

e-Proceeding V-GO GREEN 2020²⁹⁻³⁰ SEPT

VIRTUAL GO-GREEN: **CONFERENCE & PUBLICATION**

"SUSTAINABLE ENVIRONMENT, RESILIENCE AND SOCIAL WELL-BEING"

Organiser :
Research, Industrial Linkages, Community &
Alumni Network (PJIM&A)

Co-organiser :
Faculty of Architecture, Planning and Surveying (FSPU)
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Publication Date : 22nd February 2021

Virtual Go-Green Conference and Publication 2020

UNIVERSITI TEKNOLOGI MARA, PERAK BRANCH

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e ISBN 978-967-2920-06-9



9 7 8 9 6 7 2 9 2 0 0 6 9

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DIRECT AND INDIRECT COSTS INVOLVED IN IMPLEMENTING INDUSTRIALIZED BUILDING SYSTEM (IBS) CONSTRUCTION

Alya Ilyani Mohammad Shukri¹ and Husrul Nizam Husin²

^{1,2}Department of Quantity Surveying, Faculty of Architecture, Planning and Surveying, Universiti Teknologi MARA, Perak Branch, Seri Iskandar Campus, Seri Iskandar, 32610 Perak, Malaysia

Abstract

Industrialized Building System (IBS) is defined as a construction made of components manufactured either on or off site, then positioned and assembled into structures. The government has taken a few initiatives in order to encourage the practitioners to implement IBS in their project but the rate of usage of IBS is still low. The aim of this research is to study the direct and indirect cost involved in IBS construction. Objectives of the research are to identify the direct and indirect cost from the usage of IBS construction, to determine how the direct and indirect cost affect the usage of IBS construction and to recommend the improvement of IBS contractors involved with the IBS construction. In order to achieve this objective, a quantitative method of research is used and questionnaires as the tools for data collection. All data shall be analyzed using Statistical Package for Social Science (SPSS) software. All of the direct and indirect costs were known and familiar to the Contractor as most costs were known as very important costs in implementing IBS. Direct cost affects the implementation of IBS as the direct cost involvement is high. It became one of the causes behind the lack of implementation of IBS. However, indirect costs involved somehow gave advantages to the Contractors as they get profit and incentives from the Government. The result of this study may increase the number of IBS construction since the cost involved is clearly highlighted and how these costs can give advantages to the project.

Keywords: *direct cost; indirect cost; industrialized building system*

1.0 INTRODUCTION

Industrialized Building System (IBS) is defined as a process of construction that applies techniques, products, components, or building systems where the components are produced in a restricted environment (Mohamad et al, 2016). IBS has been highlighted under the Construction Industry Master Plan (CIMP) 2006-2015 in strategic thrust 5 and under Construction Industry Transformation Programme (CITP) 2016-2020 in strategic thrust 3. It has often been highlighted that IBS implementation in Malaysia is required to increase its implementation to overcome the issue such as foreign workers in the construction industry. Therefore, it is clear that IBS is actually one of the good initiatives in the construction industry to provide a more sustainable environment.

IBS has been introduced in Malaysia since 1960 and it is an innovative effort by the government since there is an increase in the awareness of the environmental pollution, natural resources depletion, and sustainable development (Azmi et al. 2012). There is a lot of initiatives made by the government in developing the IBS in Malaysia which included the IBS Roadmap 1 for 2003-2010, Construction Industry Master Plan (CIMP) for 2006-2015, IBS Roadmap 2 for 2011-2015, and Construction Industry Transformation Programme (CITP) for 2016-2020. All these initiatives were carried out to increase the usage of IBS implementation in building construction in Malaysia.

