huge capital investment to run IBS projects. Kamar [4] also states that the sheer cost of investment in Malaysian scanty market size attributes the lack of commitment of the contractors to run IBS projects. Furthermore, no all the private sectors are able to allocate funds to support the research and development activities, setup facilities and testing laboratories to operate the IBS construction projects, and also a sufficient amount of financial supports are needed to train the workers [12].

Besides that, Thannon et al [5] explains the high costs of acquiring heavy duty and modern plant and machinery from foreign countries further limit the usage of IBS, while Kamaruddin et al [13] emphasizes that these machineries also need high level of maintenance costs. According to study by Azman et al [14], one of the cost related factors that deter the contractor to use IBS may be due to high transportation costs. Besides that, low profit margin owing to low level of demand and supply and the limitation to bulk quantities also indirectly affect the usage of IBS in isolated areas, especially North Malaysia.

All these cost related factors are in the critical stage to be resolved if Malaysian government needs to ensure the success of implementing of IBS in Malaysia.

### 3. RESEARCH METHODOLOGY

Questionnaire is used to measure subjective views of the respondents based on objective scales is used as the key data collection tool in this study. This quantitative based research approach is found appropriate for the nature of research topic which request tests onto the theories or hypothesis which composed of different sets of variables and need measurement using numbers and scales, and further, uses statistical formulae to determine the validity of the research outcomes [15].

In this study, E-mailed Questionnaire was used through sending the survey form directly to the potential respondents' emails provided by CIDB. The targeted respondents were contractor class G1 to G7. Total number of 65 survey forms was sent and 30 respondents replied with 2 weeks time, with response rate about 46.2%. This may due to the respondents were unable to respond on time and the survey forms may fall into their junk mail without notice.

The structure of Questionnaire was divided into 3 components, which consists of Part A, B and C. Part A contains mainly the general and background information of the respondents, which play a part in verifying the working experience of the respondents to ensure the information provided are relevant for further study. Part B focuses to collect the key inputs related to financial issues and barriers that limit the respondents to apply IBS in their construction projects. The questions highlighted include the preference of the respondents onto the construction methods they used; awareness of the implementation of CIDB IBS Roadmaps; views onto the feasibility of roadmap achievements; effectiveness of the efforts used by CIDB to promote IBS; validity of cost and investment factors limit the usage of IBS and so on. Part C provide the platform for the respondents to express their views onto possible solutions to enhance IBS application in private

sectors, these include regulation enforcement; prioritization of financial and non financial issues to implement IBS and selection of possible solutions based on the list of possible strategies provided in the Questionnaire.

Data collected was further analyzed through description analysis, which consists of frequency distribution analysis in graphical format and prioritization of choices based on Ranking of Average Index.

#### 4. FINDINGS AND DISCUSSION

Based on the feedbacks of 30 respondents with about 70% of them are more than 5 years of working experience, they do agreed that IBS is currently play an important roles in solving construction problem as shown in Table 1 below:

**Table 1 Agreeability of IBS in solving Current Construction Issues**

Scale / Degree	Frequency	Percentage (%)
1 – Strongly Disagree	0	0.0
2 – Disagree	1	3.3
3 – Neutral	10	33.3
4 – Agree	16	53.3
5 – Strongly Agree	3	10.0

This means that most of the respondents do agree that IBS is an alternative to solve the current construction problems, and this also shows that they do aware the importance and benefits of IBS. However, they expressed negative views onto the achievability of CIDB IBS Roadmap to realize the targeted usage of IBS in Malaysia. Table 2 below show that only 6.7% of the respondents believe CIDB IBS roadmap is able to achieve its targets compared with 40% of them do not think so. Similar feedbacks were shown onto evaluation of effectiveness of CIDB in promoting IBS in Malaysian private sector, in Table 3.

**Table 2 Achievability of CIDB IBS Roadmap**

Scale / Degree	Frequency	Percentage (%)
1 – Strongly Disagree	1	3.3
2 – Disagree	11	36.7
3 – Neutral	16	53.3
4 – Agree	2	6.7
5 – Strongly Agree	0	0.0

**Table 3 Effectiveness of CIDB in Promoting IBS in Malaysia Private Sector**

Scale / Degree	Frequency	Percentage (%)
1 – Strongly Disagree	0	0.0
2 – Disagree	14	46.7
3 – Neutral	15	50.0
4 – Agree	1	3.3
5 – Strongly Agree	0	0.0

Both of this inputs showed that the contractors in private sector are still do not show much confident in applying IBS in local construction industry, even though they are aware all the positive output contributed by this innovative technology. Although the exact cost changes between Conventional and IBS is not clearly stated, the co-relationship between the financial issues and the effectiveness of construction methods does show some significant correlations. It shows that when the respondents were requested whether this may due to the financial issues, more 80% of the respondents do agree with this statement (as shown in Table 4), and also due to low cost in conventional method (as shown in Table 5).

**Table 4 Financial Issues in IBS Implementation**

Scale / Degree	Frequency	Percentage (%)
1 – Strongly Disagree	0	0.0
2 – Disagree	1	3.3
3 – Neutral	3	10.0
4 – Agree	13	43.3
5 – Strongly Agree	13	43.3

**Table 5 Conventional Construction Method is Cheaper than IBS**

Scale / Degree	Frequency	Percentage (%)
1 – Strongly Disagree	1	3.3
2 – Disagree	5	16.7
3 – Neutral	2	6.7
4 – Agree	19	63.3
5 – Strongly Agree	3	10.0

Based on the findings identified, it shows that the implementation of IBS among the private contractors is mainly limited by financial problems. Thus, they expressed much concern onto the availability of financial support if the government authority is seriously promoting the usage of IBS in Malaysian construction industry. From Table 6, all the cost and financial related strategies show the high percentage of acceptance compared with other technical strategies.

**Table 5 Conventional Construction Method is Cheaper than IBS**

Strategy	Frequency	Percentage (%)
Enactment of law to enforce IBS usage	8	26.7
Increment of levy for foreign labour work permit	15	50.0
Incentives provided by related authorities	28	93.3
Special funding by government agencies	24	80.0
Enhancement off IBS construction process	21	70.0
Promotion of IBS as economic construction solution	14	46.7
Others	3	10.0

## 5. CONCLUSION

Even though IBS construction method has been introduced and start implemented in Malaysia since Year 1960s, the progress of its development is still unable to be compatible with other

countries, and its popularity is not very well acceptable among the private sector. The key reason behind this may be due to the high investment and operation costs compared with the existing conventional construction method.

Although Malaysian government has planned and enforced a number of appropriate strategies in order to improve the IBS usage in Malaysia, for instance, through setting up of CIDB and formation of IBS Roadmaps, more efforts are still needed in order to resolve the constraints of financial problems faced by the current contractors.

Therefore, Malaysian government should look into possible areas to encourage mega scale development projects which are capable to utilize the IBS technologies, besides considering to further reduce the rates of taxation or to increase the incentive levels in order to provide more opportunities to the private sectors to invest their efforts and resources in applying more IBS components in their future projects.

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