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Measuring Project Success: Emergence of Dimensions

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Abstract:

Though Project management emerged as a discipline by 1960 it has gained importance in industries like construction, engineering, health care, R&D etc. during the last two decades. With the increased importance of project management, the need for understanding what actually contributes to the success of projects have also increased. Over the period of time the concepts of project success have widened and many dimensions of success have emerged. Project Success is an important domain in project management. From the earlier period onwards time, cost and quality/scope have been defined as the basic criteria for measuring project success. Many studies have been conducted for addressing project success and till now there is no consensus on what actually determines project success. When the project faced time overrun, cost overrun or the outcome did not meet the requirement, the project was considered failure. But today, determining project success or failure is far more complex. Even after meeting these criteria, projects fall into failure category. This paper tries to review the available literature on project success and various arguments on success by researchers. From this paper it can be concluded that project success is a multidimensional construct with human dimension, business and market dimension along with efficiency dimension.

Keywords: Project management, project success, project efficiency, dimensions of success

1. Introduction

Though Project Management can be evidently seen even from the old age, it has gained popularity as theory in the 1960's only. The Arc of Noah, the great Egyptian Pyramid serve as examples of projects from ancient history. The use of project and project management has enabled us to achieve those objectives which could have been difficult with the traditional way of doing business. Many companies are replacing traditional line management with project management approach. This has helped those companies to excel in the area of their business.

Organizations are adopting project based approach due to the increased environmental challenges, uncertainty and complexity, increased technological innovation, knowledge management and globalization. There is an increasing demand for managing projects because companies are using projects to achieve their business objectives.

Even with the efficient use of project management approach, projects are still facing failure. The Chaos Report 2015 by Standish Group studied 50,000 projects around the world. The results summarize that 29% of the projects are successful, whereas 52% of the projects are challenged and 19% of the projects belong to failed category. The study indicates that there is still work to be done around achieving successful outcomes from software development (Hastie & Wojewoda, 2015).

The results of '2015 Project Management Insight' conducted by Amplitude Research among different industry sectors in U. S. indicated that 1/3 of the project did not complete on time and also exceeded their approved budget. They concluded that the statistics showed some notable shortcomings and there is significant room for improvement when it comes to project success.

The Global Construction Survey 2015 by KPMG also confirmed that the owners continue to experience project failure. Survey on private organizations showed that 53% suffered one or more underperforming projects in the previous year whereas for energy and natural resources and public sector respondents the figures were 71% and 90% respectively. Only 31% of all respondents' projects came within 10% of budget in the past 3 years. Only 25% of projects came within 10% of their original deadlines in the past 3 years (KPMG International, 2015).

60% of the respondents of the Project and Program Management Survey 2015 by KPMG claim that the importance of projects for realizing their strategic and operative goals has increased since last year. At the same time, the actual success rate of projects does not meet desired levels. When asked about how many of the projects delivered on time, with expected quality and realized benefits, only 8% of the respondents stated that most of their projects fulfilled these criteria. Approximately 31% estimated that 50-75% of their projects achieved these criteria, while the majority of the respondents completed only less than half of their projects as planned

(KPMG, 2015). These results are similar to the survey report by KPMG 2007. The number of projects which deliver in terms of quality, time and within budget is low even though the potential for increasing success rates is high.

Most of these survey reports project success based on cost, time and specification criteria. When project faced time overrun, budget overrun or the outcome did not meet the requirement, the project was considered failure. This whole analysis was simple. But today determining project success or failure is far more complex. Even after facing delays and overruns, many projects fall into the success category. The distinction between project success and project management success was clearly advocated by Baccarini in 1999. Parfitt and Sanvido (1993) consider success as an intangible perceptive feeling, which varies with different person. They defined project success as the overall achievement of project goals and expectations which is related to a variety of elements including technical, financial, educational, social, and professional issues.

Success of a project may not be the same always. Different stakeholder view success differently. This is because each project has its own unique features, different working environment and project organization. Many studies have been conducted for addressing project success and till now there is no consensus on what actually is a successful project.

Consider the Sydney Opera House which took 15 years to build and 14 times over budget. Even then, it stands as an engineering master piece. Can we call it as a case of failure? This observation shows that time, cost and scope/quality alone cannot determine success. There are some other criteria which should be considered along with these three criteria. What exactly are those criteria which can determine the project success?