2.0 PROBLEM STATEMENT

Even though the government has been seriously promoting IBS with a lot of incentives provided, the percentage of IBS usage is still low from the objective or target especially in the private sector (Mohamad, Ramli, Hn, & Sapuan, 2016). According to the data from IBS Centre, MIDFR, as shown in Figure 1, the IBS usage in Klang Valley private sector projects in 2013 was only 46% while the remaining 54% still preferred to use conventional methods for the construction. Also, it is reported in the MIDFR, that in CIMP 2006-2015 stated that IBS has a bad reputation or publicity as it is said that IBS resulted in an increase of cost about 10% as compared to the conventional method. The latest data from CIDB up until August 2018, the number of contractors that were involved with IBS was still lower even when there was an increase in 2017. However, in 2018, the number of IBS contractors decreased again (Figure 2).

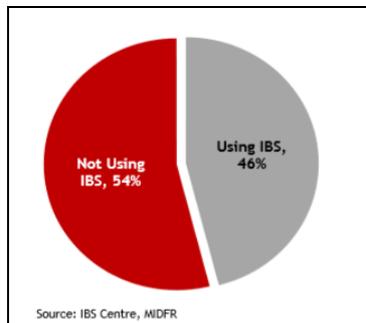


Figure 1: Percentage of private sector project implementing IBS

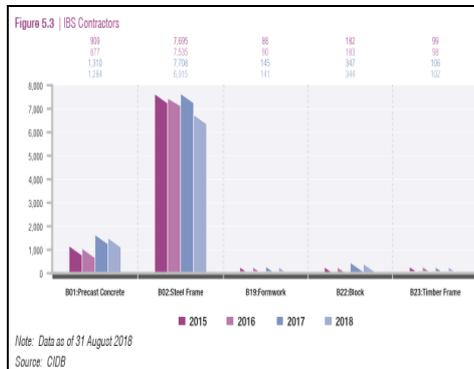


Figure 2: CIDB review & prospect 2018/2019 on IBS: prospects and challenges

Among the factors that caused the low implementation of IBS is the lack of awareness or knowledge of IBS among construction parties, and the main factor that contributes to the low usage of IBS in construction is the cost (Mohamad et al., 2016; Nasrun, Nawi, & Baluch, 2015). According to Mohamad et al., (2016), the reasons contractors prefer to use the conventional method continuously compared to IBS in their project is because of cost issues. The higher capital cost for IBS is one of the factors which causes contractors to decline the use of the IBS in their project (Mohamad et al., 2016; Villa, Resort, Jabar, Ismail, & Mustafa, 2013). According to Ogunde et al., (2018), in Table 1, the cost perception on IBS among the occupants is that IBS is expensive with 23 frequencies out of 60, which is the highest frequency.

Table 1: Occupants' perception on cost performance of IBS

Cost perception	Frequency
Less expensive	8
Expensive	23
Moderately expensive	18
Highly expensive	11
Total	60

(Source: Ogunde et al., 2018)

Therefore, this paper will provide the findings on the significant contribution on the IBS cost in terms of direct and indirect factors. Ideally, all of the cost must be taken into consideration too such as the initial cost, operating cost, running cost and maintenance cost. Hence, analysis of direct cost and indirect cost in the IBS construction will be carried out to determine the accuracy of the factors.

The research aim is to determine the direct and indirect cost involved in the construction work using IBS. To achieve this aim, the study outlined the objectives as follows: i) to identify the direct and indirect cost from the usage of IBS construction, ii) to determine how the direct and indirect cost affect the usage of IBS construction, and iii) to recommend the improvement of IBS contractor that is involved in the IBS construction.

3.0 LITERATURE REVIEW

According to Shamsudin et al (2013), IBS is one of the innovative methods in the construction sector that has been seriously taken as an effort from the Malaysian construction industry. IBS is defined as a construction which consists of a combination of manufactured components on-site or off-site where it will be positioned and assembled into a structure (Nur, Abd, Khalil, & Isa, 2019). It is believed that IBS is able to bring lots of benefits to the construction industry. IBS' benefits has been measured and ranked through a survey and the list is of the benefits is presented from the least beneficial which namely produce minimal wastage, provide cleaner and safe environment, reduce the materials on site, less labourers on site, controlled product quality, speed up the project completion, neat and safer sites, and lower the construction costs (Anuar, Kamar, & Azhari, 2014).

