

Factors Influence on Project Success: A Review on Theoretical and Empirical Perspectives

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ABSTRACT

Ultimate objective on any project is success. However the term success is controversial and subjective in the project context. As far as success is concerned project management has taken a centre stage as the strategy to achieve it. Therefore the success is entangled with the project management strategy each project adopt to achieve its goals. Quality, time and budget triangular relation still provides the basis for success factors even though the contemporary technical and social paradigm changes have added many new dimensions to predict success. In another dimension success can be measured from achievement such as efficiency and motivation. Coordination, monitoring and evaluation lie in another functional dimension directly impacting the management of the project. Looking at the total project from a holistic point of view scope is the key determinant to assess the success which is a cross cutting dimension. In this light it is evident that success of a project could not be merely determined in a simple linear model but requires a complex multi-faceted model that captures varied dimensions along with key success indicators.

This paper explores the success factors in project management identified in different dimensions found in research. The methodology was a systematic content analysis of existing literature. The objective of the study is not to establish concrete foundations but an attempt to classify the different success factors in different dimensions to build a conceptual framework. This integrated model termed "Diamond model of project success criterion" could provide a significant tool to study project management methodology components that could impact success factors.

Keywords : Project dimensions, Project management, Project success,

1 INTRODUCTION

Project success has become a crucial factor for every industry. Changes in the global context created such an impact on project environments that success factors have become complex and harder to achieve. These recent influences include the growing concern to ensure maximisation of the lifetime value of the project endeavour (Bonnal et al., 2002; Jaafari, 2000; Leach, 1999), the notion of the sustainable overlaying (Lidow, 1999; Saeed, 1998), the knowledge acquisition as the source of competitive advantage (Drucker, 1993; Ruggles, 1997), the importance of motivation as an input for better project execution (Graham, 1987; Steers et al., 1996), the concept of evaluation-centred project or program endeavours (Gareis and Hueman, 2000; Pellegrinelli, 2002), and the general economic turmoil in global business environment. Therefore projects are viewed as investments bringing short term, mod terms and long-term benefits to the project, users, organizations, society and environment (Wateridge, 1998; Lim and Mohamed, 1999; Turner, 2002;). Projects are also being identified as resources for learning at personal and organizational level for further development (Ays, 1996; Keegan and Turner, 2001; Lundin and Midler, 1998).

In this context project success has become such a complex phenomenon and systematic study is required to realistically understand the project success. The study explores the project success definitions and how they are outlined in project management at differing levels. r

1.1 Need for the Study

With the increasing demand for every project to succeed project managers are challenged with the necessity to improve performance. In realistic project implementation the assumption that more informed the project managers on the constituents of success factors, success indicators and success measures, better would be the outcome in achieving the targets. Hence this understanding would equip them with better control the circumstances. Despite this there is only limited prior empirical research aimed at understanding the relationship between project success factors and actual project success (Eraling et.al. 2006). In order to methodically study the project success and its relation to management of the project a broader perspective of success factors is critical. With research literature spanning across many disciplines various models have been developed to understand the typology of success measures and indicators yet a comprehensive model is required to capture various dimensions in determining success.

1.2 Methodology

The research method adopted is a content analysis through literature review while synthesising the found concepts and assembling together to produce comprehensive and more relevant concepts. At a philosophical level the methodology is based on deductive approach where arguments and concepts

gathered on project success is synthesised to build conceptual frames along the study.

However paper discusses project success at a broader level irrelevant of industry or context, which could become a valuable source for further studies by interpreting into differing disciplines and sectors. With the vast amount of research found on project success the study is limited by focusing on selected research more related to construction industry.

2 LITURATURE REVIEW

2.1 Changing Project Context

Change is a constant. Every industry should essentially adopt to transformation for their survival where projects and their management strategies is the key to retain in the competitive markets. The concept of globalization, rapid developments in communication, technological advances, sustainability aspects and financial constrains (Ozguler, 2016; Atkinson, 1999; Pinto and Slevin, 1988; Wateridge, 1998; Maltzman and Shirley, 2010; Abidin & Pasquirc , 2007) have become major concerns changing the way projects are being initiated, planned, designed and managed.

