ABSTRACT

Construction projects are planned activities related to development efforts that are prone to delays. Delays can be caused by both external and internal project factors; however, these delays can be mitigated if the project team makes efforts to control the triple constraint, particularly in terms of time and cost. Control efforts can be carried out by optimizing project scheduling to minimize losses and project failure. One case of delay occurred in a building construction project by PT. XYZ, where it was found that the project was delayed by up to 4 weeks. If the delay is not addressed, PT. XYZ risks paying a substantial late penalty at the end of the project. To resolve the delay, an evaluation of acceleration alternatives was conducted using the Time Cost Trade Off (TCTO) method. This method is used to evaluate several acceleration alternatives while minimizing additional costs. The analysis process begins with identifying the critical path using the Critical Path Method (CPM), followed by accelerating the project duration and calculating the acceleration cost for each alternative, and then comparing the shortened duration with the additional cost for each alternative to determine the most efficient option. The results show that the most suitable alternative to accelerate the project is by increasing the number of workers by 30%. With this alternative, the project can be completed in 314 days with an additional acceleration cost of Rp82,066,707.69. The findings are expected to help PT. XYZ minimize losses and project failure so that the delays can be properly addressed.

Keywords: *Construction project, delays, Time Cost Trade Off (TCTO), project duration acceleration, acceleration costs.*