

DOES SUCCESSFUL PROJECT MANAGEMENT EQUATES TO PROJECT SUCCESS?

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ABSTRACT: There have been many studies on the subject of project management and project success. Early studies in the mid 1900s linked project management and project success to the triple objectives of Time, Cost & Quality. As such it was concluded that, project management techniques have a significant impact on project success. Subsequently, by the turn of the century, it was pointed out that project management literature often confusingly equate project management success to project success as studies indicate that there are other dimensions to project success namely policy & strategy, team & leadership, stakeholder management, communication, financial resources, learning from experience, contracting, external environment, performance measurement baseline, innovation and contractor's competence. Further researchers pointed out that there are two separate components of project success i.e. success criteria and success factors. This study conducted literature reviews in an attempt to list the variables to project success and a preliminary study was then carried out to identify the critical factors for project success.

Keywords: Project Management and Project Success

1. PROJECT MANAGEMENT

Project management has been practiced for thousands of years since King Cheops built the pyramid, but it was only in the 1950s that organizations start applying systematic project management tools and techniques to complex projects (Kwak Y.H, 2003). He summarizes four distinctive periods in the development of project management as shown in Table 1

Table 1: History of Project Management

	Technology	Management Science	Project Management & Technology	Major Projects	Project Office
~ 1958	- Telegraph - Telephone - First computer - Automobile - Airplane - First database	- Adam Smith - Frederick W. Taylor - Henry Fayor - Henry Gantt - A McGregor's XY theory	- Parametric - Cost Estimating - PERT/CPM - Gantt Chart - Monte Carlo Simulation - Systematic Application	- Inter Continental railroads - Hoover Dam - Polaris - Manhattan project - Panama Canal	- Focal point - "proximity" - Traditional project office functions - Navy Special Project Office (SPO)
1959 ~ 1979	- IBM 7090 - Xerox copier - UNIX - Microsoft Founded	- ISO - Total Quality Management - Globalization - Quality Management	- PMI - Inventory Control - Material requirement planning	- Apollo 11 - ARPANET	- Project Supporting Office
1980 ~ 1994	- Personal Computer - Wireless in-building network - First Internet browser (MOSAIC)	- Manufacturing resource planning - Risk Management	- Matrix organization - PM Software for PC	- Boeing 777 - Space Shuttle Challenger - The English-France Channel project	- Project Headquarter - War Room
1995 ~ Current	- Internet	- Critical chain - Enterprise Resource Planning	- PMBOK (PMI)	- Iridium - Y2K project	- Virtual Project Office - Web-base Project Office

Several authors disagree as to when exactly modern project management takes form and its raison d'être. Kwak Y.H (2003) suggests that the origin of the modern project management concept started between 1900s and 1950s. He notes that some literatures point to Henri Fayol's (1916) five functions of a manager i.e. to plan, organize, coordinate, control and direct, as the origin of modern project management. And others to Frederick Taylor (1856-1915), known in the history of management as "the father of scientific management". Soderlund J (2004) suggests that some project management literatures give the credit to Henry Gantt (1861 - 1919) as the father of modern project management due to his Gantt chart which becomes a standard model in project management practice. According to Snyder and Kline (1987), modern project management era only started in 1958 with the development of CPM/PERT and Morris (1987) concludes that the origin of modern project management comes from the chemical industry just prior to World War II.

Soderlund J (2004) concludes that there exist two main theoretical roots in the development of project management as it is today. The first theoretical root is developed through the engineering science and applied mathematics, with a focus and interest on planning techniques and methods of project management namely Gantt Chart, CPM and PERT and other scheduling techniques. The second theoretical root where project management evolved from hard skill to soft skill is the social sciences such as sociology, organization theory and psychology with a focus and interest on organizational and behavioral aspects of project organization. The 1980's witnesses the evolvement of project management towards human aspects and organization.

Toney Sisk (2001) observes that project management, in its modern form, began to take root only a few decades ago. He put down the early 1960s as the time where businesses and other organizations began to see the benefit of organizing work around projects and to understand the critical need to communicate and integrate work across multiple departments and professions. In the 1950's and 1960's project management techniques initiated by the U.S defense and aerospace sector became a core competency for most industries (Morris P.W.G, 2001). According to Cleland and Ireland, 2002 (as cited by Jugdev K 2004) all around the world firms began to realize the importance of project management to complete their projects in an efficient and effective approach.