Globalization provides both opportunity and threat. To harness the advantage one need to respond to new trends and aspirations while comprehending the competitiveness. Ozguler (2016) points out the crucial necessity in every organization to update objectives and management strategies to maintain their position in the global corporate context irrelevant of their sector.

The communication sector developments have drastically changed the social relationships and how corporate world is conversing with the society. Meanwhile, (Dissanayake & Wanninayake, 2010) concluded that communication mechanism as a social factor exhibited a significance importance in improving quality of a project and all other three performance categories namely cost, service excellence and time management were equally effected by the project communication. Further stakeholders have become a significant component in project scope demanding long term strategic interventions, which could enhance and ensure the economic, social and environmental uplift of the various project stakeholders (Lim and Mohamed, 1999; Turner, 2002; Wateridge, 1998).

Organization structures are also adopting to suit modern society and new forms are emerging. New types of projects are seen by scope, function, type, organization of project teams as well as execution. Some of these new developments include growing concern to ensure maximisation of the lifetime value of the project venture (Bonnal et al., 2002; Jaafari, 2000; Leach, 1999), the growth in interest in knowledge as the source of competitive advantage (Drucker, 1993; Ruggles, 1997), the phenomenon of evaluation centred project (Gareis and Hueman, 2000; Pellegrinelli, 2002). These knowledge-based projects are uniqueness creating valuable opportunities for personal and organisational learning (Ays, 1996; Keegan and Turner, 2001; Lundin and Midler, 1998).

Financial viability has become a key in determining the project

success. Failures are critical. Project failures are estimated to cost hundreds of billions of money all around the world yearly. According to (Pinto & Mantel, 1990) these project failures are not limited to any specific region or industry.

Sustainability has taken a prominent position in every sector across the globe. Achieving predetermined set of sustainability targets has become a common and integral component in almost every project scope. Appropriate and advanced environmental strategy increases the chances of project success (Maltzman and Shirley, 2010) being a very dominant indicator of project success. Therefore project managers are willingly incorporating the concept of sustainability concerns (Abidin & Pasquirc, 2007) in every setting.

These changes in current project context are directly related to deriving project scope as a basis in systematically managing project. Author proposes global context, economical context, social context, sustainability, project context, and organization as six scope determiners that could impact both project success and management. It is evident that the complexity given by project scope with these diverse aspects requires systematic management where project management methodologies, approaches and tools are essential determinants of project success.

2.2 Project Success Concepts

Since contemporary projects are immensely concerned on achieving project success research literature are rich with varied concepts defining project success. Time, budget and quality aspects building the "iron triangle", project definitions, measuring of project success and the notion of stakeholder in project management environments are widely discussed topics in the field.

2.2.1 Iron Triangle

Time, budget and quality forming the "iron triangle" is the most widely accepted norm in defining project scope and therefore providing basis to establish project success (Atkinson, 1999). For a long time it has been assumed that a project has been successful if the project conformed within the time, cost, and quality constraints (Ika, 2009). However the contemporary project context with its complex requirements demands more detailed specific success outcomes beyond the iron triangle (Atkinson, 1999; Pinto and Slevin, 1988; Wateridge, 1998). Shenhar et al. (2001) points out that success measurement should ideally be explored go beyond the iron triangle to include project efficiency, impact on the customer, business and direct success, and preparing for the future.

In fact the "iron triangle" was widely used being the very first model of project management success (Wit, 2014), which however later considered as only forming a part of the holistic project success scenario (Radujkovic & Sjekavica, 2017).

The significance of iron triangle is to derive scope of a project for management where every aspect of the objectives given in project scope could be categorised into these broader areas of time, budget and quality.

2.2.2 Definition of Project Success

Pioneering the industry, American Project Management Institute (2013), defines project success as the completion of a project within a given scope, time, cost, quality, constraints, resources, and risks. The definition by British Association for Project Management (2006) is more refined by stating that project success is the satisfaction of the needs of the stakeholders and that project success should be measured by predetermined success criteria that have been agreed prior to the implementation of a project.

