Achieving Project Success Through Combined Management of Stakeholders-Scope-Communication

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This thesis is dedicated to my parents.

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ABSTRACT

Project success is a most commonly debated topic in project management, yet it is least agreed upon. A project is usually recognized as successful when it is completed on time, within budget, according to specifications and to stakeholder's satisfaction. Today, projects are becoming more complex and uncertain; their successful completion becomes very difficult as they are perceived through varying stakeholder perceptions. The same project could be successful to one stakeholder and unsuccessful to another. A variety of information needs to be communicated among various stakeholders for project success but probably one of the most important is regarding the project scope. A large body of research has focused project success in the past yet achieving success still presents numerous challenges because of the differences in understanding of scope and other information. Thus, the objective of this study is to analyze the factors affecting project success and to highlight the most important factors. To achieve the stated objective, the three areas of stakeholder, communication and scope management are explored to find out their critical success factors, and their effect on project success is determined by carrying out detailed survey among construction industry professionals. Data collected from 103 construction professionals was analyzed using statistical tools and top factors affecting project success have been discussed.

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CHAPTER 1

INTRODUCTION

1.1 BACKGROUND

Project success is the most frequently debated topic in project management yet it is least agreed upon (Duy Nguyen et al., 2004). It refers to successful completion of project objectives of cost, time, and scope, quality of management process and stakeholder satisfaction. Project objectives are the criteria for determining success. Their degree of completion determines project success or failure(Van Der Westhuizen and Fitzgerald, 2005). Project success includes two different components: project management success which focuses on successful completion of cost, time and quality objectives and also the consideration of the manner in which project management process was carried out; and product success which deals with the effects of project's final product (Jugdev and Müller, 2005). It can be seen that project management success and product success may not be directly related. It is possible to achieve a successful product even if management process has failed and vice versa (Chan and Chan, 2004). Project success must be seen from the different viewpoints of stakeholders. The differences in perspectives will dictate how the same project could be considered as successful by one and unsuccessful by another (Ika, 2009).

Successful completion of a project requires linking different areas of project management in order to achieve project objectives. Research might benefit from combining stakeholder, communication and scope management for improving the chances of project success.

Project stakeholder management consists of the identification of stakeholders to a project, analysis of their needs and impact and the development of the suitable management strategies to efficiently

involving them in decision making and execution of projects (PMBOK, 2013). Stakeholders are the people or organizations that might affect or be affected by the project(Olander and Landin, 2005). During various stages of a project from beginning till completion a large number of interests will be affected, stakeholders are the representatives of these interests. Evaluation of stakeholders' needs and expectations is a challenge faced by project managers (Freeman et al., 2007). Managers are often unable to understand and determine the hidden power of various stakeholders and the impact they are going to have on a project. A project completed within budget, time and scope will probably not be considered as successful, if stakeholders' needs and expectations were not considered (Olander, 2007). It is not enough to just identify stakeholders, assessment of their interest in project decisions is necessary. Importance of a stakeholder depends on organization's needs and the degree to which the organization is dependent on one stakeholder as compared to others. Concerns and priorities of stakeholders change over time (Jawahar and McLaughlin, 2001). Project environment is often complex and changing. If stakeholder management is not effectively addressed, this can mean uncertainty to the project and unexpected problems caused by stakeholders which can lead to project failure (Meredith and Mantel Jr, 2000). Effective stakeholder management is essential during the life cycle of a project (Yang et al., 2009b).

One important aspect of successful stakeholder management is effective communication (Weaver, 2007). Project communication management is the process of planning, developing, collecting, controlling and the ultimate deposition of project information (PMBOK, 2013). Clear communication is required to clarify the roles of project stakeholders, to develop mutual understanding and exchange of information (Johannessen and Olsen, 2011). It is paramount for the project success. Complexity behind communication is often misunderstood. Communication is concerned with people not the media. It requires determining the audience who must receive the

message, its format and timing and also the feedback mechanism to ensure its effectiveness (Kliem, 2007). Unfortunately, project managers become more concerned with the technicalities of the project and ignore their pivotal role as the communication center of their project. Communication is an ongoing process, through all the stages of the project (Peltoniemi and Jokinen, 2004). Project environment effects communication, project managers often apply the same tools and techniques to communicate on different projects. If communications fail at the start of the project when goals are being decided, it becomes very costly to rectify the situation later. An effort to correct poor communication can result in slowing the momentum of the project which can contribute to project delays. (Kliem, 2007).

A variety of information needs to be communicated for project success but probably the one of the most important is regarding the scope of project. The knowledge area of scope management deals with the methods of guaranteeing that the project contains all the work needed, and only the work needed, to complete it successfully. A properly managed scope ensures delivering a successful project to the stakeholders (PMBOK, 2013). Poor scope definition disrupts project rhythm, causes rework, increases project schedule and budget and decreases the productivity and morale of the work force (Song and AbouRizk, 2005).A major contributor to unsuccessful projects is the lack of understanding of project scope at the beginning of the project(Dekkers and Forselius, 2007). Inadequate scope definition has been contributed as one of the top reasons of project failure (Song and AbouRizk, 2005);(Cho and Gibson Jr, 2001). Without a well-documented and agreed upon scope there is little chance of achieving project objectives successfully. Most researchers have considered project scope as a dimension for project success rather than just a criterion or factor. Scope changes need to be controlled as they have the potential to damage not only the morale on the project but the entire project itself (Mirza et al., 2013).