1.1 Definition of Project Management

Since the 1950s, there have been many attempts to define project management. According to Kerzner (1989), project management has been traditionally described as managing or controlling company resources on a given activity, within time, within cost and within performance. These three factors are the major constraints for the project management and usually there exist tradeoffs among them. Soderland J (2004) in his article gives credit to Gaddis P.O (1959) as amongst the first author to attempt to define project management through the definition of project. Gaddis P.O (1959) defines a project as "an organization unit dedicated to the attainment of a goal - generally the successful completion of a developmental product on time, within budget, and in conformance with pre-determined performance specifications".

Atkinson R (1999) highlights two views by various authors in defining project management. The first view link what he terms as "The Iron Triangle" of Cost, Time and Quality as in Figure 1; and the other view define project management based only on its process.

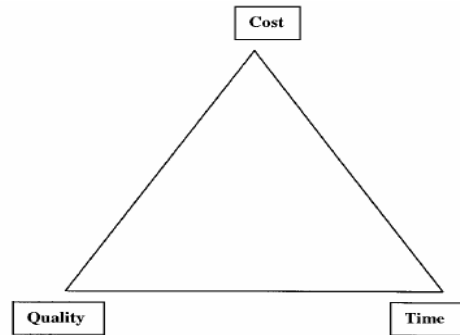


Figure 1: The Iron Triangle (Source: Atkinson R. 1999)

Atkinson R (1999) cites Oisen R.P (1971) who makes reference to the views from the 1950's, defines Project Management as the application of a collection of tools and techniques (such as the Critical Path Method and matrix organisation) in utilizing the resources to accomplish (from conception to completion) a unique, complex, one-time task within time, cost and quality constraints. The British Standard for project management BS6079 (1996) defines project management as "The planning, monitoring and control of all aspects of a project and the motivation of all those involved in it to achieve the project objectives on time and to the specified cost, quality and performance". The UK Association of Project Management (APM) also provides a similar definition for project management as "The planning, organisation, monitoring and control of all aspects of a project and the motivation of all involved to achieve the project objectives safely and within agreed time, cost and performance criteria." It goes on to add that the single point responsibility to ensure these requirements is met fall on the shoulder of the project manager. Atkinson R (1999) notes that while there may be differences in their suggestions on the definitions of project management, these authors are similar in the inclusion for the achievement or accomplishment of the project objectives of Cost, Time and Quality in their definitions.

The second view as highlighted by Atkinson R (1999) does not include the objectives of Cost, Time and Quality. According to Reiss B. (1993) a simple description is not possible but suggests project management as a combination of management and planning and the management of change to accomplish a project. Lock D (1994) notes that project management had evolved in order to plan, coordinate and control the complex and diverse activities of modern industrial and commercial projects, while Burke R (1993) considers project management to be a specialised management technique, to plan and control projects under a strong single point of responsibility. Turner J.R (1996) further suggests that project management could be described as the art and science of converting vision into reality.

Definition of Project Management is further suggested by other authors. Walker A (1984) defines construction project management as the planning, control and co-ordination of a project from conception to completion (including commissioning) on behalf of a client. Munns A.K and Bjeirmi B.F (1996) postulate project management as the process of controlling the achievement of the project objectives. It utilizes the existing organizational structures and resources and manages the project by applying relevant tools and techniques, without adversely disturbing the routine operation of the company.

A Guide to the Project Management Body of Knowledge (PMBOK, 2000) concludes that the definition of project management as “the application of knowledge, skills, tools and techniques to project activities to meet project requirements”. It also describes project management as an organizational approach to the management of ongoing operation.

1.2 The role of Project Management in achieving project success

Munns A.K and Bjeirmi B.F (1996) observe that over the last 30 years, project management has been recognized as an efficient tool to handle projects. The role of project management is to define the requirements of the work, establish extent of the work, allocate the resources required, plan and execute the work, monitor progress and adjust deviations. It is concerned with identification of the client’s objectives in terms of utility, function, quality, time and cost, and the establishment of relationships between resources. Walker A (1984) concludes that project management is essential to the outcome of the project because it is the “integration, monitoring and control of contributors to the project and their output, and the evaluation and selection of alternatives in pursuit of the client’s satisfaction”.