The aim of this paper is to discuss the various approaches developed by researchers on project success. Keeping in view the lack of agreement in determining project success, various concepts related to project success is discussed in this paper.

2. Project Success and Project Management Success

Before analyzing various dimensions of success it is necessary to understand the difference between project success and project management success. Many researchers have put in great effort to provide a distinction between these concepts. A clear distinction between project success and project management success was given by De wit (1988). Project success is measured against the overall objectives of the project and project management success is measured against the widespread and traditional measures of performance against cost, time and quality. Project management success focused on management process. Collins and Baccarini (2004) suggest that success parameters should be project's management success and project's product success. Westhuizen & Fitzgerald (2005) also describe project success as a system of two components, but they argue that success is based on project management success and project's product success.

Evaluating project success should include process criteria as well as outcome criteria (Nelson R., 2005). According to Nelson (2005) time, cost and product (product of acceptable quality and met other product related specifications, including requirements, usability, ease of use, modifiability and maintainability) defined process criteria, whereas Use, Learning and Value defined outcome criteria. Projects which satisfied only process criteria were called as failed success and those satisfied outcome criteria were called as successful failures.

2.1. Project Management Success

The project management success focuses on project process and mainly the successful accomplishment of time, cost and quality (Baccarini, 1999). In traditional method, project success or failure was limited to time, cost and scope which forms the Golden triangle or the Iron triangle. It is also called as the Project constraint (Brewer & Ditman, 2010; Brown & Hyder, 2010). Every project is governed by the triple constraint (PMBOK, 2004). The time constraint refers to the amount of time available to complete a project. The cost constraint refers to the budgeted amount available for the project. The scope constraint refers to what must be done to produce the project's end result. Simple metrics of time, cost and quality was used to rate project because they were easy to use and within the realm of the project organization. The triangle of time, cost, and performance bounds the universe within which every project must be accomplished (Dobson, 2006). The project is declared success when it is completed on time, within budget and the scope requirements are met. This method of determining success provides operational value but lacks strategic value.

Thus, Time, Cost and Quality/scope as the basic foundation of success was advocated by researchers like Navarre & Schaan (1990), Belassi & Tukel (1996), Hatush & Skitmore (1997), Lim and Mohamad (1999), Atkinson (1999), Baccarini (1999), Al-Tmeemy et al. (2010). Among project managers there is general perception that the project success is based on this concept alone (Shenhar & Dvir, 2007). Cleland and Ireland (2002) suggested that the success can be viewed as the degree to which technical performance objectives were attained. Iron Triangle sets a clear benchmark for measuring project success or failure (Lock, 2007). Deviation from or supplement to this criterion is often considered a problem which is to be corrected or treated immediately (Shenhar & Dvir, 2007; Turner et al., 2010). A classical interpretation of the triple constraint focusing on cost, time and scope was given by Wyangard et al in 2012. They developed the TRIJECT (TRIPLE constraint projEct Management Model. Time, cost and scope and balance between these competing goals should be considered to create successful projects (Schwalbe, 2007).

The project managers were competing to get the project done, making sure it worked and getting it out the door (Jugdev, 2005). More emphasis was given on determining why projects failed or succeeded by focusing primarily on schedule and the three aspects-time cost and quality (Pinto & Slevin, 1988). Iron triangle is now considered as measure of efficiency rather than considering it as the sole measure of project success (Ebessen and Hope 2013). The criteria of project cost, project time, and project quality may be considered as project management internal measures of efficiency. Combining these three measures into one measure namely the project management internal efficiency will represent an overall estimate of how well the project was managed and executed (Dweiri, 2005).

2.2. Project Management Success: Limitations

When project management success alone is considered for assessing success it can narrow the focus of success away from other critical criteria. Furthermore, projects which are delivered on time, within budget and meet scope specifications may not necessarily be perceived to be successful by key stakeholders (Shenhar & Dvir, 2007; Turner and Bredillet, 2009).

It sometimes happens that we deliver a beautifully crafted product, system or device which meets all of the stated requirements, but which somehow ends up not being used the way it was intended, if at all. In such a case how the project can be considered as a success? For the project team (or supplier) this could be seen as a successful delivery as the product met the customer's stated requirements, but for the customer it is a failure because it didn't produce any benefits. It did not add any value.