1.2 PROBLEM STATEMENT

Since projects are getting larger, more complex and uncertain, their management is becoming a challenging task. The gravity of this challenge increase manifolds when critical project management knowledge areas function in isolation. This not only leads to non-achievement of project objectives and resulting failure, but also creates business hurdles for future endeavors. Despite the noted merits of such integration, the body of knowledge lacks research relating to a combined view on the stakeholder, scope and communication management in large and complex projects.

1.3 SCOPE OF RESEARCH STUDY

This research is focused on the three areas of stakeholder, scope and communication management for finding out their CSFs and then measuring the effect of these CSFs on project success. Data collected from professionals working in Pakistan construction industry will be used to find out the top factors affecting project success. Understanding these factors will help construction professionals in successful completion of their projects by effectively managing stakeholders, scope and communications.

1.4 OBJECTIVES

- To identify the CSFs for project stakeholder, communication and scope management.
- To estimate the effect of CSFs on project success.
- To discuss the top factors affecting project success.

CHAPTER 2

LITERATURE REVIEW

2.1 PROJECT SUCCESS

Project success is an idea which has varying meanings to various people due to different opinions, and leads to differences around whether a project is successful or not (Liu and Walker, 1998). A project is commonly acknowledged as successful when it is completed on time, within budget, according to specifications and to stakeholder's satisfaction (Takim and Akintoye, 2002). A project is generally considered successful if it meets technical performance specifications and if there is greater level of satisfaction about project's outcomes among key people in the project team (Duy Nguyen et al., 2004).

2.1.1 Project Management Success and Project Product Success

There are two separate components of project success namely project management success and product success.

Project Management Success- This focuses on the effective accomplishment of time, cost and quality goals and the way in which the project management practice was carried out, as shown in Figure 2-1.

Project Product Success- This emphasizes on the effects of project's final product. The determination of project management success disregards product success. It is possible that project is managed effectively but ultimately does not satisfy client's expectations (Baccarini, 1999).

Product success is determined against the general objectives of the project whereas cost, time and quality/performance are the measure of success of project management (Duy Nguyen et al., 2004).

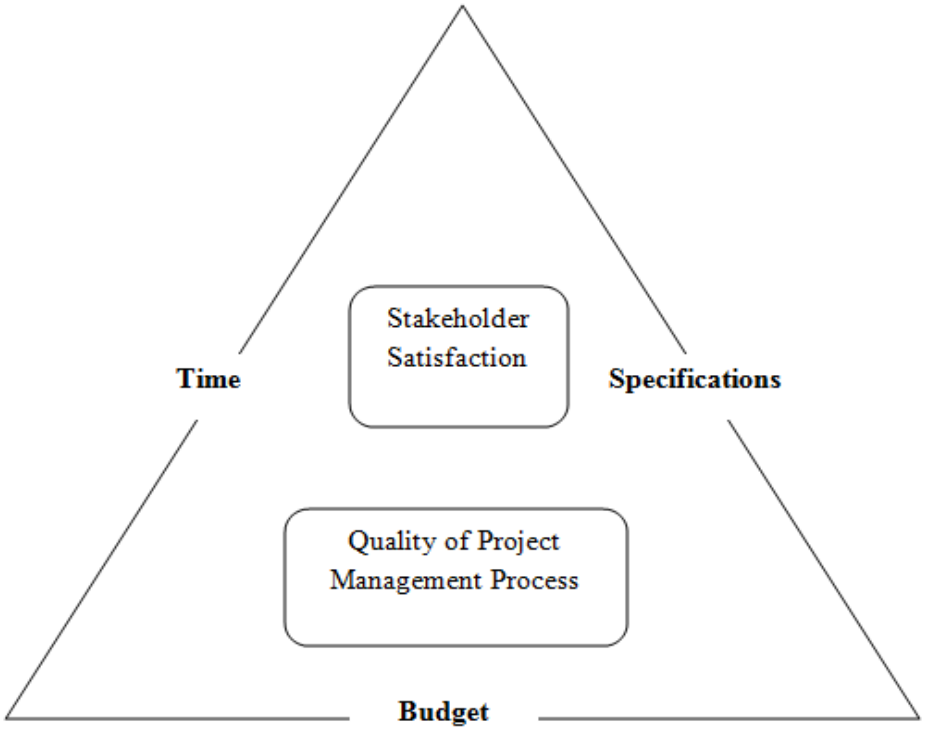

Figure 2-1: Project management success - extended traditional view

2.1.2 Criteria of Project Success

Criteria of project success are the set of standards which are used to judge project success. For the project parties, success is usually thought of as the accomplishment of some predefined project goals, which generally include several parameters such as time, cost, quality, performance and safety (Lim and Mohamed, 1999). Success criteria are the measures by which success or failure of a project can be judged. To determine whether a project is success or failure is intricate and ambiguous as the project stakeholders observe project success or failure differently and their preferences and objectives are set differently during the project lifecycle.