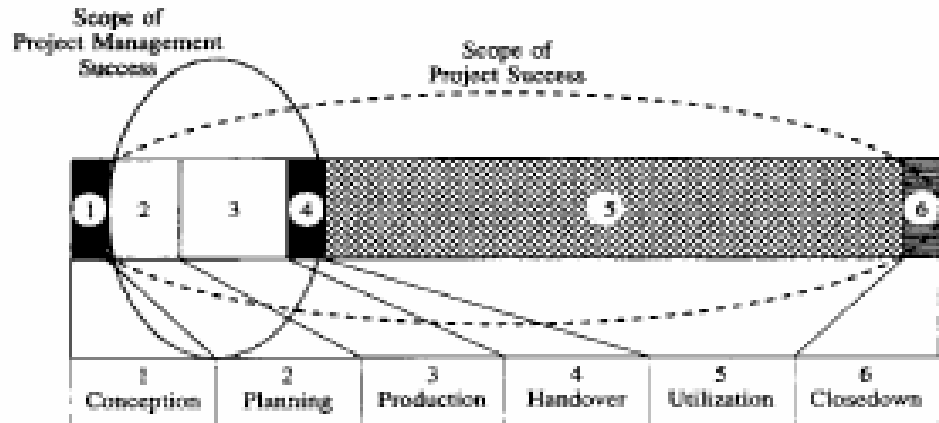
PMI (2000) states that project management is accomplished through the use of the processes such as: initiating, planning, executing, controlling and closing. It goes on to describe the project team manages the work of the projects, and the work typically involves competing demands for scope, time, cost, risk and quality, stakeholders with differing needs and expectations and identified requirements.

According to Soderlund J (2004) project management is seen to be the tool or method or technique to solve complex organizational problems. In a study by Cook R (2004), he concludes that the rate of success across three areas namely performance, presence indices and financial returns increases with the use of project management practices. The result of the survey he conducted in his study leads him to believe that the adoption of project management practices has a positive impact on project success.

1.3 Project Management success and Project success

De Wit A (1988) seems to be among the first to note that there is a difference between project success and project management success and a distinction should be made between these two. This is important because successful project management techniques will contribute to the achievement of projects but project management will not stop a project from failing to succeed.

Munns A.K and Bjeirmi B.F agree and illustrate this distinction as shown in Figure 2. The project management team will be focused on the narrow task of successfully reaching the end of stage 4 at which point they will terminate their involvement and progress to the next project whereas the client is interested in stages 1–6. Munns A.K and Bjeirmi B.F (1996) postulates that the scope of project management success is until stage 4 and the scope of project success is until stage 6.



(Source: Munns A.K and Bjierni B.F 1996)

Figure 2: The scope of success within the project life cycle

Baccarini (1999) points out that project management literature often confusingly intertwine two separate dimensions of project success – product success and project management success. Product success deals with the effects of the project's final product namely project goals, project purpose and satisfaction of stakeholders' needs. Project management success focuses upon the successful accomplishment of cost, time and quality objectives.

2. PROJECT SUCCESS

2.1 Definition of Project Success

It seems that the definition of project success is quite illusive. Numerous authors have researched the subject on project success but the concept of project success remained ambiguously defined. According to Shenhar, Andrew J, Levy, Ofer and Dov D (1997) project success is probably the most frequently discussed topic in the field of project management, yet it is the least agreed upon even though it was for more than two decades, researchers have labored to identify managerial variables critical to success. Others have expressed a similar view. Liu and Walker (1998) notes that project success is a topic that is frequently discussed and yet rarely agreed upon and Wateridge (1998) states that very few people in the past have thought seriously about project success. According to Liu A.M.M (2005) it is a concept which can mean so much to so many different people because of varying perceptions.

Baccarini D (1999) concludes that literatures on project management provide no consistent interpretation of the term "project success". He summarized literatures from McCoy (1986) and Wells (1998). McCoy (1986) observes that a standardized definition of project success does not exist nor an accepted methodology of measuring it and Wells (1998) also observes that there is a lack of attention given to defining success except in quite general terms.

