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HASIL PENILAIAN SEJAWAT SEBIDANG ATAU PEER REVIEW
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Judul Jurnal Ilmiah (Artikel) : Assessing company readiness level towards the implementation of building information modelling (BIM) in Indonesia

Jumlah Penulis : 3 orang (**Jati Utomo Dwi Hatmoko**, Frida Kistiani, Riqi Radian Khasani)

Status Pengusul : Penulis pertama

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- c. Vol, No., Bln Thn : Vol. 29, No. 3 (2019) Pp. 95-108
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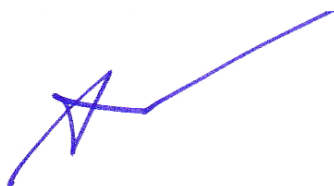
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Semarang, Maret 2022
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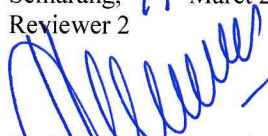
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Volume 29, Issue 3, 2019, Pages 95-108

Assessing company readiness level towards the implementation of building information modelling (BIM) in Indonesia (Article)

Hatmoko, J.U.D., Kistiani, F., Khasani, R.R.

 Save all to author list

Faculty of Civil Engineering, Diponegoro University, Indonesia

Abstract

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While the use of Building Information Modelling (BIM) is becoming more widespread in developed countries, it is still relatively new in Indonesia. Many companies are still not aware of BIM and the benefits of it. The aim of this research is to assess the company readiness level towards BIM implementation in Indonesia. For this purpose, company readiness index (CRI) was developed to measure the company readiness, followed by a gap analysis. Four main elements of readiness include organizational process, management, people, and technology, which are further broken down into 11 categories of variables and 28 readiness criteria. Data was obtained through questionnaire surveys and interviews with 37 respondents from four companies consisting of contractors, engineering consultants, and EPCI (Engineering, Procurement, Construction and Installation), which have implemented BIM in their operation. The results show on average CRI value of 76.19%, meaning that basically they are ready for BIM implementation. Coordination between BIM and CAD, process redesign, implementation plan, new roles empowerment is among the highest readiness level, while perceived benefit, and risk management are among the least ready. These findings give valuable insights of readiness level of companies towards BIM implementation and areas for improvement in Indonesia. © 2019, Construction Research Institute of Malaysia. All rights reserved.

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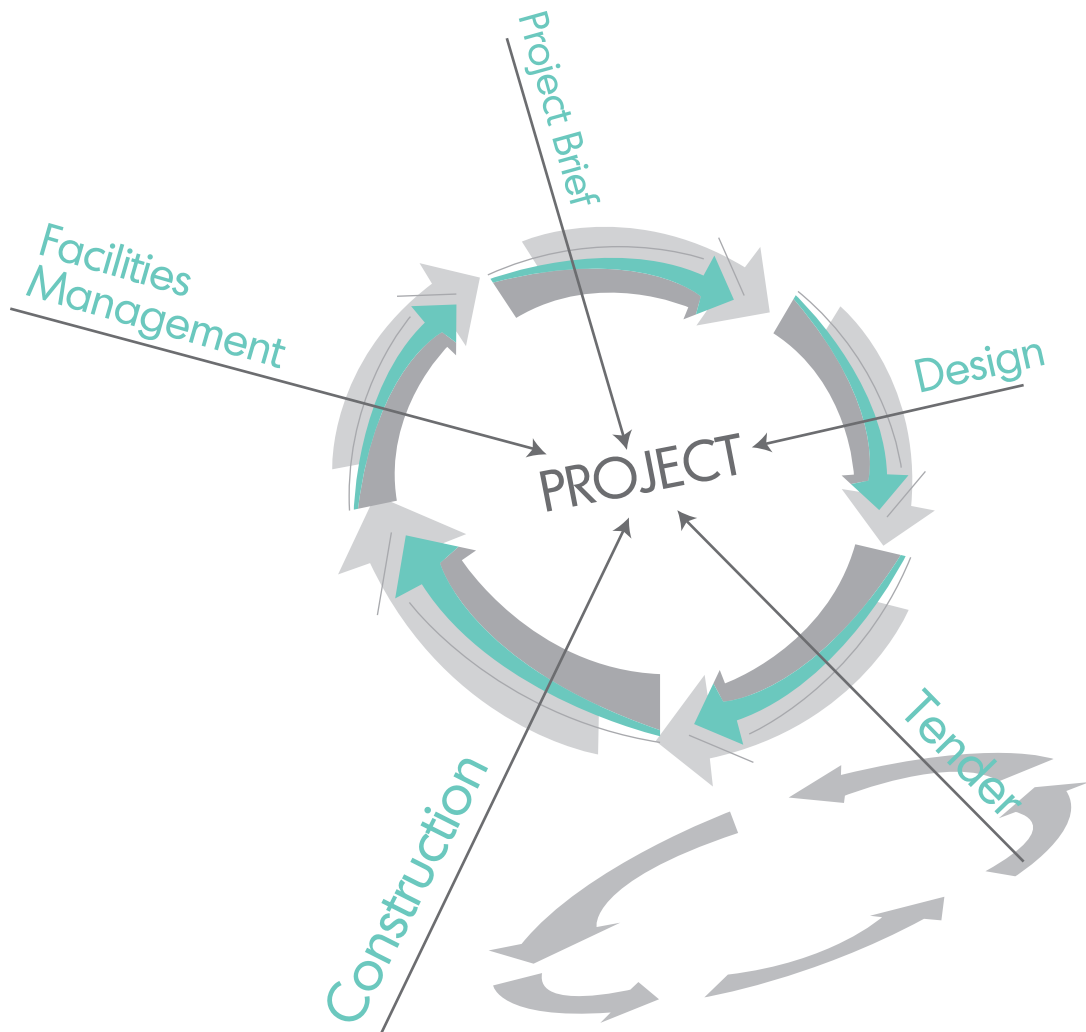
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FACTORS AFFECTING THE PRODUCTIVITY OF REINFORCEMENT WORK LABOURS IN LOW-COST RESIDENTIAL BUILDINGS