2.2 PROJECT MANAGEMENT

Project management is the utilization of information, tools, skills and methods to the project activities to attain the essential project goals. It is achieved through the application and incorporation of project management processes. These processes are categorized into five groups (PMBOK, 2013).

- Initiating,
- Planning,
- Executing,
- Monitoring and Controlling, and
- Closing.

2.2.1 Areas of Project Management

Project management processes are further categorized into ten separate knowledge areas. A knowledge area is a whole set of ideas, activities and terms that constitute a professional field or specialty. These ten knowledge areas are used mostly used on projects. Project teams should use these ten knowledge areas and other knowledge areas as required, for their particular project. The Knowledge Areas are: Project Scope, Communications, Cost, Time, Stakeholder, Integration, Quality, Human Resource, Risk and Procurement Management (PMBOK, 2013).

2.3 PROJECT STAKEHOLDER MANAGEMENT

Project stakeholder management comprises of the methods essential to recognize the people or organizations that can affect or be affected by the project, to evaluate their anticipations and influence on the project, and to make suitable policies for proficiently engaging them in decisions

and project implementation (PMBOK, 2013). Effective management of stakeholders' relationships is an important managerial activity (Lim et al., 2005). Stakeholder management emphasizes on interaction with stakeholders to recognize their requirements, addressing their concerns, managing differing interests and encouraging stakeholder contribution in project decisions. Satisfaction of stakeholders should be considered a primary objective on projects (PMBOK, 2013).

2.3.1 Project Stakeholders

A stakeholder is a person or a group that can influence or be influenced by attaining organization's objectives. Stakeholders are the parties that are contributing to a decision making process (Malkat and Byung-GYOO, 2012). In any project, particularly in construction projects many diverse interests should be essentially considered. Project stakeholders are the representatives of these interests. Projects involve a large number of stakeholders whose interests and requirements need to be considered in decision making to ensure project success (Aaltonen, 2011). Stakeholders can affect a project in a constructive or destructive manner. While some stakeholders may have limited effect on the project others may have substantial influence on the project and its expected results (PMBOK, 2013).

2.3.2 Stakeholder Impact

One of the most important skills possessed by successful project managers is the ability to recognize the hidden power of influence of various stakeholders. A project will not be considered as successful without considering the requirements and expectations of stakeholders even if it was completed within the actual scope, time and budget (Bourne and Walker, 2005). Involvement of stakeholders at various stages of the project can be beneficial in different ways (Li et al., 2012). Stakeholders might have a constructive or destructive impact on a project, there is a requirement

to determine supporters and opponents. This gives an idea to the managers to be conscious that stakeholders can have good or bad impacts on project results (McElroy and Mills, 2000).

2.3.3 Critical Success Factors of Stakeholder Management

2.3.3.1 Critical Success Factors

CSFs are a group of essential activities or elements that make possible for an organization to attain its stated objectives; thereby making certain the successful performance of its operations. CSFs are fundamental to achieving organizations' objectives. They can ensure that mission of organizations is converted into actionable policies (Rothberg and Morrison, 2012). CSFs are those significant areas in which constructive outcomes are categorically important for a manager to meet his aims and objectives. Satisfactory results in these areas will confirm fruitful performance for the person, group or organization (Bullen and Rockart, 1981). These variables can significantly impact the overall competitive position of the organization. They vary from organization to organization. CSFs are the areas for any business where things must always go in the right direction for the business to prosper (Leidecker and Bruno, 1984). Considering the complexity of today's world, project managers are deciding that they need to reach the information which is most relevant to their particular responsibilities and roles. One technique for determining exactly what information is needed is through CSF method (Bullen and Rockart, 1981). It is important to find in an explicit manner, what are the most important variables which will affect the success or failure in the pursuit of the objectives. The current performance in these areas should be constantly measured and the information should be available for management's use. These key areas of activities should get considerable and steady attention from management (Leidecker and Bruno, 1984).

2.3.4 CSFs of Project Stakeholder Management

There are numerous CSFs that can be known as essential for successful management of stakeholders. Identification of key stakeholders is recognized as a significant factor for effective stakeholder management (Olander, 2006). As per Frooman (1999), the question of *"Who are stakeholders?"* must be answered prior to analyzing and managing them. Effective and planned communication is critical for sustaining commitment of all stakeholders (Briner et al., 1996). The documentation of distinct mission of the project at various phases is crucial for effectively managing stakeholders (Winch, 20000). Stakeholders are considered as having a 'stake' in the project, so they will try to guard their interest. Due to multifaceted nature of projects, there are various stakeholders' interests. Freeman et al. (2007) believes that identifying interests of stakeholders in an essential activity to assess them. To execute a sufficiently demanding stakeholder management procedure, it is important to recognize stakeholders' influence (Olander and Landin, 2005). Project managers should be able to understand the invisible power among various stakeholders. The characteristics of stakeholder's requirements to be properly evaluated by project team (Bourne, 2005). Throughout the project, all stakeholders' requirements must be evaluated so that acceptable solutions to the problems can be found (Love et al., 2004). Evaluating the conflicts among stakeholders is a significant step towards effectively managing stakeholders (Freeman et al., 2007). A high level of communication is helpful in reaching a mutually acceptable solution for problems between conflicting parties (Chen and Chen, 2007). As per Jergeas et al. (2000) enhancing effective relationships among project team and stakeholders can greatly improve the chances of project success.