Apparently determining whether a project is a success or a failure is far more complex. There can be ambiguity in determining and measuring the success or failure of a project. Delays in completion of projects are common but yet these projects could still be considered successful. The KL International Airport project

constructed in 1993 and completed in 1997 had been cited as a success in the Malaysian construction industry but it is several months delayed with millions of contractual claims pending. On the other hand a project that is perceived as a success by a project manager and team members might be perceived as a failure by the client. Lim C.S and Mohamed M.Z (1999) cite an example of a development for a shopping complex in Kuala Lumpur in 1994. The completion was delayed by three months with an additional cost of approximately half the contract sum which includes contractual claims from the contractor. As for the shopping complex, since opening it has proven to be very popular with tenants and shoppers. Both the developer and contractor suffered losses and from their respective perspectives the project has failed. However, the perception of the overall project by the users and stakeholders is very different in that the project is a big success.

According to Liu and Walker (1998) the concept of a project success can mean so much to so many different people because of varying perceptions and leads to disagreements about whether a project is successful or not. Shenhar A.J et al (2002) agree that there is no conclusive evidence or common agreement that has been achieved so far to determine whether the project is a success or failure. Due to the ambiguity Baker B.N, Murphy D.C and Fisher D (1988) suggest the term “perceived success of a project”. Stuckenbruck (as cited in Atkinson R, 1999) points out that project success depends on who ask the question and who decide on the criteria of project success and according to De Witt (1988) a project can be a success for one party and a failure for another.

Pinto J.K and Slevin D.P (1988) offer two main reasons for the ambiguity: First, it is still not clear how to measure project success because the parties who are involved in projects perceive project success or failure differently and thus they value the outcome differently. Second is that lists of success or failure factors vary in various studies in the literature. Many of these factors do not, in practice, directly affect project success or failure. Usually a combination of many factors, at different stages of project life cycle results in project success or failure. Shenhar A.J et al (2002) suggest three reasons for the ambiguity namely due to the universalistic approach used in most project management studies that all projects assumed to be similar, the subjectiveness of the success measures and the limited number of managerial variables examined by previous researches. Munns A.K and Bjeirmi B.F (1996) further postulate that this ambiguity will continue to exist if distinction is not established between project success and project management success. Project success tend to be long-term nature oriented towards the expected total life span of the completed projects while in contrast, project management success is oriented towards planning and control in the context of the short-term life of the project development and delivery.

2.2 Components of Project Success

Historically, studies on project success started in the mid 1900's and its attributes is being equated to Cost, Time and Quality. For over 50 years, project success has become inextricably linked with the Iron Triangle of Cost, Time and Quality (Atkinson, 1999, De Wit A, 1988). According to Henrie M and Sousa-Poza A (2005), for those 50 years, projects have continued to fail in their efforts to achieve the Iron Triangle. Belassi W and Tukel O.I (1996) observe that since the 1950's it was assumed that the development of better scheduling techniques would result in better management and thus successful completion of projects. Morris P.W.G (2001) concurs that the traditional view for project success is to deliver projects on time, in budget and to scope. These authors agree that most of the early studies assumed that if project completion time exceeded its due date, or expenses overran budget or

outcomes did not satisfy a predetermined performance criteria the project was assumed to be a failure.

In the 60's and 70's the outlook regarding the components of project success began to expand beyond the time, cost and quality attributes. Liu A.M.M (2005) subsequently observes that studies by Harrel (1964) and Rockart (1979) began to focus on management methodology in organizations and how they can be applied and reproduced to ensure success in subsequent projects. Avots I (1969) conducts a theoretical study and notes that project management techniques, which has been the predominant operational technique in the aerospace industry, is able to contribute to project success. He reflects that companies that have used these project management techniques successfully may have a competitive advantage over others. Hayfield 1979 (as cited in De Wit A 1988), claims project management techniques and control determine project success.

Then in the 1980s until late 1990s, further studies begun to research deeper in defining project success, where it was concluded that apart from the iron triangle of time, cost and quality, and project management techniques, other dimensions affect the success or failure of a project. Several authors began to link project success to stakeholders. Cherns A.B and Bryant D.T (1984) point out that, researchers inclined to oversimplify the client's role. Pinto et al (1988) advocate project success not only evolves from technically correct project but also effectively interfacing with clients and stakeholders. According to Cleveland D.I 1985 (as cited in De Wit A, 1988) apart from client and contractor, other stakeholders may affect the outcome of the project. Truman (1986) points out that the terms of cost, schedule and technical objectives is an outdated belief as there the need, concerns and issues from the diverse mix of the project stakeholders.