This provoked most of the researchers to come up with various dimensions (both external and internal) to ascertain success of a project. The cost, time and quality as a tool lead to poor decision making and ignores significant opportunity costs. It does not represent a true relationship since time is a dimension of cost and a relative metric (Baratta, 2006).

Atkinson (1999) argued that time and cost serve as two best guess of project success and quality is a phenomenon, but it is time to accept other success criteria. Baccarini (1999) and Schwalbe (2009) suggested that Iron triangle is not sufficient quality of the project management process and satisfaction of the stakeholder expectation also should be considered.

Research by Millis (2008) indicated that the impact of the cost, time and quality on the judgement of success is rather small. Other criteria such as user happiness and financial or commercial success are far more important (Miller, 2008). Also Turner (1993) states that the time, cost and specification influence the benefits of the project management and therefore management is interested in the triple constraints, but only to the extent in which they contribute to the expected gains. According to Mir et al. (2013) Project management success in actual project settings is actually least significant compared to other factors like Impact on Customer and Financial Success, Impact on Project Team and Impact on Long Term Benefits. Other factors when compared to project management success are more important for organizational success because it is understandable that if financial success is achieved, customer and project team members are likely to be satisfied and achieve long-term benefits. Thus, over the long run, whether the schedule, budget and timelines were met exactly or not or if the project was executed in the most efficient manner becomes insignificant. The study conducted by Serrador and Turner (2015) revealed that that project management success (focus on the iron triangle) is 60 percent correlated with overall project success and thereby concluded that there are other factors that contribute significantly to the success.

3. A New Model towards Measuring Success

The realization that projects still failed even after satisfying the triple criteria evoked researchers to investigate in depth about success. Many researchers argued that along with time, cost and quality many other criteria also should be considered to determine success or failure of a project (Baccarini, 1999; Atkinson, 1999; Miller, 2008; Schwalbe, 2009). This argument led to the inclusion of criteria such as stakeholder satisfaction, increase in market share, business benefits etc. as measures of project success.

3.1. Stakeholder Dimension of Project Success

Recent studies show that now the focus of measuring success is from different perspectives (Atkinson, 1999; Gemunden, 2015; Turner and Zolin, 2012). Things have evolved and widened approaches to project management have appeared. These approaches led to refocusing the goals of project management to make them customer and stakeholder based, whether or not these groups of actors happen to be internal or external to the company.

Stakeholder perspective should be considered to assess the project success. Recent study by the Standish group indicates that more project failures can be attributed to stakeholder mismanagement. Effective communication with the stakeholders and proper user involvement can increase the pace of project success.

Pinto (1991) advocated that in addition to the Iron Triangle measures, project success should include the psychosocial outcomes which refer to the satisfactions of interpersonal relations with project team members. Van der Westhuizen & Fitzgerald (2005) also argued that the traditional view of success should be expanded by new elements –like quality of project management process and satisfaction of stakeholders' needs.

The most important stakeholder is the customer (Williams et al, 2015). Since the project is being created for the customer, the customer feel towards the project is important. The predominant researchers who suggested customer satisfaction as the predominant measure of success include Davis, 2014; Dvir et al., 2003; Ireland, 1992; Serrador and Turner, 2015. For companies, customer satisfaction is an effective way to differentiate themselves from the competitors as well as one of the key issues in their efforts towards improving quality. Shenhar (1997) placed Customer satisfaction as the most important criterion for overall project success. This same thing was argued by Chan & Chan (2004) and Sanvido (1992). Wuellner (1990) also suggested satisfaction as a success measure.

Different stakeholders perceive success differently. From the management perspective the project may be a success but when actually put in to use the users may find the project as an ultimate failure. This led to a new trend that is involving the customer in the project from the initial stage to the handover phase. Dov Dvir (2005) concluded in his study that Customer participation in the development process and final user preparations have the highest impact on project success. He also found that Customer satisfaction in development process is highly correlated with the project efficiency and final user preparations are highly correlated with the customer benefits.