Total 30 research papers were selected to gather the required success factors, the CSFs mentioned in Table 2-1 were identified that affect stakeholder management.

Table 2-1: CSFs of Stakeholder Management

Sr. No.	CSFs	Quantitative Appearance	Qualitative Appearance	Criticality %
1	**Identifying Stakeholders** (Jepsen and Eskerod, 2009); (Karlsen, 2002);(Walker et al., 2008);	0.53	0.99	52.8
2	**Effective Communication** (Cleland, 1995); (Weaver, 2007)	0.433	0.99	42.9
3	**Planning Appropriate Strategies** (Yang et al., 2009); (Aaltonen and Sivonen, 2009)	0.37	0.99	36.3
4	**Understanding Stakeholder's Area of Interests** (Karlsen, 2002); (Freeman et al., 2007)	0.267	0.99	26.4
5	**Stakeholders' Conflicts and Coalitions** ((Freeman, 1984)	0.267	0.99	26.4
6	**Enhancing a Good Relationship** (Jergeas et al., 2000); (Bourne and Walker, 2005); (Terje Karlsen et al., 2008)	0.267	0.99	26.4
7	**Evaluating the Change of Stakeholders** (Cleland and Ireland, 2002); (Ward and Chapman, 2008)	0.2	0.99	19.8
8	**Stakeholder's Management with Social Responsibilities** (Wood and Gray, 1991); (Atkin and Skitmore, 2008)	0.2	0.99	19.8
9	**Resolving Conflicts** (Freeman, 1984); (e Costa et al., 2001)	0.2	0.99	19.8

10	**Predicting Stakeholder's Reactions** (Freeman et al., 2007); (Cleland and Ireland, 2002)	0.167	0.99	16.5
11	**Assessing Stakeholder' Satisfaction** (Yang et al., 2011); (Li et al., 2012)	0.167	0.99	16.5
12	**Stakeholder's Needs and Expectations** (Freeman et al., 2007); (Olander and Landin, 2008)	0.167	0.99	16.5
13	**Stakeholder's Attitude** (Savage et al., 1991); (Freeman et al., 2007); (Aaltonen et al., 2008)	0.167	0.99	16.5
14	**Predicting Stakeholder's Influence** (Olander, 2007); (Olander and Landin, 2005)	0.167	0.99	16.5
15	**Trust** (Bourne and Walker, 2005)	0.133	0.99	13.2
16	**Defining Project Missions** (Jergeas et al., 2000); (Winch, 2000)	0.17	0.66	11
17	**Stakeholders' Involvement** (Li et al., 2012); (Atkin and Skitmore, 2008)	0.1	0.99	9.9
18	**Higher Authorities Support** (Yang et al., 2011)	0.1	0.99	9.9
19	**Project Manager Capabilities** (Olander and Landin, 2008)	0.133	0.66	8.8
20	**Evaluating Attributes of Stakeholders** (Bourne and Walker, 2005); (Mitchell et al., 1997)	0.133	0.66	8.8

21	**Flexibility of Project Organization** (Olander and Landin, 2008)	0.133	0.66	8.8
22	**Reduce Uncertainty** (Turner and Müller, 2003)	0.1	0.66	6.6.
23	**Analyzing Alternative Solutions** ((El-Gohary et al., 2006)	0.1	0.66	6.6
24	**Access to Knowledge and Resources** (Terje Karlsen et al., 2008)	0.1	0.66	6.6

2.4 PROJECT SCOPE MANAGEMENT

Project scope management involves the processes to make certain that the project contains exclusively the work that is desired, to successfully complete it. It is concerned with out lining what is and is not required to be contained in the project and then controlling it. The processes required to manage project scope can vary project wise (PMBOK, 2013). Scope management of the project is one of the most significant functions of the project manager. Effective project scope management guarantees successful management of other areas like time, cost and quality. Successful scope management ensures success of a project for the project management team (Khan, 2006). A poor scope definition is one of the key causes of failure in projects. Success through the life cycle of a project depends highly on completion of scope definition (Dumont et al., 1997).

2.4.1 Project Scope

Project scope refers to the work that is performed to deliver the particular result, product, or service. Project scope is sometimes considered as including product scope (PMBOK, 2013). It is

the work that must be done to bring a product with the exact features and functions. It deals with the work required to create project deliverables. Its completion is necessary to achieve project objectives. Project scope is measured against project plan (Mirza et al., 2013). Better scope definition during the initial period of the project can greatly increase the accuracy of cost and schedule estimates as well as it can increase the chances for successfully achieving project objectives (Dumont et al., 1997). An appropriately defined and managed scope directs to delivering a quality product within the specified cost and schedule to the stakeholders (Mirza et al., 2013).

2.4.2 CSFs of Project Scope Management

Factors can be found out in previous literature that are critical for proper scope management. Song and AbouRizk (2005) have highlighted the importance of proper scope definition for successful management of project scope as poor scope definition is recognized as a leading cause of project failure. Pre-project planning which encompasses all the tasks between the initiation of the project and start of the detailed design is mandatory for effectively managing scope (Gibson Jr et al., 2006).