However, along with the benefits highlighted, the usage or implementation of IBS in Malaysia has not reached the level of satisfaction as the usage is still low compared to conventional systems, especially in the private project sector (Nasrun et al., 2015; Nur et al., 2019). According to Anuar, Kamar and Azhari, (2014), there are few reasons behind less adaptation of IBS in the industry due to the availability of foreign labours of which the rate of labours is low compared to the rate for erecting the IBS, lack of knowledge on IBS and contractor's unwillingness to switch from conventional method to IBS, as well as bad reputation on IBS project such as delays and bad qualities which resulted in refusal to accept the use of IBS in the construction sector.

There are many articles that stated cost is the factor that contributed to less usage of IBS in the construction. IBS costs are about 12-13% higher than conventional methods. This is due to the high prices of IBS components that can be broken down to the purchase of new imported machinery, mold production, tax and machinery from abroad as well as the expense of training staff to mount components and operate various high-tech machinery. (MIDF, 2014).

The cost involved in IBS includes both direct and indirect cost. Direct costs are expenses which can be specifically identified with a particular supported activity and which can be directly attributed with a high degree of accuracy to such activities. While, indirect costs are those incurred for specific or shared purposes and cannot therefore be directly linked to a particular project, but they contribute to the total cost (Dame, 2015).

Direct costs are defined as costs that are relatively easily identified and with a high degree of accuracy and give direct attribute and are chargeable to a specific project (Dame, 2015). Direct labour, direct products, fees, piece rate wages and manufacturing supplies are examples of direct costs. As in the IBS construction, the direct costs involved are inclusive of the material cost, labour cost, plant and equipment cost, and transportation cost. All of these costs can be directly seen when implementing IBS construction.

Meanwhile, indirect costs are costs that are not involved directly in a project. In other words, indirect cost is a cost that cannot be seen directly while carrying out a project. However, indirect costs are crucial in order to complete the work (Dame, 2015). Some examples of indirect costs involved in construction of IBS are the overhead cost, the taxes incentive, levy exemptions, and financial assistance grant. These costs might affect the usage of IBS in the construction as it is like the hidden costs in IBS that can either give benefit to the IBS itself or the other way around.

4.0 SAMPLING AND DATA COLLECTION

As for this research, the population of study is registered IBS Contractors in Malaysia who have been involved in IBS projects as they will have knowledge on IBS cost. Moreover, the sampling for this research is purposive sampling which enable the researcher to concentrate on common characteristics of a population that are of interest

The sampling frame is registered G7 IBS Contractors in Perak that are involved in IBS projects. Selection of the sampling frame is made in G7 IBS Contractor in Perak because, from the data and report analysis made by CIDB, it is stated that there are few number of registered IBS Contractors in Perak as compared to other states. From the data presented in the Orange Book produced by CIDB, there are literally 73 registered G7 IBS contractors in Perak. Therefore, the data collection is made in Perak since the impact of direct and indirect cost of IBS towards the IBS construction can be identified and the reason for lower usage of IBS implementation in Perak might be identified.

The data collection is done by distributing the questionnaire to the respondent involved (primary data) and references made to journal articles with conference proceedings (secondary data).

5.0 ANALYSIS AND DISCUSSION OF RESULTS

Data analysis is a method of placing facts and figures in order to solve the problem of study. As for this research, the data analysis will be presented in descriptive data analysis. Descriptive data analysis is usually carried out for quantitative research approaches. This seeks to summarize the researcher's available sample.