Among many others who define project and its success Baccarini (1999), provides a logical framework method as a foundation to define project success and segregating project success into two components, namely project management success and product success. Factors such as time, quality, and stakeholder satisfaction were taken as project management success components whereas meeting strategic organizational objectives, user satisfaction, profitability and market share are considered as product success components.

Cooke-Davies (2002) pointed out two distinctions – project success vs project management success, and success criteria vs success factors further advancing the concept into a broader viewpoint. Ika (2009) develop the project success definition into a hexagonal relationship pointing to time, cost, and quality, realization of strategic objectives, satisfaction of end users, and satisfaction of other stakeholders.

The basis underlining the development of definitions is that more complex criteria are being used to depict the complexity of the project objectives.

2.2.3 Review on Measuring Project Success

Research was consistently conducted to identify project success measures in diverse areas reflecting on aspects of project management. Fortune et.al. (2011) in a study have given different criterion to rate where it can be seen that the three highest scoring criteria are “meets client’s requirements”, “completed within schedule” and “completed within budget”. Looking through many recent published research (Lierni and Ribiere, 2008; Pereira et al., 2008; Raymond and Bergeron, 2008; Rosacker and Olson, 2008) provided success criteria for their respondents rate drawing upon conclusion from their own contexts. One unique research where, respondents were to select their own concepts (Murphy and Ledwith, 2007) found “meeting required quality standards” was the most important success criteria used by respondents with “meeting specification” second.

Among vast amount of research on measuring success researchers seem to reach a consensus that effectiveness and efficiency are a key in ascertaining project success (Ika, 2009). Efficiency is defined in terms of project ability to meet the objective against the least incurred cost, while effectiveness is identified as the extent to which project has met its anticipated objectives (Mohamed & Sim, 2016). However these two measures adds subjectivity to project success measurements resulting majority of studies to utilise qualitative tools.

To deviate from this vagueness in the success measures Rolstadas (2008) adopts a system categorising the measurements against three types of objectives; Project Objectives, Business objectives and social and environmental objectives. Project objectives are what the project organization is expected to deliver at the close of the project such as scope, quality, cost, and time. Business objectives are what the project owner expects to achieve by project outcome once the project is completed. Social and environmental objectives are what benefits the project offers to the local society while project is being implemented as well as being completed.

Models are also being developed to measure the success apart from traditional criteria found in many studies. PMPA-Project Management Performance Assessment and Project Excellence model are two such advanced models found to provide useful insight in to the debate of measuring project success (Westerveld, 2003).

2.3 Comparison between Project Success and Project Management Functions

The PMBOK defines a project as “a temporary endeavour undertaken to create a unique product, service or result” (PMBOK, 2013). The PMBOK further defines project management as “the application of knowledge, skills, tools and techniques to project activities to meet the project requirements” (PMBOK, 2013). Knutzon & Bitz (1999) defines project management as a set of principles, methods, tools and techniques for the effective management of objective oriented work in the context of a specific and unique organizational environment.

Project success seems to be independent from project management success. Radujkovic & Sjekavica (2017) argues that despite unsuccessful project management due to the merits of a particular project it may be designated as successful. Similarly a high performing project in terms of project management could become a failure in its function or social acceptance. However Project management functions are found to be valuable for both project and management success in determining the extent of its achievement.

Project management functions are also premised on the basis of iron triangle. For a long time it has been assumed that a project has been successful if the project conformed within the time, cost and quality constraints (Munns and Bjeirmi, 1996; Ika, 2009). This is consistent with standard project management literature, which has traditionally used time, budget and meeting end product specification as the main indicators of project success (Malach-Pines, Dvir, & Sadeh, 2009). However as discussed earlier the current project context demand more specific and advance managerial functions to achieve project goals.

Shenar et.al. (2001) describe a multidimensional concept with four successful dimensions: Project efficiency, impact on the customer, direct business and organizational success, and preparing for future. The first dimension is connected to fulfilling the project objectives (project management success), whereas the last three are connected to fulfilling different business objectives for different stakeholders (project success).