Critical success factors mentioned in Table 2-2 were identified after reviewing the available literature on scope management. A detailed review of published literature was carried out and 10 research papers were considered relevant to find out the CSFs.

Table 2-2: CSFs of Scope Management

Sr. No.	CSFs	Quantitative Appearance	Qualitative Appearance	Criticality %
1	**Project Scope Definition** (Dekkers and Forselius, 2007);(Song and AbouRizk, 2005);(Cho and Gibson Jr, 2001)	0.4	0.99	39.6
2	**Pre-Project Planning Effort** (Gibson Jr et al., 2006); (Dumont et al., 1997); (Le et al., 2009); (Yang et al., 2015)	0.4	0.99	39.6
3	**Risk Assessment** (Gibson Jr et al., 2006); (Mirza et al., 2013); (Dumont et al., 1997); (Le et al., 2009)	0.4	0.99	39.6
4	**Monitoring Scope Change** (Gibson Jr et al., 2006); (Mirza et al., 2013); (Dumont et al., 1997); (Dekkers and Forselius, 2007)	0.4	0.99	39.6
5	**Effective Communication** (Gibson Jr et al., 2006); (Dumont et al., 1997)	0.3	0.99	29.7
6	**Stakeholders' Involvement** (Gibson Jr et al., 2006); (Le et al., 2009); (Song and AbouRizk, 2005)	0.3	0.99	29.7
7	**Scope Documentation** (Gibson Jr et al., 2006); (Mirza et al., 2013)	0.3	0.99	29.7
8	**Effective Decision Making** (Gibson Jr et al., 2006)	0.3	0.99	29.7
9	**Project Scope Control** (Gibson Jr et al., 2006); (Mirza et al., 2013)	0.3	0.99	29.7
10	**Project Leadership** **(**Gibson Jr et al., 2006)	0.3	0.66	19.8

11	**Resolving Conflicts** (Dumont et al., 1997)	0.2	0.99	19.8
12	**Completeness of Project Scope** (Dumont et al., 1997); (Zhu and Chen)	0.2	0.99	19.8
13	**Technical Support** (Gibson Jr et al., 2006); (Dekkers and Forselius, 2007)	0.3	0.66	19.8
14	**Requirements Identification** (Gibson Jr et al., 2006); (Mirza et al., 2013)	0.3	0.66	19.8
15	**Identifying Project Drivers** (Mirza et al., 2013)	0.2	0.66	13.2
16	**Analyzing Alternative Solutions** (Gibson Jr et al., 2006)	0.2	0.66	13.2

2.5 PROJECT COMMUNICATION MANAGEMENT

Project communication management comprises of the processes that guarantee appropriate and timely planning, distribution, management and discarding of project information (PMBOK, 2013). Project managers invest most of their time interacting with team members and various stakeholders on projects (Choon Hua et al., 2005). Communication has an important role in project success as communication capabilities are the main contributing factor in success (Müller and Turner, 2010). The more complex the project, the more significant communication is to achieve project objectives. Communication process creates associations among people and information that is critical for project success (Kadefors, 2011). To understand the communication process is the first step in developing communication plan. People involved in the communication process, type of

information being communicated, time when information is being communicated and how it is distributed are the main aspects of communication process(Tone and Skitmore, 2004).

Project communication plan helps the project team to identify various stakeholders and to enhance communication between parties involved in a project (Kliem, 2007). This plan ensures that an effective communication strategy is being developed. It contains the information required for managing project deliverables (Kadefors, 2011). Project managers must communicate regularly with various stakeholders and team members at different levels of the organization. It is a challenging process as they regulate all the information. All other project management skills are also important, but the importance of effective communication should never be underestimated. Poor communication can have an adverse effect on project performance. Complexity of communication on projects is often misunderstood even though most of the time is spent communicating (Kliem, 2007).

2.5.1 CSFs of Project Communication Management

Various factors effect communication in the complex projects. Ochieng and Price (2010) has discussed the importance of trust in increasing cooperation and effectively communicating across various stakeholders. Communication capabilities of project team can greatly influence the management of project information (Johannessen and Olsen, 2011). Establishment of clear lines of responsibility can clarify the roles played by project team members thus clearing obstructions and hindrances in communication process (Yitmen, 2015).

After a broad literature review, 15 research papers were selected, and following CSFs given in Table 2-3 were identified that can affect communication management on projects**.**

Table 2-3: CSFs of Communication Management

Sr. No.	CSFs	Quantitative Appearance	Qualitative Appearance	Criticality %
1	**Trust** (El-Saboni et al., 2009); (Ochieng and Price, 2010); (Hoezen et al., 2006)	0.47	0.99	46.2
2	**Team Effectiveness** (Ochieng and Price, 2010); (Yitmen, 2015)	0.4	0.99	39.6
3	**Timing of Information** (Loosemore and Muslmani, 1999**);** (Peltoniemi and Jokinen, 2004); (Choon Hua et al., 2005)	0.4	0.99	39.6
4	**Communication Capabilities** (Peltoniemi and Jokinen, 2004); (Johannessen and Olsen, 2011)	0.4	0.99	39.6
5	**Cultural Competence** (Loosemore and Muslmani, 1999); (Ochieng and Price, 2010)	0.4	0.99	39.6
6	**Establishing Clear Lines of Responsibility** (Ochieng and Price, 2010); (Yitmen, 2015)	0.33	0.99	33
7	**Tools and Techniques** (Peltoniemi and Jokinen, 2004); (Choon Hua et al., 2005)	0.33	0.99	33
8	**Stakeholders' Involvement** (Havermans et al., 2015); (Hoezen et al., 2006)	0.33	0.99	33
9	**Feedback Mechanism** (Choon Hua et al., 2005); (Yitmen, 2015)	0.33	0.99	33