Other researchers echo the same sentiment. De Wit A (1988) concludes that it also includes the objectives of all stakeholders of the project. Belout (1998) notes that the attributes of project success is in achieving the project objectives measured through the level of satisfaction expressed by the stakeholders. Lim C.S and Mohamed M.Z (1999) agree that project success criteria differ according to different perspectives of the stakeholders. The PMI Guide (2000) states that to ensure project success, stakeholders should be identified and their needs and expectations are determined, influenced and managed. Van Aken (1996) agrees and defines project success as "The satisfaction of all stakeholders". Globerson S and Zwikael O (2002) states that project success also include ensuring that the stakeholders are happy. Kerzner H (2003) used the term to meet customer expectations.

De Wit a (1988) constructed a project success framework that takes into consideration the stakeholders, project objectives and project management as shown in Figure 3. He propagates that there are two components to project success namely the criteria for success and the manner in which these objectives are met and concludes that "The degree to which these objectives have been met determines the success or failure of a project".

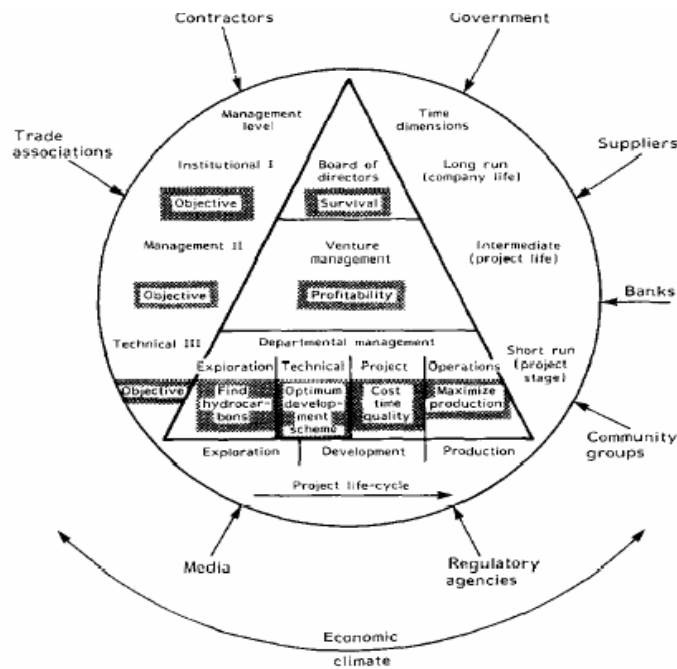


Figure 3: Project Success Framework (Source: De Wit A 1988)

Subsequently by late 1990's and the turn of the century, researches began to differentiate between the variables affecting project success. Although De Wit A (1988) seems to be amongst the earliest to propagate this concept, it was Turner J.R (1994) and Wateridge (1995) who expresses in detail these two different components of project success. Wateridge (1995) concludes that for projects to be implemented successfully, the two components of project success must be clearly defined, agreed and progressively reviewed by all parties. These two components are the project success criteria relating to users and sponsors and the project success factors that are required to deliver those success criteria.

However, according to Lim C.S and Mohamed M.Z (1999) some project management literatures confusingly use the term success criteria and success factors as though these variables are one and the same or synonymous. In stressing the difference between success criteria and success factors, Lim C.S et al (1999) define success criteria as the set of principles or standards by which judgment is made and success factors as the set of circumstances, facts or influences which contribute to the result. The criteria are the conditions by which judgment are made on whether the project is successful or not while the factors contribute to the achievement of the success criteria and are the influential forces which either facilitate or impede project success. The success factors do not form the basis of judgment.

Cooke-Davies T (2002) emphasize the importance of distinguishing between the two components of project success namely the success criteria which is the benchmark to measure or judge success or failure and success factors which are the management inputs and systems that would lead to project success.

Westerveld E (2003) is simpler in his identification of the two components of project success terming them as the "What" and the "How". He postulates that for a project to be successful it has to identify and focus on: firstly the result areas that is the success criteria which he terms it as the "What" and secondly, the organizational areas that is the success factors which he terms it as the "How". Graphically this is shown in Figure 4.