According to Radujkovic & Sjekavica (2017), elements of project management competence, consist of three dimensions; Project team competence, Project organization competence and Project methodology. They elaborate these dimensions as technical, behavioural and contextual competencies of project manager and project team members, elements of organization consisting of organizational structure, organizational culture, organizational atmosphere and organization competence while third category consists of project management methodologies, project management software, project management tools, decision making techniques, risk assessment tools and information communication technology support tools.

Further developing on this several other authors have identified similar categorization (Lipovetsky et.al. 1997; Lim & Mohamed, 1999; Zwikael & Globerson, 2006 ;) where Kerzner (2006) expanded to include customer satisfaction as the fourth dimension. Effectiveness and efficiency are two major management functions that influence the project success (Ika, 2009) could be found in both team and organizations categories.

Even though project success is rather subjective, many argues that understandings of success and success criteria should be based on a set of standards or principles (de Wit, 1988; Jugdev and Müller, 2005; Ika, 2009). Perhaps, that is why (Baker et al., 1974) affirmed the notion that project success can only be perceived and can never be absolute.

Significant contribution to management functions in the light of project success could be gathered from the findings of Ika et.al. (2012) Confirming the positive correlation of five critical success factors, monitoring, coordination, design, training, and institutional environment, and project success.

Eraling et.al. (2006) in his study found that the most important factors in improving managerial ability to deliver results in time and at cost were strong project commitment, early stakeholder influence, stakeholder endorsement of project plans and rich project communications. He further elaborates that in order to ensure successful project impact, strong project commitment and rich project communications were the main contributors. Captured experience was best supported by a well-structured and formal project approach and rich project communications (Eraling et.al. 2006). Joslin & Muller (2015) further strengthen this correlation between project management functions and project success as perceived by stakeholders.

2.4 Categorization of Project Success Factors

Along with varied definitions and interpretations for project success literature is rich with intriguing categorizations of Project success factors. They differ in terms of management approaches, management functions, skills, project objectives and stakeholder perceptions.

Many found that project success is a broader concept focusing on both project and product success (Andersen, Birchall, Jessen, & Money, 2006). Focusing on skills and achievements Pinto and Mantel (1990) identified three aspects of project performances which could benchmark project success: the implementation, the perceived value of the project, and client

satisfaction.

Strengthening this broader approach, Radujkovic & Sjekavica,(2017) presents three categories of project success factors as follows:

- Elements of project management competence
- Elements of organization
- Elements of project management methodologies, methods, tools and techniques.

Diallo and Thuillier (2004) conducting a comprehensive study across 26 countries in Africa on project success identify ten main criterions which they believe could be classified into three categories;(1) project management success which includes objectives, time and budget; (2) impact or project success which includes satisfaction of beneficiaries, impact on beneficiaries, and industrial capacity of the country; and (3) profile which includes procurements delivered as planned, national visibility of the project, project reputation among donors, and possibility of additional financing.

Exploring more modern studies the knowledge led criterions seem to impact the determination of project success as well (Fusco, 1997). The influence of multiple perceptions of stakeholders found to be strong in project contexts (Malach-Pines, Dvir, & Sadeh, 2009) also providing basis for categorisations.

2.5 Studies of Criterions

Numerous studies have been conducted to measure success criterions and rating them according to significance. Thomas and Fernandez (2008) investigated success criteria in 36 Australian companies operating in three industry sectors: finance and insurance; electricity gas and water supply; and mining. According to their findings out of the 11 criteria with an average of 5, there was a focus on "on-time" and "on-budget", and that 26 companies amounting to 72% of their sample considered company success criteria such as "delivery of benefits". They were able to summarise and compare with previous studies to state four criterions of (1) clear goals/objectives; (2) realistic schedule; (3) support from senior management; and (4) adequate funds/resources. Were held high among majority of companies participated in the research. Apart from these effective team building/motivation criterion has taken a key position deviating from the findings of previous research.