10	**Information Quality** (Marek and Ozawa, 2009); (El-Saboni et al., 2009)	0.33	0.99	33
11	**Organizational Culture** (Tone and Skitmore, 2004); (Jiang and Pretorius, 2010)	0.4	0.66	26.4
12	**Mutual Understanding** (Loosemore and Muslmani, 1999); (Havermans et al., 2015); (Marek and Ozawa, 2009); (Tone and Skitmore, 2004)	0.27	0.66	26.4
13	**Clear Objectives** (Hoezen et al., 2006); (Bilczynska Wojcik, 2014)	0.33	0.66	22
14	**Overcoming Communication Barriers** (Tone and Skitmore, 2004); (Bowen and Edwards, 1996)	0.2	0.99	19.8
15	**Developing Communication Plan** (Tone and Skitmore, 2004); (Bilczynska Wojcik, 2014)	0.2	0.99	19.8
16	**Effective Decision Making** (El-Saboni et al., 2009); (Peltoniemi and Jokinen, 2004); (Hoezen et al., 2006)	0.27	0.66	17.6
17	**Monitoring Communication** (Bilczynska Wojcik, 2014); (Bowen and Edwards, 1996)	0.27	0.66	17.6
18	**Access to Information** (El-Saboni et al., 2009); (Peltoniemi and Jokinen, 2004)	0.2	0.66	13.2
19	**Coordination** (Johannessen and Olsen, 2011); (El-Saboni et al., 2009)	0.2	0.66	13.2

20	**Resolving Conflicts** (Havermans et al., 2015); (Peltoniemi and Jokinen, 2004)	0.2	0.66	13.2
21	**Transparency** (El-Saboni et al., 2009)	0.133	0.99	13.2
22	**Project Documentation** (Bilczynska Wojcik, 2014); (El-Saboni et al., 2009)	0.133	0.66	8.8

CHAPTER 3

RESEARCH METHODOLOGY

3.1 INTRODUCTION

This chapter describes the procedure of research putting into perspective the method to conduct various activities to achieve the objectives mentioned in Chapter 1. A detailed literature review was used to develop the basis of the research. A questionnaire technique was used for data collection. Data was analyzed using various statistical techniques and results were discussed. Detailed research methodology is described in the subsequent sections.

3.2 RESEARCH DESIGN

This research is designed to highlight the CSFs at the crossroads of the three areas of project management, namely stakeholder, communication and scope management, responsible for increasing the chances of project success. Research objectives were established and finalized based on preliminary study. Afterwards, a detailed literature review was carried out to study the related areas. Literature review was focused on identifying the CSFs for the above-mentioned areas of project management. A preliminary survey was carried out to narrow down these CSFs followed by a detailed questionnaire survey to find out the effect of these CSFs on project success. The findings from questionnaire survey were analyzed using statistical tools and top factors were found which affect project success. Results and conclusions were made after analyzing the data. The methodology is graphically represented in Figure 3-1.

