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Implementation of Building Information Modeling (BIM) in Sarawak Construction Industry: A Review

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Abstract. The construction industry believes that Building Information Modeling (BIM) is a platform to transform the construction industry to a higher level by enhancing productivity and efficiency. It is proven that with BIM process execution, productivity can be enhanced through the effective collaboration process, increased return of investment, and reliable information to support the decision-making process. Efficiency can be enhanced through an integrated design process, reliable and accurate cost estimates, reduced financial risk, and reduced potential dispute. Thus, clients are gradually enforcing the use of BIM in their projects, resulting in many construction companies investing in BIM technology to fulfil clients' needs. This paper presents a review of over recent research to identify the key of elements of awareness, benefits, strategies and implementation of BIM. The result reveals that the top ten (10) ranking of BIM awareness, BIM benefits, BIM challenges and BIM strategies for the industry player to implement and adopt BIM in Sarawak construction industry.

1. Introduction

The complexity of the construction process has contributed to project failure and it has been difficult to manage by parties involved. One the major problems that repeatedly occurs during the process is lack of coordination between different professional background among construction stakeholders and other relevant parties [1]. To overcome this complexity of construction, a major evolution in technology has been achieved to attain the process easily and efficiently. Construction stakeholders must know how to deal with a fast transition of technological, a high-integrated society, and construction issues that required solution from multidisciplinary. Because of that, Building Information Modeling (BIM) has been implemented efficiently and effectively in building projects through an integrated and computerized system [2]. Over the last 10 years, the construction software platform has changed from 2D modelling to 3D modelling. Since the introduction of computer –aided design (CAD) software a few decades ago, the concept of BIM has been discussed. At that time, however, the scope of design was a three-dimensional building model enriched with some additional graphic design [3]. Over the years, BIM has adapted the ideas explored in previous decades to overshadow them. But now, BIM tools are parametric with user-defined rules that automatically improved the level of production [4]. Numerous software were developed to offer specialized solutions that could capturing all the relevant project information [5]. The implementation of BIM began with Level 0 where the CAD is used to produce drawings, then printable documents are exchanged with other disciplines. Then, for Level 1 that started in the year 2000, 2D designs are combined with 3D models. Level 1 is where most construction stakeholders in the industry apply the current level. At the beginning of 2010, the BIM