Sara M Elseufy¹, Ayman Hussein², Mohamed Badawy³ and Khaled Alnaas⁴

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Abstract:

It is important to identify the factors affecting labour productivity to enhance productivity. Although there have been many previous studies about the factors affecting productivity, there is a gap in identifying factors affecting the rebar workers. Therefore, the present study tries to bridge this gap. Thus, a questionnaire has been distributed to a group of consultants and contractors. There have been six groups: one associated with the rebar workers and five related to workers in general. 140 questionnaires have been received. SPSS program has been used to statistically analyse the data. In order to show the effect of different analytical methods on the ranking of the outputs, the analysis is done using two methods. The first method measures the effect after applying PMP matrix method, while the second method depends on the probability and the influence to validate the results of the first method. The results indicate that "project type" and "delayed payment" factors were the most important factors that have determined some factors that affect rebar labours. They further show that factors in the external group have a negative impact on and reduce productivity growth. Finally, the application of factors, influencing the productivity of the rebar's labour, has led to a model where an equation is applied using some tests, namely reliability, factor analysis, and regression to assess the impact of the factors on the variation of labour productivity and measure productivity growth in a low-cost Residential building in a later work.

Keyword: Productivity; Rebar's workers; Construction; Relative Importance Index; Low-cost; Regression; Egypt.

INTRODUCTION

The construction sector is one of the most extensive areas of industry affecting the economy of any nation. In addition, productivity is one of the most important influential factors that contribute significantly to the economy of any country; therefore, it is essential to identify the factors that directly affect the construction sector; accordingly, actions should be taken to improve these factors to achieve low cost and less time and to ensure high quality.

Therefore, various studies have shed light on the development of buildings and increase in the production rate to ensure the reduction of the considerable costs in construction projects where labour productivity is considered one of the most critical factors that affect the physical progress of any construction project.

The overall construction productivity depends heavily on labour productivity. Saari (2006) found that the cost of labour represents 30% to 50% of the total cost of the project. Consequently, any delay in the completion of construction projects is highly related to the increase in the cost of the project, reduction of quality, waste of time which in turn reduce productivity.

ASSESSING COMPANY READINESS LEVEL TOWARDS THE IMPLEMENTATION OF BUILDING INFORMATION MODELLING (BIM) IN INDONESIA

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Abstract

While the use of Building Information Modelling (BIM) is becoming more widespread in developed countries, it is still relatively new in Indonesia. Many companies are still not aware of BIM and the benefits of it. The aim of this research is to assess the company readiness level towards BIM implementation in Indonesia. For this purpose, company readiness index (CRI) was developed to measure the company readiness, followed by a gap analysis. Four main elements of readiness include organizational process, management, people, and technology, which are further broken down into 11 categories of variables and 28 readiness criteria. Data was obtained through questionnaire surveys and interviews with 37 respondents from four companies consisting of contractors, engineering consultants, and EPCI (Engineering, Procurement, Construction and Installation), which have implemented BIM in their operation. The results show on average CRI value of 76.19%, meaning that basically they are ready for BIM implementation. Coordination between BIM and CAD, process redesign, implementation plan, new roles empowerment is among the highest readiness level, while perceived benefit, and risk management are among the least ready. These findings give valuable insights of readiness level of companies towards BIM implementation and areas for improvement in Indonesia.