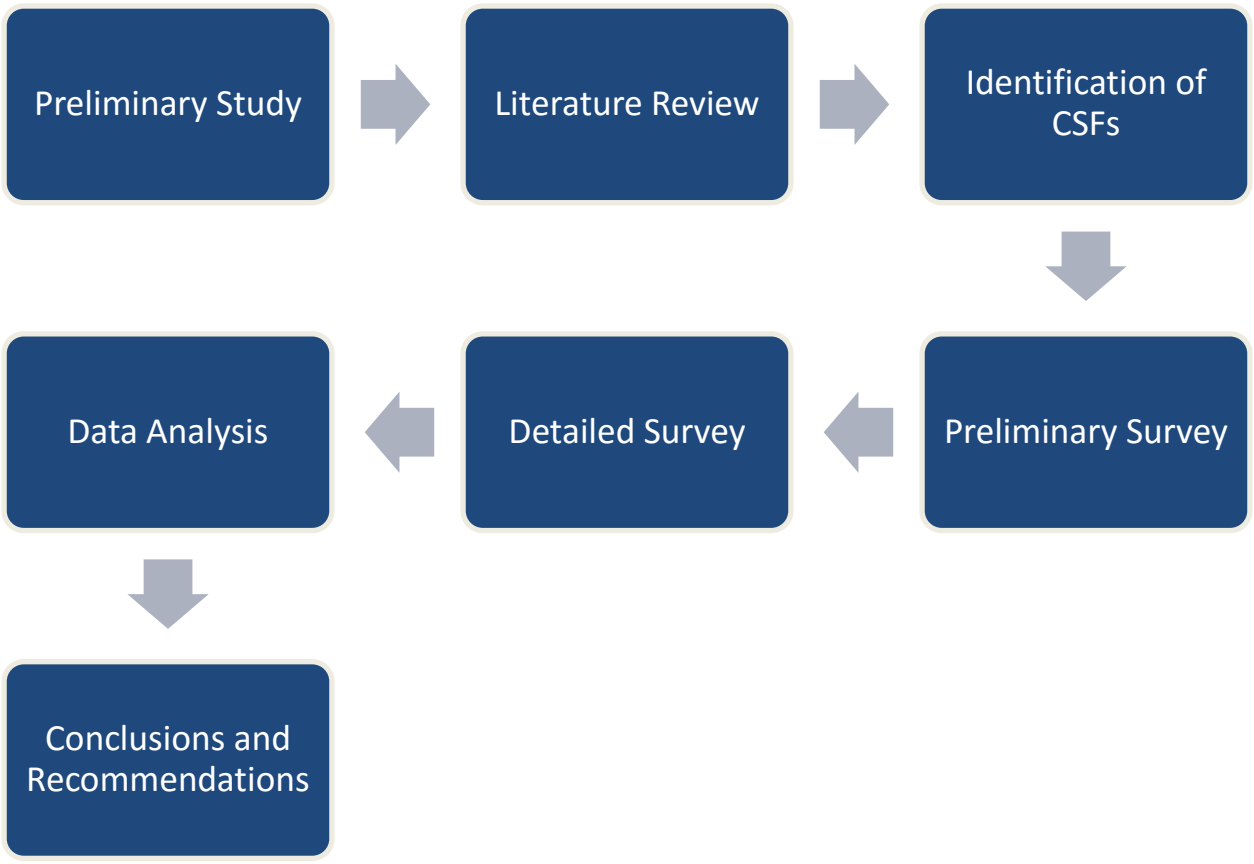

Figure 3-1: Research Methodology

3.2.1 Preliminary Study

Preliminary study was carried out to gain essential knowledge about the topic. The study was done to establish the basis of the research. Problem statement was developed, and research objectives were established based on this study.

3.2.2 Literature Review

Preliminary study was followed by a detailed literature review. The purpose of literature review was to find out the CSFs that affect the areas of project stakeholder, communication and scope management. After gathering the relevant research papers success factors were identified. A total of 30 research papers published in international journals were selected to gather the CSFs of

stakeholder management and 24 factors were identified that affect stakeholder management in projects. For scope management, 10 research papers were studied to identify 16 factors affecting scope management, and 15 research papers were used to identify 22 factors that impact communication management in projects. Thus, after reviewing a total of 55 research papers, a total of 62 factors were identified. Their quantitative and qualitative appearance in previous literature was determined and the factors were ranked based on their criticality.

3.2.3 Preliminary Survey

After literature review preliminary questionnaire was prepared which contained all the CSFs of the relevant areas identified in literature. Project managers with relevant experience were asked to rate the factors based on their impact on the corresponding area. The purpose of this survey was to shortlist the factors of each area so that significant factors were left for detailed survey. Total 12 responses were gathered from project managers working in various parts of the world and 30 factors were shortlisted for further data collection.

3.2.4 Data Collection

Preliminary survey was followed by detailed questionnaire survey. The questionnaire contained 30 factors shortlisted through preliminary survey and respondents were asked to rate how much these factors impact project success on a Likert Scale of 1 to 5, with 1 representing very low impact and 5 showing very high influence. Respondents were also asked to give their basic information such as respondent's name, type of organization, position in organization and work experience.

3.2.5 Sample Size

For survey-based data collection, sample should be true representative of the population. Population selected for data collection was civil engineers working in different construction

companies across Pakistan. According to Pakistan Engineering Council (PEC), there are approximately 40,000 registered engineers in the country. For this population, sample size is set to 96 according to Dillman (2000).

3.2.6 Data Analysis

3.2.6.1 Cronbach's Coefficient Alpha Method

Cronbach's alpha coefficient method is used to determine internal consistency of a research instrument (McDonald, 1999). It is usually expressed as a number between 0.0 and 1.0 where 0.0 indicates no consistency and 1.0 shows perfect consistency in a set of measurements or data. Its value above 0.7 is considered acceptable and indicates that the information is reliable for further analysis. If it is larger than 0.9 it specifies that the data is highly consistent (Li, 2007).

3.2.6.2 Shapiro-Wilk Test

To find out the normality of the data Shapiro-Wilk test is performed. This test is used to assess either the data is normally distributed (parametric) or not (non-parametric). It is used when sample size is less than 2000. If it is larger than 2000, Kolmogorov-Smirnov is more suitable. For the data to be normally distributed the significance should be larger than 0.05.

3.2.6.3 Kruskal Wallis Test

Kruskal Wallis Test and one-way ANOVA are used to measure if three or more separate groups (academia, clients, consultants and contractors) have similar or varying perception concerning a variable. It is more suitable to find the statistical confirmation of the variation in perception of different groups of respondents by using the mean values of the several groups. For non-parametric data Kruskal Wallis test is used and for parametric data one-way ANOVA is used. The results are

tested against significance level of 0.05. If the value is more than 0.05 it specifies that all the groups have identical opinion regarding a variable and vice versa.