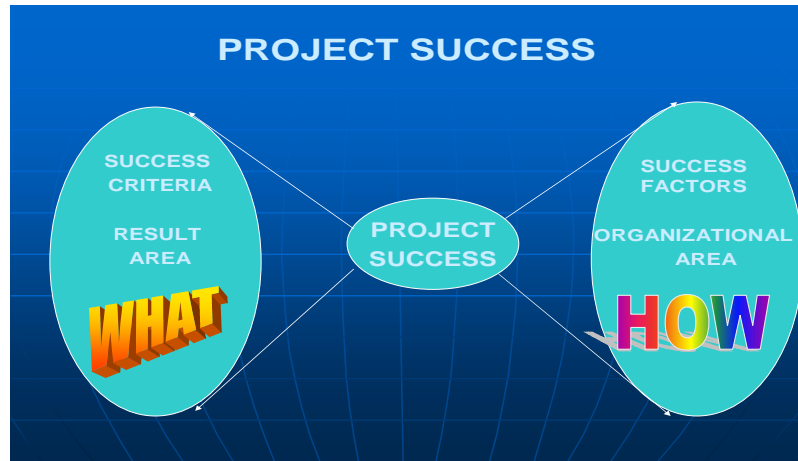


Figure 4: The “WHAT” and the “HOW” in Project Success

Westerveld E (2003) construct a model that link all the variables of project success which he demarcate as success criteria and success factors in one coherent model which he called the Project Excellence Model as shown in Figure 5. The model consists of six result areas covering project success criteria and six organizational areas covering critical success factors. The project excellence model shows the broad and narrow perception of project success criteria (Result areas) and critical success factors (Organizational areas). The model shows that the narrow concept of project success criteria being the triple objective of time, cost and quality could be achieve by the narrow concept of critical factors of project management which only encompass scheduling, budget, organization, information, risk and quality. The model attempts to show that both the broad and narrow concept of success criteria could only be achieve if the critical success factors also include leadership & team, policy and strategy, stakeholder management, resources and contracting.

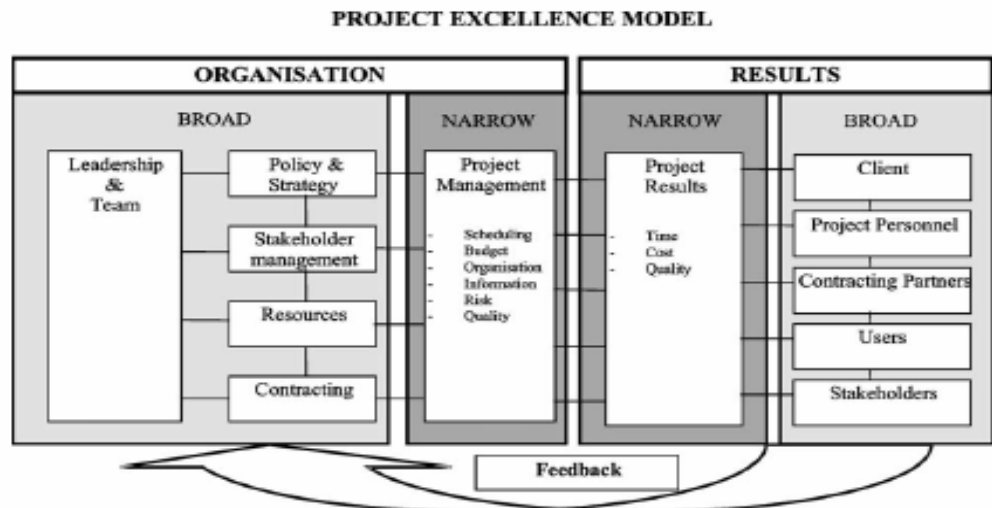


Figure 5: Project Excellence Model (Source: Westerveld E, 2003)

3. SUCCESS CRITERIA (WHAT) AND SUCCESS FACTORS (HOW)

Success criteria relate to users and sponsors (Wateridge 1995) and are the set of principles or standards by which judgment is made as to whether the project is successful or not (Lim C.S and Mohamed M.Z 1999) and thus it became the benchmark to measure success or failure (Cooke-Davies T 2002). In brief, success criteria are the result area of what are to be achieved thus termed the “What” (Westerveld E 2003).

Success factors are those elements that are required to deliver the success criteria (Wateridge 1995) and they are the set of circumstances, facts or influences which contribute to the result or the achievement of the success criteria (Lim C.S and Mohamed M.Z 1999). According to Lim C.S et all (1999) these success factors are the influential forces which either facilitate or impede project success, however the success factors do not form the basis of judgment. Cooke-Davies T (2002) refers success factors as the management inputs and systems that would lead to project success. Westerveld E (2003) refers success factors as the organizational areas which he terms as the “How”. This study conducted literature review on success criteria and success factors as summarized in Figure 6.

