

## **ABSTRACT**

*Building Information Modeling (BIM) is a digital concept or system that utilizes software for 3D modeling consisting of integrated modeling information for coordination, simulation, and visualization among stakeholders. BIM provides a solution for managing dynamic, risky, and uncertain projects, reducing the occurrence of Change Orders (CCOs). In the construction project of the Integrated Laboratory Building Phase II at the State Polytechnic of Indramayu, conducted from February 18, 2021, to June 30, 2021, a CCO was experienced due to a delay in the 11th week. The delay resulted from inaccuracies in planning and design. The project was planned using conventional methods, leading to CCO during its implementation, causing adjustments to both cost and time. This research aims to analyze budget planning using conventional methods and compare it with the implementation of BIM 5D in the construction of the Integrated Laboratory Building at the State Polytechnic of Indramayu, focusing specifically on structural work. The software used in BIM implementation includes Cubicost TAS for structural work quantity calculations, while Cubicost TRB is used for reinforcement calculations. The data analysis involves converting 2D drawings into 3D models. Subsequently, data analysis includes scheduling and cost estimation based on the results of 3D model work quantity calculations. The output of the data analysis is the comparison of cost estimates between conventional methods and BIM-based methods. The results of BIM modeling for scheduling using Microsoft Project software indicate that the project could be completed in 17 weeks or 116 days, with an estimated cost of IDR 9,681,945,607.50 for structural work. The difference in total cost estimation is approximately -5%, with a variance of IDR 418,415,427.56*

**Keywords:** *Building Information Modeling, Cost Estimation, Volume.*