A Conceptual Framework for Project Engineering Success

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ABSTRACT

This article discusses the framework of project engineering and project management success in the new millennia. The model evolves from a project-centric view toward a contemporary, holistic, integrated collection of factors in the context of the organization, the individual and the project. The conceptual framework provides the context for future research as it describes the evolution of project success constructs from the last century to the present. The work contributes to the field by looking at the organization through the lenses of the firm's culture, its politics, and its organizational makeup. In addition, the framework presents the variable of presencing, or the ability to anticipate the future, as an item necessary in the successful project of the 21st century.

Keywords: Project Management, Culture, Politics, Leadership, Triple Constraint, and Project Success.
1. INTRODUCTION

The practitioners in the field of project engineering/project management continue to be plagued with a majority of their projects encountering failures, even as the understanding and use of project engineering management techniques increases (Johnson, [6]; Kerzner, [8]). Projects are late, over budget, or not able to meet original scope requirements. The century may be new, but the project engineering/project management song remains the same.

The Wall Street Journal [2] reported on a natural gas pipeline project, from Colorado to Ohio, which cost $6.7B, a 50% overrun of costs, affecting the return on investment. In addition, the scope has not been met; the amount of natural gas to be delivered through the pipeline appears to be less than initially estimated, due to recent discoveries of natural gas in the Northeast US (Davis, [2]). With the current worldwide recession, it appears that project management failures are on the increase. About 68% of projects are encountering some form of issue creating an unsuccessful outcome (Levison, [9]). Success in projects in the new millennium appears to be as elusive as ever.

Organizations and their employees are encountering considerable levels of change, which can be characterized as chaotic, creating a situation where the firm must learn and adapt in order to survive (Lichtenhaler, [10]). Scharmer [16] stated the need for a person to anticipate the future as it emerges, as a technique to lead the change necessary in contemporary society. Challenges to the organization requires the culture to make sense of the situation, in order to provide some shelter for the participants in this environmental storm the firm encounters (Ravasi & Schultz, [15]).

The academic and practitioner communities have attempted to understand how success is achieved within the project context. Academics have published books and papers on many project engineering and management topics, tools and techniques. Practitioners have sought to learn from published materials and associations. However, the field continues to deal with more failures than successes. Are we in the project engineering and management community missing something?

2. WHAT ARE PROJECTS?

Projects are recognized as systems, with interacting components that require attention in order to succeed (Kerzner, [8]). This thinking is a paradigm shift, moving from an analytical mechanistic approach to a holistic mode, where interacting, interdependent variables are the name of the game (Gharadejaghi, [3]). As the system increases in complexity its interdependencies increase, which describes the situation of the project manager in today's environment. Projects are more complex, interdependent, with many variables that define success.

The environment is not just the project by itself, but an endeavor within the organization, stated by Carden and Egan, [1], “Project management needs to be viewed within the context of the organization” (p. 23). Work in other fields is being reviewed and evaluated for use within the profession, such as how leadership research may be applied to the project profession (Gehring, [4]; Turner and Muller, [18]). Projects are systems that are in the social arena, thereby defining themselves as a multi-minded social model (Gharajedaghi, [3]).

Leadership research from Prabhakar [14] sought to review qualitatively, the transformational behavior of project managers as an item of project success. Neuhauser [13] found that "there are no conclusive findings on effective leadership styles in either men or women in the project environment” (p. 22). While many in the field find leadership to be a factor of success, we find the debate of leader styles, methods and interactions, continues making the topic of leadership within the project management profession an item of continued study. As leadership factors are of debate, more work in leadership as a standalone subject, and leadership pertaining to project management
will be required in order to find some agreement within the research community.  

As project managers attempt to achieve favorable outcomes in their endeavors they are required to appreciate and consider external factors that will influence or moderate their results. Perceptive managers understand that the organization will contribute, either in a positive or negative manner, to the result that is sought. How the project managers, themselves, are skilled in handling their conduct will add to the mix of items influencing the success of the project. Finally, the basic factors of the project itself will contribute to the success or failure of the tasks itemized in the plan the project manager is executing.

3. THE CONCEPTUAL FRAMEWORK

Projects now have organizational impact, to a degree that was not present in the 20th century. Companies have engaged in re-engineering projects, mergers and acquisitions, and other organizational change activities with low probabilities of success (Mourier and Smith, [12]). Project management has changed from a single project being delivered within the organization, to multiple projects running concurrently, requiring the manager to understand organizational and team dynamics (Lientz and Rea, [11]).

Project management requires an understanding of systems theory, as a number of factors interact and influence the production of the good or service that is expected from the effort (Kerzner, [8]). Systems are defined as a collection of interacting parts that together are greater than the sum of their parts (Gharajedaghi, [3]). Project managers must be systems thinkers, as “the key to success then becomes managing the interaction between the different parts and not the parts themselves” (Gray and Larson, [5]). This statement is an exemplar of the triple constraint where one needs to understand how cost, scope and schedule interact in a manner where each is modified by a change in the other parameter.

However, the triple constraint is not enough in the new millennia. Business cycles are shorter, new threats emerge unforeseen, and businesses see challengers where none previously existed. Gharajedaghi [3] discussed how systems have evolved from older mechanistic concepts to interdependent variations, now to the multi-minded social models consisting of purposefulness and change in their outcomes. Projects are reflective of this archetype, a blending of project parameters, individual and organizational behaviors and actions.

The conceptual model, Figure 1 – Conceptual Framework of Project Success, describes the changes from the interactive mode of thinking to the purposeful, actor-driven representation. The framework depicts how increased complexity of projects, increased stresses on the organization and the need for transformational change drive organizational, individual and project factors into an interrelated mix that is necessary for project management success. This mix is a change from the quantitative project management approach to an integrated holistic approach, which Kerzner [7] defined as consisting of behavioral components necessary for success in contemporary settings. Sensing the organization's factors, the project manager uses their experience and leadership skills with the project factors to produce an outcome that is desired.

The framework visually defines the evolution of the framework from the 20th century to the 21st century. Where factors once stood alone in the 20th century, today the interaction between the organizational, project and individual factors occurs to a high degree. This interaction is documented as a grey overlapping area of the three factor boundaries. The intersection of the variables describes the mixing of the factors into a “project stew” where each parameter within the factor boundary can contribute to the project result.
4. CONCLUSION

While project success factors have been studied in previous situations, this work presents a different view of the project result process. The work seeks to investigate how integrative factors combine in a manner that produces a desirable outcome. Some project work has started to look into individual factors; however, no work has sought to integrate some of the presented individual variables with the presencing variable discussed by Scharmer [16]. In addition, no work to date considers an organizational view blending culture with political and structural views presented in the work of Tichy [17].

The framework presented will be researched in a variety of methods, using quantitative and qualitative approaches, in order to determine its value for the profession. Whether or not the model proves its merit as a picture of reality, the development of a new view, with integrated variables will assist the research community in other items to consider when looking at the world of the project manager. Research findings will help the practitioner community leverage their efforts into the variables and factors that produce the greatest benefit. Future work should consider the project as a holistic system, living in the organization composed of people, guided by the leadership of a project manager.
5. REFERENCES