

The Impact of Effective Planning on Project Success – A Literature Review

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Abstract - Project planning is widely thought to be an important contributor to project success. However, does the research affirm its impact and give guidance as to how much effort should be spent planning? The literature in project management, and to a lesser extent in general management, is reviewed to find the reported link between planning and project success. Overall, the literature points to a strong link between planning and project success. A summary of the available studies shows unexpectedly consistent empirical results for the correlation of planning quality and success. The literature appears to be generally consistent showing an average value of $R^2 = .33$ correlation with efficiency and $R^2 = .34$ for overall project success. This indicates a significant impact if we compared to the reported approximate 20-33% recommended planning effort.

Keywords: Project, Planning, Success, Efficiency, Plan

1. INTRODUCTION

Traditional wisdom is that planning and analysis are important and with planning in a project, the project will be more successful. Time spent on these activities will reduce risk and increase project success. On the other hand, inadequate analysis and planning will lead to a failed project. If poor planning has led to failed projects (from large to small), then perhaps trillions of dollars have been lost. But how much is too much? "Light weight" project management techniques such as Agile are gaining popularity. Part of their ethos is that less initial planning is better and an evolutionary process is more efficient. Agile methodologies seem to imply that up front planning is not useful. There is also a phenomenon in business called analysis paralysis. This is when so much analysis takes place that no actual work is started or it is started much later than ideal.

2. Research Questions

1. This paper will review the literature written on the subject of the planning phase and its relationship to project success. The following are the research questions we will examine. 1. Is planning important for perceived project success?
2. What level of effort expended on the planning phase is most correlated with project success?
3. What level of effort spent on the planning phase is counterproductive or neutral towards project success?

3. Methods and Methodology

This paper takes a post positivist view that a relationship can be found between measures of project planning and perceived overall project success. Post-positivism falls between positivism where a completely objective solution can be found to a research question and phenomenology where all experience is subjective. Because perception and observation are at least partially based on subjective opinion, results cannot be fully objective. Some concepts such as project success may not be fully quantifiable and are impacted by subjective judgment of the participants and sponsors. Therefore the epistemology approach will be post-positivism. Post-positivism understands that though positivism cannot tell the whole truth in business research, the insights are none-the-less useful. The literature in this area is varied but not extensive so an attempt at an exhaustive review was feasible. Initial investigations involved web searches and extensive Google Scholar searches. In addition, other sources of information such as Business Sources Complete, JSTOR and Networked Digital Library of Theses and Dissertations (NDLTD) were investigated. Finally, for all reviewed literature, their references were reviewed and relevant sources added to the literature review list.

The project management body of research has been described as an immature field, which may explain the relative lack of research in this area. When the number of

studies directly studying planning effort or completeness and project success was found to be limited, the search was broadened to include literature that touched more generally on planning and success. That effort cannot be described as exhaustive, however.

Project Success

Before it is possible discuss the impact of the project planning phase on success, it is useful to define what a successful project is. "There are few topics in the field of project management that are so frequently discussed and yet so rarely agreed upon as the notion of project success". However it is worthwhile to select a reasonable definition from the literature for the purposes of comparing projects based on planning characteristics. Measuring project success is not straightforward: "Examples abound where the original objectives of the project are not met, but the client was highly satisfied. There are other examples where the initial project objectives were met, but the client was quite unhappy with the results."

Project Planning

We next need to define what is meant by project planning. The classic definition of planning is "working out in broad outline the things that need to be done and the methods for doing them to accomplish the purpose". In construction, pre-project planning is defined as the phase after business planning where a deal is initiated and prior to project execution. "The Planning Process Group consists of those processes performed to establish the total scope of the effort, define and refine the objectives, and develop the course of action required to attain those objectives." Another definition of planning is "what comes before action", Shenhar (personal communication, 2011). However, the simplest definition of the planning phase for the purposes of this paper will give the greatest flexibility and access to the widest range of literature. For the purpose of this review, we will define the planning phase as follows: Planning phase - the phases and associated effort that comes before execution in a project. and Planning effort - the amount of effort in money or work hours expended in planning Quality of planning - the quality or completeness of components of the planning phase or the phase overall.

Planning in the Construction Industry

Project management has a long history in the construction industry and there have been a number of studies in the

construction project management field on the relationship between planning and project success: this is a well-studied area in comparison to other industries or other areas in project management. It is found that an increase in pre project planning for construction projects increased the likelihood of a project meeting financial goals. The top third of projects from a planning completeness perspective had an 82% chance of meeting those goals while only 66% of projects in the lower third did (a difference of 16%). Similar results are seen for schedule and design goals. It is found in a study of program management in the construction industry that effective planning had the highest criticality index of .870 of all the Critical Success Factors (CSF) studied. Noted that research results show that effective pre project planning leads to improved performance in terms of cost, schedule, and operational characteristics.

