Abstract
The main objective of project risk management is to “increase the probability and impact of positive events, and decrease the probability and impact of negative events in the project” (Project Management Institute, 2012). In order to assess a risk’s probability of occurrence, statistical data, expert judgment and/or modeling predictions can be used (Siu and Kelly, 1998). In this paper, expert judgment is modeled as a probability distribution function and is combined with statistical data, concerning similar projects carried out in the past. The Bayes theorem is used to combine the expert’s opinion with the statistical data and get a new probability distribution function. The standard deviation of this new probability distribution function, describes the uncertainty of the assessment. The idea is to provide a method that covers the case that we don’t have a satisfactory number of statistical data but expert opinions can be gathered and used to fill the gap. The whole process is supported by Monte Carlo simulation techniques. Furthermore, the method balances the effect of expert’s opinions in such a way that the more statistical data we have the less weight is given to the expert’s opinion. A simple test case, taken from the construction field, is used to showcase the method.

Key words: Risk Management, Monte Carlo Simulation, Expert judgments.