The frequency and mode will present how frequent the respondents feel about the direct and indirect cost affecting the usage of IBS in construction. It will represent the kind of cost that leads to lesser implementation of IBS in the industry. The tool to produce this descriptive analysis is Statistical Package for the Social Sciences (SPSS) that enables researchers to collect statistics from simple descriptive numbers to complex multivariate matrix analyses. The quantitative analysis consists of four main sections which are:

Table 2: Questionnaire's section

SECTION	TOPIC
A	Respondent's Demographic
B	Direct and Indirect Cost involved in IBS
C	Effect of Direct and Indirect Cost on the Usage of IBS
D	Recommendation in Improving the Involvement of IBS Contractor in IBS Project

Based on the data analysis, the importance and contribution of each direct and indirect cost have been identified. The results are as in Figure 3 below:

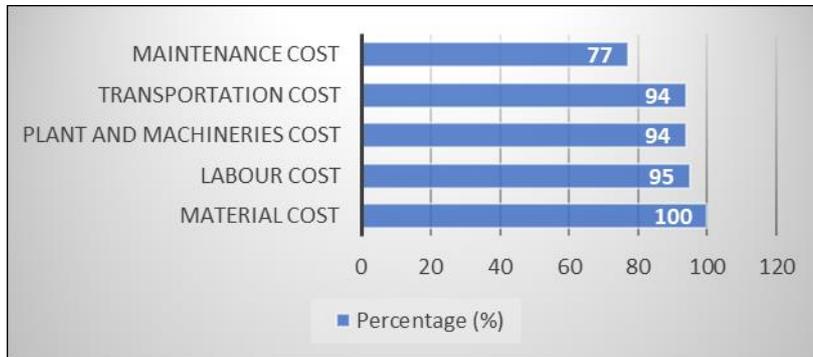


Figure 3: Direct cost involved in IBS

From the results, the importance of each direct cost can be clearly seen. Overall, it can be said that the costs involved in IBS are quite high during the initial stage due to the high material cost, labour cost, the plant and machineries cost. However, other direct costs depend on the situation of the project itself such as the transportation cost and maintenance cost.

This is parallel with the study by Sangale, (2015) that mentioned the material cost became higher due to less demand made from the industry; thus, it causes the production to become lesser. Since the productivity is less, the product cost will be higher. Furthermore, IBS employees should be trained as skilled workers because IBS workers would be substantially more quality-conscious than the untrained workers who do manual jobs in the traditional construction industry which lead to higher cost compared to conventional methods. Moreover, plant and machinery costs are high because IBS requires a lot of plants and machineries in order to install the IBS components. As for transportation, the cost depends on the distance to deliver the components and maintenance costs depends on the situation during the maintenance. However, the cost involved in indirect cost gives the advantages to IBS Contractor as some of them are the ways on how the Contractor may get their profit and incentives from the government. Figure 4 below shows the result of the importance of indirect cost involved in implementing the IBS project.

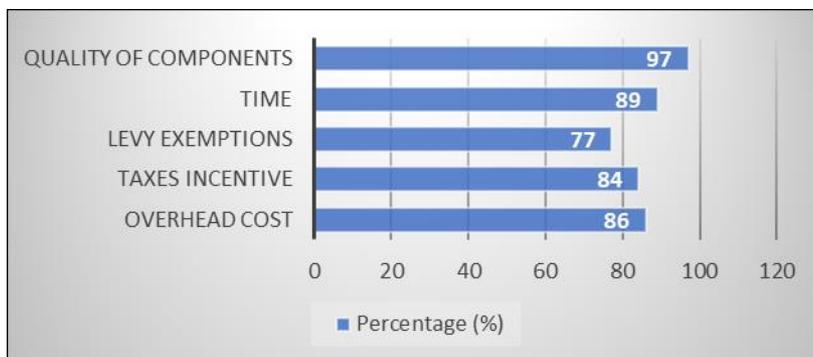


Figure 4: Indirect cost involved in IBS

The results obtained from data analysis show that the direct and indirect cost involved in implementing IBS are very important and these costs really need to be taken into consideration more when one intends to be involved in IBS projects as he or she will be confronted with all the costs involved.

Also, the recommendations listed to improve involvement of IBS Contractor in the IBS project should be taken into consideration too as most of the respondents agreed with how it may increase the involvement of Contractor towards IBS projects. Below are the recommendations listed to improve the involvement of IBS Contractor in IBS project.

