Title: A Critical Review of "From Theory to Practice: Toward a Typology of Project-management Styles" is critically reviewed in this individual report.

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A Critical Review of "From Theory to Practice: Toward a Typology of Project-management Styles"

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Summary

The paper "From Theory to Practice: Toward a Typology of Project Management Styles" by Aaron J. Shenhar was chosen for critical evaluation. The intent of this research paper is to classify project types with project management and organizational style. Because of the lack of information available on this particular subject, the purpose of the paper was to construct a conceptual model of technical projects. The model would then be used as a framework for insights into the managerial differences that exist among different types of engineering projects. He starts first by classifying technical or engineering projects by their level of technological innovation or uncertainty at the time of project initiation. The four types of technical uncertainty the paper discusses are Type A, low technical uncertainty (low tech), Type B, medium technical uncertainty (medium tech), Type C, high technical uncertainty (high tech), and Type D, superhigh technical uncertainty (superhigh tech). He then classifies the projects to their scope or location on a hierarchical ladder of systems and subsystems or the complexity of the final product. The three levels of scope are assembly, system, and array. This information is fed into a two-dimensional theoretical model for classification of the project.

Methodology

Considering the varying size, duration, and technological outcome of projects that exist today, the author's methodology for the research is very appropriate. He realizes that projects are considered a temporary organization that is set up to meet an objective often with limited time, money, and resources. He also takes into consideration that projects may last from a couple of weeks to years. With this in mind he chose to use the process of building theory from case-study research. He chooses projects from a variety of industries such as electronics, computers, mechanics, aerospace, chemicals and construction from either a military or commercial market. The projects also varied in size from $150,000 to $2.5 billion and in duration from six months to 12 years. The major characteristics of the projects were mission, major components and technologies, number of people interviewed and period of the interview. In selecting the projects

for the case study, the author could not randomly select the projects. He approached those projects that had data available on managerial strategies and practices in real or as close to real time of the project's execution.

Reviews of project documents and archives, interviews, questionnaires, and observations were among the methods of data collection the author used. The qualitative case data of the study was processed through a method of cross-case comparative analysis. The process was highly iterative with continual comparisons with data and theory until patterns emerged.

Contributions

The contribution this paper has to literature in the area of Project Management is significant. Research literature in the area of management of projects, particularly those involving new technology, is relatively young and suffers from a lack of theoretical basis. The existing theoretical basis involves single case studies, where the author takes real time data on twenty-six actual projects for this paper. With this data the author attempts to develop a standard theoretical framework that is commonly used for analyzing the full range of modern *engineering* projects.

Comparisons

Other researchers have approached the subject of project management from a more universal position. Most available literature on project management will address organizing, planning, budgeting and controlling activities giving every indication that all projects are equal. There has not been any difference between the project type and the strategic and operational problems of various projects. This research paper takes a step further by recognizing that there is a distinction among projects based on technological differences, product outcome and technological novelty. There is a need to develop a standard framework that can be used to analyze today's engineering projects.

Strengths and Weaknesses

The author recognizes that project management is anything but universal. The research investigates management of engineering projects and explores project-management events in various kinds of technical projects. By selecting only engineering projects, the author filters the number of projects to this general criterion. Additionally, the author strengthens his research by selecting twenty-six projects to study real time. Statistically, he has selected a large enough number of projects to draw conclusions. He is consistent in his interview process for collecting data from each of the projects. He uses qualified people to conduct interviews and incorporates standard practices for the recording data from the interviews. He uses common statistical tools in analyzing the data.

However, the main weakness falls within the several iterations that was necessary to develop a pattern from the data. Either there were not enough projects selected within each category or the cross-case comparative analysis and the two-dimensional theoretical model was not appropriate for this research. Additionally, interaction of other functional activities, such as marketing, quality management, risk management, and others within the project needed to be addressed to get a thorough model of a project.

Conclusions

This research paper is one step in the direction of building a project-management theory. The paper achieved one objective of developing a conceptual model of technical projects. However, it fell short in applying the model as a framework for managing differences among various types of engineering projects. More projects within each category may be all that is necessary to draw firm conclusions. Additionally, the paper did not address the entire spectrum of events related to managing and organizing projects. Further research is needed in the case of interaction of additional contingencies in a project. More investigation in functional activities in projects such as marketing, quality management, risk management, documentation, communication channels and human resources management. Further more, not enough research was performed to validate the two-dimensional model for this research. This was evident by the number of iterations

necessary to establish patterns in the data, and the fact that the patterns did not draw definite conclusions.

References

The references used for this paper are very adequate. The author uses supporting publications in determining that technological uncertainty is related to technical innovation. This in turn is the basis for categorizing projects related to levels of uncertainty. Additionally, the author uses his references well in organizing a standard for interviewing the project teams and summarizing data from the interviews. The fact the author lists over 70 references and clearly understands their intent is an indication that he thoroughly comprehends the subject of engineering and technological project-management.

Future Work

Having studied this research paper I now have a better understanding of how complex the actual management of a project can be. Understanding how a project is categorized, I now know some of the trends to look for. For instance, many things are affected by a high technical uncertainty of a project. The extent of development and testing increases, the number of design cycles increases, the number of technical skills among the team increases, and management must increase levels of communication tolerate longer periods of unresolved specifications and be more flexible toward change when dealing with a project with high technical uncertainty. This kind of information is extremely valuable when not only participating in but also managing an engineering project. I will most definitely refer to this information as I participate and manage engineering projects during my career.

References

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