Baccarini (1999) in another study adopts a somewhat different approach and based the study on product success criterions, to curtail the impact of management but to focus on achievement in completion. His criterions included meeting the project owner's strategic organisational objectives, satisfaction of users' need, and satisfaction of stakeholders' by totally emphasising on the final product outcome.

3 DISCUSSION

It is evident that with the increase in complexity of project scope management models is being developed to underpin the requirements for successful completion. These models were developed by using; multiple levels of interferences by different stakeholders, their management strategies, and organization context.

Morris and Hough (1987) pioneered development of a comprehensive framework defining the pre-conditions outlining project success. They identified elements such as attitudes, project definition, external factors, finance, organization and contract strategy, schedule, communications and control, human qualities, and resource management to be part of the framework. One significant contribution by them is that project success constitutes both objective and subjective dimensions that must be explored appropriately in studying them. Then also argued that success can differ along the project life cycle as well as upon stakeholder perception. Drounin et al. (2013) recently conducted a similar study further confirming their early findings.

Exploring more on similar thoughts Diallo and Thuillier (2004), Khang and Moe (2008) proposed relevance of project needs, choice of the project implementing agency, and alignment (Dissanayake & Wanninayake, 2010) between stakeholder priorities and interests, as additional success criteria for achieving project success. By combining the work of Diallo and Thuillier (2004) and Khang and Moe (2008), Ika et al's. (2012) model concluded that measures of project success can be summarized under efficiency (incorporating time and cost), effectiveness (relating to objectives), relevance (for the country and beneficiaries), impact, and sustainability.

Belassi and Tukel (1996) also discuss this ambiguity and propose a framework classifying the success factors into four groups: related to project, related to project manager and team members, related to organization and related to external environmental.

The author proposes to develop a model by overlapping the four dimensional layers of success categories. Further, the development of the model was based on the scope determinants as depicted, global context, economical context, social context, sustainability, project context, and organization. Thereafter time, budget and quality triangle can be integrated into the scope to show its triangular relationship with scope in the centre. The team competence achievements of efficiency, motivation and communication were also included as a triangular relation at the same level as the iron triangle. In filling the model at next layer are the management functions impacting project success. Coordination, design, Monitoring, Training, Planning, and controlling as most dominant criterions are included at this layer. The proposed model should provide basic conceptual model that could be used to understand different project success factors in multiple layers. Whatever project success factor is concerned this model will provide a suitable category to place it and then understand where it stands.

5 CONCLUSION & FURTHER RESEARCH DIRECTIONS

Success depends on many factors that may shift from project to project and from organization to organization (Rolstadas et al., 2014). It is argued that different factors influence different projects and we must derive project-specific success factors to determine success or failure of the project (Shenar et al., 2002).

Trending along the socio-economic changes rapidly shaping the global context organizations and project teams are faced with a new challenge every day. More and more companies are using the project approach as the vehicle for creating change in pursuit of organizational goals and to affirm their competitive position (Cimil, 1997; Anderson et al., 2006; Mathur, Jugdev, & Fung, 2013). It is hard to answer the question of project management success evaluation precisely, because project management creates both tangible and intangible benefits (Ozguler, 2016).

Project success has established strong correlations with project management methodology and functions as well as stakeholder perceptions. Muller and Judgev (2012) describe project success as "predominantly in the eyes of beholder" where stakeholder's expectations and perceptions differ drastically in assessing success. From both project management and stakeholder perception delivering a project on time, within budget and achieving scope is still the most dominant success statement (Bourne & Walker, 2004).

The literature revealed that there are multiple layers of success criterions and many overlaps are ambiguity exists in categorising them. However the study took an attempt to discuss a model of project success criterion that captures the multiple layers in success factors creating an integrated platform that provide the ability to map success factors into each layer. This could further developed to provide relationships and success evaluation statements for each layer. Researcher found that Sri Lankan studies highlight people, technology and systems as key areas to be concerned in strategic deliveries whilst effectiveness of project management is claimed as a demanded area to further investigate (Dissanayake & Hamid, 2017; Dissanayake & Wanninayake, 2010). Thus, future studies may extend investigations on project management success factors considering different direct and indirect factors.

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