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ABSTRACT

Project Management is comprised of a number of key components and principles that enable success in planning, execution and delivery of projects. Whilst all of these components are essential, the inclusion of Financial Risk Management within the framework of IT Project Management is critical to achieving success. Many authors have proposed and described financial risk management but have fail to outline the integration of its importance and application in the management of Information Technology projects. This research is an endeavor to identify the financial risk management techniques that are used in information technology projects. It includes references to selected software companies to find out the impact of risk management techniques on project success. In pursuit of perfection and excellence, we venture deep in the domain, carefully analyzing the behavior of the key financial indicators and by amalgamating this with the risk scores we develop a new model for financial risk management. This systematic understanding and findings promise to enrich theory and add to the Project management body of knowledge and worldwide project management practitioners.

In this study, existing models for financial risk management are analyzed and the gaps indentified, in order to develop a proper solution and new model for financial risk management in information technology projects.
The study surveyed 540 participants from five leading information technology companies. The study finds that expert judgment, analytical techniques and regular reviews are used as the key financial risk planning techniques in information technology projects. The research found that information gathering techniques, documentation reviews and expert judgment are the key financial risk identification techniques used. The study has shown that the use of probability and impact matrices, expert judgment, categorizing scale and ranking are the financial risk analysis techniques. The study brought to light that strategies for negative risks, contingent response strategies and expert judgment are used to plan responses for financial risk management. Risk assessment and status meetings are the techniques for monitoring and controlling financial risks. The secondary data derived from project reports of 640 projects from the leading information technology companies were analyzed to arrive at the conclusion that usage of the financial risk management techniques increased project success rates.

A new model has been developed for financial risk management using the Performance Sustainment Score [PSS] as a predictive analysis tool for sustaining performance and ensuring project success. This new model was based on the commonly occurring financial risks that are related to resources, technology, scope, vendor, requirements, procurement, design, project complexity, planning & control, organization, environment, and the key financial indicators - Cost Performance Index [CPI], Schedule Performance Index [SPI] and the risk scores.

The Performance Sustainment Score [PSS] is calculated as the ratio of the Critical score and the Risk score [PSS = Critical score / Risk Score]. The Critical ratio = CPI* SPI, where CPI is the cost performance index, and SPI is the schedule performance index. The Risk score is calculated as the probability of the risk occurring multiplied by the impact on project should
the risk occur  [Risk score= probability*impact]. In the study, factor analysis was performed to identify the affinity between the probability and impact of key financial risk factors. This forms input to calculate the financial risk scores. The performance sustainment ratio is plotted on a control chart on a weekly basis, throughout the duration of the project. Whenever we find that the PSS point is deviating above or below the upper and lower control limits, management action is triggered to mitigate the financial risks and to bring the project back to green status. Consistent and periodic measurement of the performance sustainment scores enables successful delivery of a project within budget and schedule.

The new model was tested on ten large and complex information technology projects. The tests yielded positive results, and all the ten projects completed successfully within budget and schedule. Further case studies on four out of these ten projects have been undertaken for a deeper insight into the working of the new model. The results have proven the effectiveness of the new model and establishes its viability and benefits in Financial Risk Management.

This research will help future researchers and information technology organizations to understand the importance of financial risk management and adopt this new model for the identification, quantification, and mitigation of risks in information technology projects.