

Demystifying Projects Network Analysis using Fuzzy Numbers

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ABSTRACT

Twin techniques PERT and CPM are widely in use in Project Management. Though PERT accounts for uncertainties by using three time estimates following a Beta Distribution, in practice there is a lack of definiteness regards the duration assessment. Response could be given as time taken for an activity being somewhat vague or in a fuzzy manner. Perhaps around 10 hours would be a response having some range in mind. This is how there is a need to introduce the concepts of Fuzzy numbers / sets based on Trapezoidal or Triangular Fuzzy Numbers to assess the activity durations. Practitioners are heavily loaded tackling large sized Projects utilizing some Project Management Software like MS PROJECT or PRIMAVERA. Thus, the attempt of this paper is to introduce in a simple manner the concept and application of Fuzzy Networks for planning and Scheduling of Projects applying the well known Forward and Backward Path Algorithm based on elementary Fuzzy Set operations of Addition, Subtraction and Ranking. To demystify Fuzzy PERT Network Analysis, a detailed worked out numerical example has been presented.

Key Words: PERT / CPM, Fuzzy Networks, Project Scheduling