One of the four dimension of success developed in defence industry by Liptovesky et al (1997) is customer benefits (the other three dimension is meeting design and planning goals; benefit to the developing organisation; and benefit to the defence and national infrastructure). Macro level of success by Lim and Muhammad (1999) determines project success from the view point of the end users and the stakeholders. This view point involved longer range perspective of product use to measure customer satisfaction.

Atkinson (1999) in his paper provided new frame work known as the Square Route included Benefiting stakeholder community (satisfied users, social and environmental impact, personal development, professional learning, contractors profits, capital suppliers, content project team, economic impact to surrounding community) for assessing the success. During the early stages of their research Turner and Müller (2006) found out that the measure of success was inadequate and they extended the list of success criteria to include some measures of performance. They identified nine success criteria: Meeting project's overall performance (functionality, budget and timing), Meeting user requirements, Meeting the project's purpose, Client satisfaction with the project results, Reoccurring business with the client, End-user satisfaction with the project's product or service, Suppliers' satisfaction, Project team's satisfaction, Other stakeholders' satisfaction. Iyer and Jha (2007) distinguished success criteria as either objective or subjective. Since time, cost and quality are tangible and measurable they are considered to be objective evaluation criteria. On the other hand, many newly proposed success criteria such as customer satisfaction or sustainability are considered subjective and intangible.

3.2. Business/ Market Dimension of Project Success

The emergence of business or market dimension of success was due to the increased impact of the project on the parent organization. This failure or success of the project can be sufficient enough to decide whether the organization will continue its operation in the business environment. Shenhar et al. (2001) argued that project success is a multi-dimensional concept, and it cannot be assessed on a single- or even two-dimensional measure. They came up with four dimensions (Project Efficiency, Impact on Customer, Business Success and Preparing for the Future) of project success which was time depended. Project efficiency and Impact on customer were in line with the previous studies. Business success is measured after as significant level of sales has been achieved. Finally, the fourth dimension can only be assessed 3- 5 years after project completion. It is a long term measure emphasizing on organizational and technological benefits. Stefanovis (2007) concluded that team effectiveness should be included with the dimensions developed by Shenhar et al. One of the dimensions of The Square Route developed by Atkinson (1999) was Benefits to the organization which included improved efficiency, improved effectiveness, increased profits, strategic goals and organizational learning. This showed the long term impact of the project.

Blindenbach-Driessen (2006) has carried out a study to evaluate the performance of development projects. The study concluded two dimensions Project success (which related to the development process of new products and services) and Market success (which covered the commercial outcome of a development project). The proposed model was comprehensive but however researcher failed to distinguish between project success and project management success.

This limitation was corrected in the study conducted by Al Tmeemy et al (2010). The study contributed significantly to project management giving three dimension of project success: Project Management success (adherence to quality targets, schedule, and budget) Product Success (customer satisfaction functional requirement, technical specification) and Market success (Revenue and profit, market share, reputation, and competitive advantage).

Manana et al (2011) proposed a model which contained Social benefit success (Empowerment benefit, job creation and skill training) along with the model developed by Al Tmeemy (2010). It was recommended to include three additional indicators for project success in the South African context: empowerment benefit, job creation and skills training. These success criteria are associated to social benefits that the projects bring to the society.

4. Conclusion

Success is an important domain in project management. It is always debatable topic. From the earlier time onwards time, cost and quality/ scope have been defined as the basic criteria of measuring project success. The inadequacy of this criterion led to emergence of human dimension and benefit to the company as well as community.

Many researchers have come up with different approaches to measure success but what is required is an integrated model for measuring and achieving project success. More addition was made to the project success criteria. Customer satisfaction has emerged as an important aspect along with the Iron Triangle. Success remains different from different stakeholder's perspective. Large number of studies has already been conducted in assessing the project success.

This study concluded that determining project success is not that simple as it sounds. The short term and long term outcomes of project should be considered. The inclusion project efficiency dimension (which is same as the Iron Triangle), stakeholder dimension (includes satisfaction of all the stakeholders) and business or market dimension (includes criteria like Revenue and profit, market share, reputation, and competitive advantage, lessons learned, etc.) can provide a holistic measure of success.

More studies should be conducted on the outcome side of project success. Ultimately how project success can contribute to the competitive advantage of the organizations should be assessed, thus helping them to achieve personal and organizational growth. More focus should be given on developing industry specific integrated models of project success.

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