Abstract

Effort Estimation has always been a challenging task for the Project managers. Many researchers have tried to help them by creating different types of models. This has been already proved that none is successful for all types of projects and every type of environment. Analytic Hierarchy Process (AHP) has been identified as the tool that would help in Multi Criteria Decision Making. Researchers have identified that AHP can be used for the comparison of effort estimation of different models and techniques. But the problem with traditional AHP is its inability to deal with the imprecision and subjectivity in the pairwise comparison process. The motive of this paper is to propose Fuzzy Analytic Hierarchy Process, which can be used to rectify the subjectivity and imprecision of AHP and can be used for selecting the type of Model best suited for estimating the effort for a given problem type or environment. Instead of single crisp value, Fuzzy AHP uses a range of values to incorporate decision maker’s uncertainty. From this range, decision maker can select the value that reflects his confidence and also he can specify his attitude like optimistic, pessimistic or moderate. In this work, the comparison of AHP and Fuzzy AHP is concluded using a case study of selection of effort estimation model.
Researchers on software effort estimation have concluded that no practice for finding the effort and cost estimation of the software project is best. But different approaches have different success rates in different environments. The aim of this work is to examine the application of the Fuzzy Analytic Hierarchy Process (FAHP) method of multi-criteria decision-making for selecting the best model based on the company environment and type of the project. For doing the same DM has to select the best mode. The important consequences of the choice outcome may confer a level of uncertainty on the decision maker, in the form of doubt, procrastination etc. This is one reason for the utilization of FAHP, with its allowance for imprecision in the judgments made. Future work will be to work with the decisions, when DM does not want to make any comparison between any two criterion/alternatives and can leave that comparison matrix entry empty. Efforts can be made to implement other Multi Criteria Decision Making approaches, using Different Fuzzy Numbers and optimization of the weights of the MCDM.

7. REFERENCES

- Christopher Jarabek, "Expert Judgment in Software Effort Estimation", Non-peer Reviewed Writings Department of Computer Science University of Calgary
- L. Zadeh: Fuzzy sets, Information and Control, 8, 338-353, 1965

**Index Terms**

Computer Science  
Software Engineering

**Keywords**

Effort Estimation  
Fuzzy Multiple Criteria Decision Making  
Expert Judgment  
Analytic Hierarchy Process.