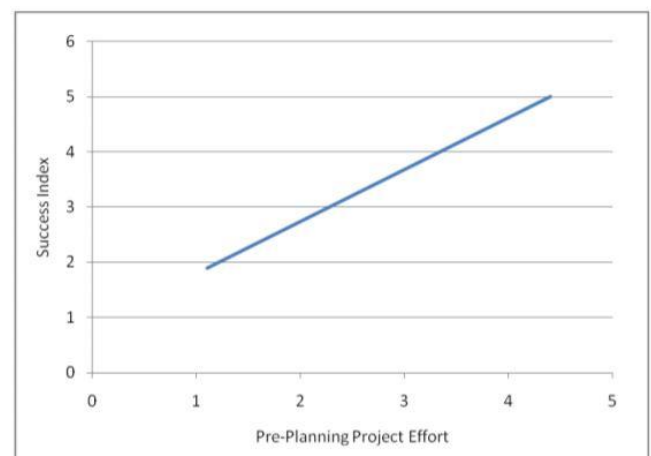


Figure 2 - Success Index vs. Preproject Planning Effort Index, after Gibson et al. (2006)

The index is established with a score ranging from one (the lowest level of preproject planning effort) to five (the highest level). Note that the relationship is linear. In the construction industry, project success is closely linked to project efficiency so this can apply to efficiency and success (Collyer et al., 2010). The index does not measure work effort just completeness.

The PDRI is a method to measure project scope definition for completeness. Developed by the Construction Industry Institute (CII) in 1996, this tool has been widely adopted by various owners and designers in the building industry, (Gibson & Gebken, 2003). It has gained acceptance in the facilities and construction industry as a measure of the quality of preproject planning. The PDRI offers a comprehensive checklist of 64 scope definition elements in a score sheet format. Undertaking no planning

correlates to a PDRI score of 1000 where a score of 200 or less is good planning, (Wang & Gibson, 2008). Gibson and Pappas (2003: 37) reported the following results showing a marked difference in empirical measurements of project success based on the project PDRI score.

Table 3 - Comparison of Projects with PDRI-Building Projects Score Above and Below 200, after Gibson and Pappas (2003)

This study found that “the PDRI score and project success were statistically related; that is, a low PDRI score (representing a better-defined project scope definition package just prior to detailed design) correlates to an increased probability for project success.” The following diagram summarizes the result of this survey and shows a clear relationship between the PDRI score and project success.

Table 4 - Comparison of Projects with PDRI-Industrial Projects Score Above and Below 200, after Gibson and Pappas (2003)

Further, they note “Indeed, due to the iterative and often chaotic nature of facilities planning, many owners face such uncertainty that they skip the entire planning process and move to project execution, or decide to delegate the preproject planning process entirely to contractors, often with disastrous results.” (41) Wang and Gibson (2008) found that preproject planning is identified as having direct impact on the project success (cost and schedule performance). The following diagram summarizes the result of this survey and shows a clear relationship between the PDRI score and project success.

This graph clearly shows a linear relationship between the quality of planning and the cost aspect of project success. In reviewing these papers in the construction field, we can note:

Conclusion 3: The level of planning completeness is positively correlated with project success in the construction industry.

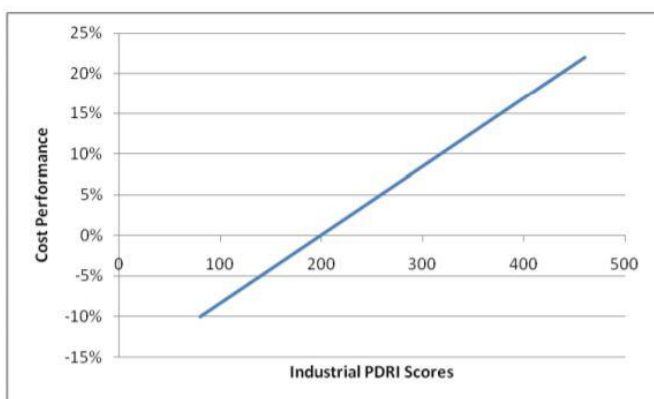


Figure 3 - Cost Performance vs. Industrial PDRI Score, after Wang and Gibson (2008)