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Business, Management

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A project, irrespective of the field it is in has numerous constraints; the constraints are categorized using three criteria; budget, quality, and time (Bosworth, 1995, p. 46). The constraints of the project affect the outcome, with risks and threats associated with these constraints in the project's cycle. This can be seen under various coverage of the project, for instance, in the execution phase, certain steps that may result with the project failing and/or decline of the quality standards associated with the approach on a specific project that is being developed or rehabilitated. This paper seeks to review the journal " Optimum Budget Allocation Method for Projects with Critical Risk" by Tomoichi Sato.

Introduction

This purpose of this journal is to clarify the best solution to the trade –off problem for project risk and project budget. Project cash flows are usually pushed to the negative side by Risk Mitigation Strategies as they necessitate extra budgets. While on the other hand, Cost mitigation efforts tend to be accompanied by risks. Project managers are constantly challenged with striking the balance between risks and cash flows in the planning phase of any project.

Introduction of the Risk-Based Project Value Concept

In this part of the journal, the authors introduce the RPV (Risk-based Project Value). With the RPV they depict the theoretical framework associated with it, which is utilized in analysis of RPV. RPV is the appraisal of projects and it is measured on the basis of risk probabilities of operations encompassed in the project network diagram and the cash flows associated with the project. The writers illuminate three reasons as to why the RPV fits the study purpose. The first and major reason is that the RPV signifies the project's entire value. Secondly, the fact that the RPV, by definition, plainly includes the risk probability and the cost of each activity in its calculations, gives sense and meaning to the examination of the trade-off relationship in a theoretical sense. Thirdly, the activity network structure of the project is handled and encompassed in the framework of the RPV analysis.

The project activities incorporated in the project and the probabilities of their termination represent the project risks in the RPV analysis. By description, the RPV is the total sum of cash flows attained from past activities and projected cash flows from future and/or ongoing activities, discounted by the possibilities of termination. It is noted that during the planning stage, all the activities are considered in the futures sense. RPV analysis is tailored for investment kind of projects; it therefore covers the complete and total project life cycle. It covers operational phase of the project as well as the investment. This is very similar to the DCF technique.

Relationship between Cost and Risk of an Activity

Where the allotted Cost, Ci is, zero (with no existing budgets, any project activity may fail), Risk Probability π is assumed to be 1. As Ci increases, Risk π will decrease, but risk will not be negative for any budget. If Risk Probability π is plotted against budgeted cost Ci of an activity j, a downward-slopping curve will be drawn.

Existence of Optimal Budget

This section of the journal inspects whether surplus budget allocations to a project activity for preventive risk mitigation can increase the RPV of a project that is ‘ simple-type’, and then draw-out the end result to the ‘ serial-type’ cases.

Method of Optimal Budget Allocation for a Complex-Type Project

In this section, the authors recognize that the computation approach is necessary to obtain a solution for an optimal budget allocation problem of a complex-type project with a general activity framework. This is because an analytical solution cannot be devised. This approach and concept is echoed and agreed by other authors, like Morteza Zeynalian, Gholamreza Jandaghi, Azizollah Memariani and Hasan Jahanshahi, authors of the Designing a Multi-Purpose Optimization Model for Budget Allocation Using a Hierarchical Approach. They take a mathematical approach towards optimal budget allocation for a complex-type project. The mathematical approaches seem slightly differ; however the concept and end result, as proven through the given examples are relatively similar.

Marginal Cost Sensitivity

During the execution phase of a project, a budget and risk trade-off problem may arise. The authors acknowledge the use of the calculation methods mentioned in the previous section to be a challenging and cumbersome process for project managers to adopt into their busy daily routines. Using a practitioner's viewpoint, the authors suggest the benefit of developing a simple criterion for budget decrease/increase decision for each project activity. This is however not the case according to Nugroho, one of the authors of " Optimal Computing Budget Allocation for Constrained Optimization". This document provides a mathematical formula that can be applied in day-to-day activities by project managers in the aim to optimize and reduce marginal cost in a situation of constrained resources. However, the approach is still a little taxing and requires a specialized employee to handle this particular task, which raises the question of the cost of hiring such professionals.

Conclusion

In conclusion, the authors acknowledge the optimum budget allocation for projects with preventive type of response plans has to be analyzed using the theoretical framework of RPV. For the trade-off between the critical risks and allocated costs, a quantitative relationship model is recommended by the authors. This is purely founded on the analogous funding strategy concept. Mathematical programming or an analytical approach can be used to obtain optimal solutions. This is because for a multiple or single activity project, there exists an optimal budget allocation. Surplus budgeting may increase cash flows for the project, i. e. the situation where optimal cost surpasses estimated costs in the initial project plan. A move to reduce costs may pay off for some cases. However, this will attract certain risks associated with the particular case. These analyses do have a critical practical use, even when they remain mathematical and theoretical.

These analyses are noted to be limited in their use. They are implemented under the assumption that all the activity risk probabilities are not connected to each other and are executed independent of each other. This is not always true. In most projects, improper or incomplete execution of some upstream activities leads to failure of downstream activities. This method does not take into account performance risks that arise from time delays, increase in costs and degradation of quality. For the completion of these facets, further studies should be implemented. The methods or techniques used are restricted to simple case.

Recommendation

I would recommend this journal for an individual with a clear project management background that is founded on mathematical approaches to solving financial problems. I would not recommend this journal for inexperienced project managers as the mathematical techniques require a great sense of experience in the given field.

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