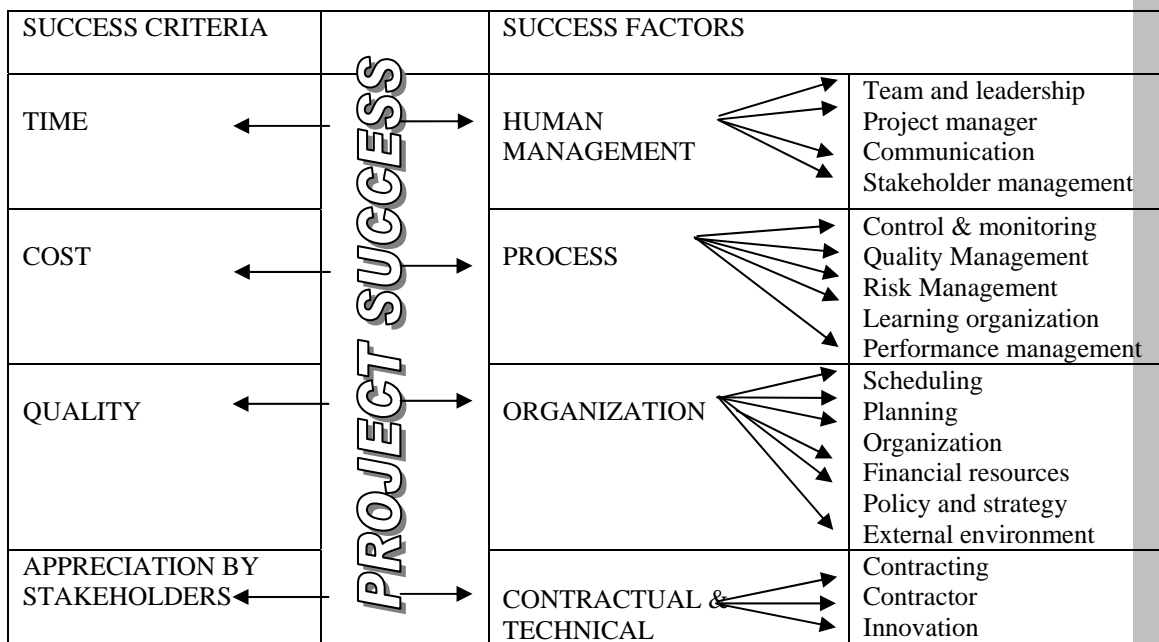


Figure 6: Success Criteria and Success Factors

4. PRELIMINARY STUDY

A preliminary study was conducted amongst project managers regarding the critical success criteria and critical success factors. A simple questionnaire was formulated for them to rank the criteria and to choose and rank ten (10) critical factors that contribute to project success. 30 questionnaires were personally distributed and 25 were returned. The result are as shown in Figure 7 where the success criteria was ranked and ten (10) critical success factors were chosen from eighteen (18) variables and ranked in order of criticality.



Figure 7: Ranking of Success Criteria and Success Factors

As shown in the preliminary study the success criteria are ranked as follows:

1. Appreciation by Stakeholders
2. Meets the required Quality
3. Completes within Budget
4. Completes within Schedule

As for the success factors, the result of the preliminary study ranked the factors as follows:

1. Team and Leadership
2. Project Manager
3. Communication
4. Stakeholder Management
5. Planning
6. Scheduling
7. Organization
8. Control and Monitoring
9. Financial Resources
10. Quality Management

These ten (10) critical success factors were then categorized in accordance with its nature namely Contract, Human, Organization and Process. The result is shown below in Figure 8.



Figure 8: Categorization of Success Factors

5. CONCLUSION

Based on the categorization on the critical success factors, it is interesting to note that the criticality is ranked as follows:

- Human
- Organization
- Process
- Contractual

The construction industry is seen to be a very technical oriented industry. The stakeholders especially the designers, project managers, specialists, professional consultants, supervisors, sub-professionals and even semi-skilled laborers require special technical and professional trainings to be able to contribute to the project implemented. However the preliminary study seems to suggest otherwise, where it may be postulated that as in other industries, human management is the main critical factor above all others to ensure project success.

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