Keywords: *Building Information Modelling (BIM); Company Readiness Index; Indonesia.*

INTRODUCTION

Building Information Modelling (BIM) as one of the latest technological development has increasingly been popular and widespread in many developed countries. International BIM Report 2016 reveals the use of BIM in the following countries, i.e. UK (48%), Canada (67%), Denmark (78%) and Japan (46%), which is expected to rise significantly along with the increasing awareness of BIM and its benefits. This report also discloses the high awareness of BIM in those countries, i.e. UK (95%), Canada (98%), Denmark (96%) and Japan (92%). In North America, 50% of companies engaged in the construction sector are already implementing BIM and 20% of companies that have not implemented, will implement BIM within a period of 2 years (Arayici et al., 2009).

BIM can be defined broadly as an information technology development which shorten the lifecycle of the building to provide security and a more productive environment for its users, reducing the environmental impact of the existing building and improve operational efficiency during the building lifecycle (Arayici and Aouad 2011; Liu et al., 2015; Ustinovičius et al., 2015). It can also be interpreted into physical and functional representation of buildings and facilities as a source of information to determine a decision during the lifecycle of the building. BIM can be seen as a system that integrates diverse information on a project, which is very useful for the Architect, Engineer, Construction (AEC) industry to design, implement and manage projects more efficiently and cost-effective. Its application covers all phases in the project life cycle, i.e. planning (preconstruction), design, construction and after-construction phase (operation and maintenance). BIM can be used for the following purposes, i.e. visualization, fabrication / shop drawing, code review, cost estimating,

IMPLICATION OF INCOMPLETE CONTRACT (IC) IN MALAYSIAN PRIVATE FINANCE INITIATIVE (PFI) PROJECTS

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Abstract

Theoretically, contracts are inevitably incomplete. Incomplete contract (IC) is characterized by the absence of clearly defined, in its entirety, ex-ante the parties' requirements, rights and obligations and there are gaps, missing provisions, and ambiguities in its terms. On the one hand, IC exposes the contracting parties to the risk of opportunistic behavior, haggling, and disputes, but on the other hand, it allows flexibility to deal with uncertainty and change. Private Finance Initiative (PFI) contracts in Malaysia also cannot avoid being incomplete and there are twelve (12) clauses that contribute to the incompleteness. Literature review and two-round modified Delphi method were carried out to assess IC's implication in Malaysian PFI concession contracts. This paper aims to report on the said assessment. The findings showed that the presence of IC in PFI projects in Malaysia causes positive and/or negative implications. Most of the positive implications mentioned on the flexibility of the incomplete clause to deal with future changes and provide the parties opportunity to renegotiate. Meanwhile, many negative implications refer to delay, disputes, and the risk of opportunistic behavior. Input from this paper will facilitate contract designers, and those involved in PFI projects in emphasizing or giving attention to the aspect that contributes to contracting incompleteness and its implications and consequently improves the provisions when drafting new contracts.

Keywords: *Incomplete contract; Private Finance Initiative; Concession contract; Implication*

INTRODUCTION

The concept of incomplete contract (IC) concerns the substance of a contract. In principle, a contract must state the parties' responsibilities and the required actions in dealing with all anticipated incidents (Onishi et al., 2002). The contracting parties need to identify and address all uncertain situations which might occur in the agreements, where the potential future contingencies might be too numerous and/or too difficult to anticipate (Domingues & Sarmento, 2016). Hence, failing to identify future uncertainties and contingencies make a contract incomplete. Theoretically, a complete contract cannot be achieved and most contracts are inevitably incomplete (Domingues & Sarmento, 2016; Nur Syaimasyaza et al., 2017a). When there is IC, there is potential for inefficiency (Garvin, 2009) and dispute (Grant et al., 2012).

In Malaysia, the government is actively procuring infrastructure projects via Private Finance Initiative (PFI). However, past studies revealed that PFI contracts in Malaysia are incomplete, and the areas and clauses that contribute to the incompleteness has been identified (Nur Syaimasyaza et al., 2017a; Nur Syaimasyaza et al., 2017b). Hence, it is important to assess the implication of IC for the improvement of future PFI contracts.