Table 3: Recommendation to improve the IBS contractor involvement in IBS project

RECOMMENDATION	PERCENTAGE (%)			
	Strongly Disagree	Disagree	Agree	Strongly Agree
Harmonizing taxes incentives for the whole IBS market including towards IBS Contractor	2	11	50	37
Introduce a cost-effective capital through soft loans to promote the establishment of new start-ups to reduce the burden on contractors who have to pay in advance for IBS product procurement	2	3	58	37
Introduce simple funding schemes and special grants for the IBS Contractor to buy expensive machinery and equipment	2	5	50	43
Accessibility to reasonably priced IBS products and components	2	5	52	41
Standardized the cost of skilled workers at reasonable cost	2	8	42	48
Introduce an incentives to IBS-related training and skills development to those involved in IBS construction, including lowering the cost to join the training program	-	2	45	53

6.0 CONCLUSION

The study in this paper concludes that there are five types of direct and indirect costs respectively. In total, 10 types of costs have been identified based on the literature and confirmed through the data analysis. The types of direct cost involved are material cost, labour cost, plant and machineries cost, transportation cost, and maintenance cost while the types of indirect cost involved in implementing IBS are overhead cost, taxes incentives, levy exemption, time, and quality of components. All of these costs were acknowledged by the respondents.

The effect of each situation in the direct and indirect cost determines the execution of IBS construction. It can be concluded that each type of direct and indirect cost affects the implementation of IBS projects where there are some direct costs that are quite high: this causes IBS to be less implemented. Also, there are some indirect costs that are less implemented by the relevant parties to few Contractors which caused the use of IBS to not become the first choice of construction method.

Last but not least, it can be seen that the highest recommendation is by introducing soft loans to promote the establishment of new start-ups to reduce the burden on contractors who have to pay in advance for IBS product procurement. This is because, IBS Contractor found that the initial cost to start up the IBS project is quite high and that causes them to be less involved in the IBS project. Thus, by introducing a cost-effective capital, the involvement of IBS Contractor in the usage of IBS construction can be increased.

REFERENCES

- Anuar, K., Kamar, M., & Azhari, M. N. O. R. (2014). IBS Survey 2010: Drivers, Barriers and Critical Success Factors in Adopting Industrialised Building System (IBS) Construction by G7 Contractors In Malaysia, 9(4), 490–501.
- Dame, U. of notre. (2015). Direct versus Indirect Costs.
- MIDF, R. (2014). Construction IBS Practical solution to rising costs (Vol. 2013).
- Mohamad, D., Ramli, M. Z., Hn, D., & Sapuan, W. K. (2016). Demand of the industrialized building system (IBS) implementation in Malaysian government projects, 3(4), 77–82.
- Nasrun, M., Nawi, M., & Baluch, N. (2015). Study on the use of industrialised building system (IBS) in Malaysian private construction projects Study On the Use of Industrialised Building System in, (November).

- Nur, S., Abd, A., Khalil, N., & Isa, H. M. (2019). Monetary and Non-Monetary Indicators of Cost-Benefit Analysis in Industrialised Building System Project: An Initial Conceptual Model, 3.
- Ogunde, A. O., Ayodele, R., Joshua, O., Nduka, D. O., Ogunde, A., Ogundipe, K. E., ... Ajao, A. M. (2018). Data in Brief Data on factors in influencing the cost, time performance of the Industrialized Building System. *Data in Brief*, 18, 1394–1399. <https://doi.org/10.1016/j.dib.2018.04.036>
- Sangale, Y. (2015). Construction Cost Comparasion Between Conventional And Industrilised Building System In, (August).
- Villa, H., Resort, B., Jabar, I., Ismail, F., & Mustafa, A. A. (2013). AicQoL 2013 Langkawi Issues in Managing Construction Phase of IBS Projects. *Procedia - Social and Behavioral Sciences*, 101, 81–89. <https://doi.org/10.1016/j.sbspro.2013.07.181>

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Tarikh : 20 Januari 2023

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Sekian, terima kasih.

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27.1.2023

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