

IMPLEMENTATION OF MONTE CARLO SIMULATIONS ON THE FINANCIAL RISKS OF CANTEEN AND MUSHOLA CONSTRUCTION PROJECTS

***Rizky Restiana**

Departement of Industrial Engineering, Islamic University of Indonesia, Yogyakarta, Indonesia

**(rizkyrestiana12@gmail.com)*

ABSTRACT

In construction projects definitely require a large cost in the construction process so that the cost estimation stage is needed first. In the cost estimation stage, uncertainty and impending risks are usually not involved. Risk and uncertainty are unavoidable important factors in project financing. To determine the risks and uncertainties required measurements using the Monte Carlo simulation method. Monte Carlo is often used to model and analyze systems to get the best project cost estimates. This research aims to determine the maximum and minimum value of the project based on the unit price of the unit. With the unit price, you can find out the probability of project success in accordance with the cost in the project cost budget, the results of cost estimates, and the percentage of cost comparison that will be experienced by the project with the Monte Carlo simulation method using Microsoft Excel. In this study, an analysis was conducted on the minimum unit price and maximum unit price with each unit price that has been determined in accordance with the project cost budget. The result of conducting a simulation is a probability distribution that is more realistic than the estimated cost value. The results of the study obtained a minimum value of Rp. 357,000,000.00 and a maximum value of Rp. 389,000,000.00 by using Cumulative Distribution Function (CDF) graph, as for determining the percentage probability of using the Probability Density Function (PDF) graph with a success rate of cost conformity in the project cost budget of 100%. The project can achieve a success of 74.31% at a cost of Rp. 377,000,000.00.

Keywords: Monte Carlo, Simulation, Financial Risk, Cost Estimation