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DEVELOPING AN ONTOLOGY FRAMEWORK TO ANALYZE INFORMATION REQUIREMENTS OF BIM DEVELOPMENT FOR CONSTRUCTION COST MANAGEMENT

Final Project Report

to fulfill the requirement of

Bachelor in Civil Engineering

Composed by:

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INTERNATIONAL CIVIL ENGINEERING PROGRAM
DEPARTMENT OF CIVIL ENGINEERING
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UNIVERSITAS ATMA JAYA YOGYAKARTA
YOGYAKARTA
2019

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Final Project Report

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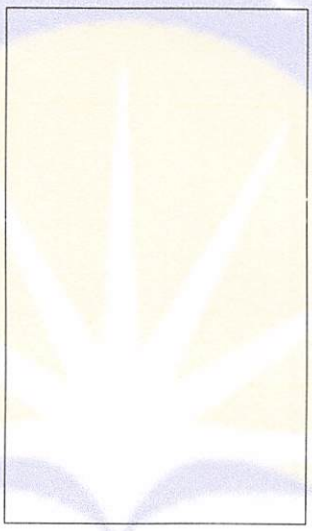

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Final Project Author,

Andreas Budi Hartono

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ABSTRACT

DEVELOPING AN ONTOLOGY FRAMEWORK TO ANALYZE INFORMATION REQUIREMENTS OF BIM DEVELOPMENT FOR CONSTRUCTION COST MANAGEMENT, Andreas Budi Hartono, Student ID Number 15.13.16189, year of 2019, Construction Management, International Civil Engineering, Universitas Atma Jaya Yogyakarta.

Delivering construction project requires a mature approach as the nature of every project is unique and different. This issue often leads to inaccurate cost management upon delivering construction project. As technologies are growing rapidly nowadays, there have been several technologies developed to help engineer manage construction project. Building Information Modelling (BIM) is one of the technologies recently used in construction project as it has a broad capability of management purpose. However, a standalone BIM model wouldn't be enough to overcome this issue as a mature approach to fully utilize BIM model is required. By understanding the proper approach upon developing and processing BIM model, engineer could get the maximum benefits upon implementing BIM technology in construction project.

The purpose of this study is to examine the terms of accurate and reliable cost management, develop a framework according to the terms examined and eventually able to implement this framework upon developing BIM model that satisfy cost management purpose. Several criteria of reliable cost management are determined and later used to review a construction work measurement standard. Ontological approach is used to assemble these term and standard into an interactive framework. Later, a BIM model of actual construction project is developed and assessed using this framework so that it could satisfy the information requirements of cost management purpose.

The result of this study shows that by developing the BIM model up to Level of Detail (LOD) 300 is still not enough to provide the required information specified in the ontology framework. There are several limitations of the BIM software used that cause the inability to accurately provide this information. Further analysis upon developing and analyzing BIM model is carried out to overcome this limitation. Through customized parameter and plugin used in the software, the BIM model could eventually provide a satisfactory and accurate information for cost management purpose in the ontology framework.

Key Words: Cost Management, Ontology, Building Information Modelling (BIM)