

Crashing Project Time by Linear Programming (LP): A Case Study

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Abstract

Nowadays business managers are dealing with different types of projects ranging from implementing a large scale manufacturing plant to a simple sales campaign. While dealing with projects, to become competitive, sometimes it is required to complete a project within the predetermined deadline to keep cost at lowest possible level. Failure to do so ultimately leads to increase in total cost. In order to meet the project due date, sometimes project manager needs to expedite the project. It means that some activities must be done faster than normal. Crashing an activity saves time but increases the cost. Thus there must be a time-cost trade-off. This paper mainly provides a framework for reducing total project time at the least total cost by crashing the project network using Linear Programming (LP). Then the model is solved with real project data of an installation project by using Solver in Microsoft Excel. In this work real data is used from machine installation projects in Siemens Bangladesh Healthcare. An illustrative example with a project network consisting of 19 nodes and 22 activities is provided. The computational study includes tabulation of the interrelationships among time and cost.