3.2.6.4 Relative Importance Index

Data collected through detailed questionnaire survey was examined and classified using Relative Importance Index as per Kometa et al. (1994). The responses to each question were given weightage and relative importance index was calculated by Equation 3-2

$$RII = \Sigma\, w / (A * N) \ldots\ldots \quad 0 \leq RII \leq 1 \qquad (3\text{-}2)$$

Where:

w = Weight given to the factor by the participants and ranges from 1 to 5
where '1' is 'Strongly Disagree' and '5' is 'Strongly Agree'

A = Highest weight (i.e. 5 in this case)

N = Total number of respondents (i.e. 103 in this case)

Factors were ranked, and results were generated based on this analysis.

3.2.7 Conclusions and Recommendations

At the end results of the research were presented and recommendations were developed. Findings from the research were discussed and conclusions were made in this section.

CHAPTER 4

DATA ANALYSIS AND RESULTS

4.1 INTRODUCTION

This chapter contains the data gathered from surveys which was further analyzed using various statistical tools. Results generated through the analysis of that data were discussed in detail.

4.2 PRELIMINARY SURVEY

As mentioned in chapter 3: Research Methodology, preliminary survey was directed to shortlist the factors collected through literature review. Project managers with sufficient working experience from different parts of the world including Pakistan were contacted using their email addresses. An online questionnaire containing all the CSFs of the project management areas namely Stakeholder management, Scope management and Communication management collected through extensive literature review was circulated among these project managers. They were asked to rate the critical success factors of the respective areas on a scale of 1 to 5. Total 12 responses were received based on which the factors are shortlisted. The geographical division of the respondents is shown in Table 4-1.

Table 4-1: **Geographical Segmentation of Respondents**

Country	Responses
Pakistan	4
USA	2

Turkey	1
Saudi Arabia	1
India	1
Nigeria	1
Canada	1
Argentina	1

Total 24 critical success factors affecting stakeholder management were identified through literature which were shortlisted to 8 factors through preliminary survey. In case of scope management total 16 factors were identified out of which 9 were ranked as most important by the project managers. Similarly, in case of communication management 22 CSFs were collected through literature which were narrowed down to 13 through preliminary survey. Hence total 30 factors were short listed as shown in Table 4-2.

Table 4-2: Shortlisted CSFs via Preliminary Survey

Sr. No.	ID	Factors
1	SM01	Identifying Stakeholders
2	SM02	Effective Communication
3	SM03	Enhancing a Good Relationship
4	SM04	Resolving Conflicts
5	SM05	Predicting stakeholder's Influence
6	SM06	Trust

7	SM07	Reducing Uncertainty
8	SM08	Access to Knowledge and Resources
9	SCM01	Project Scope Definition
10	SCM02	Effective Communication
11	SCM03	Effective Decision Making
12	SCM04	Project Leadership
13	SCM05	Resolving Conflicts
14	SCM06	Completeness of Project Scope
15	SCM07	Identifying Project Drivers
16	SCM08	Requirements Identification
17	SCM09	Scope Documentation
18	CM01	Trust
19	CM02	Team Effectiveness
20	CM03	Timing of Information
21	CM04	Communication Capabilities of Project Team
22	CM05	Mutual Understanding
23	CM06	Clear Objectives
24	CM07	Overcoming Communication Barriers
25	CM08	Effective Decision Making
26	CM09	Monitoring Communication
27	CM10	Coordination
28	CM11	Resolving Conflicts

29	CM12	Transparency
30	CM13	Project Documentation

4.3 QUESTIONNAIRE SURVEY

Detailed questionnaire survey was carried out to investigate the impact of factors shortlisted through preliminary survey on project success. This questionnaire contained 30 shortlisted CSFs of respective management areas and the respondents were requested to mark the impact of these CSFs on project success. Above 500 questionnaires were dispatched to various academic and field personnel working in different construction organizations across Pakistan and 103 valid responses were gathered resulting a response rate of 20.6 %.

4.3.1 Characteristics of the Respondents and Frequencies

As per the characteristics of the respondents, 18.4% were from academia, 20.4% from clients/owners, 25% from consultants and 36% were from contractors. Grouping of the respondents are given in Table 4-3.

Table 4-3: Grouping of the Respondents

Respondents	No. of Questionnaires Returned	Percentage	Cumulative Percentage
Academia	19	18.4	18.4
Clients/Owner	21	20.4	38.8
Consultants	26	25	64

Contractors	37	36	100
Total	103	100	-

Responses were received from respondents having varied range of experience in construction business as shown in Table 4-4. Approximately 35% had field experience of less than 5 years, 43.7% of respondents with 5-10 years of working experience, 13.6% had 10-15 years' experience whereas 7.8% had experience of more than 15 years.

Table 4-4: Experience of respondents in Construction Industry

Experience of Respondents	Frequency of Respondents	Percentage of Respondents	Cumulative Percentage
0-5 years	36	35.0	35.0
5-10 years	45	43.7	78.6
10-15 years	18	13.6	92.2
More than 15 years	8	7.8	100.0
Total	103	100	-

4.4 STATISTICAL ANALYSIS

To validate the data collected through detailed questionnaire survey, various statistical tests were performed.

4.4.1 Reliability of the Sample (Cronbach's coefficient alpha method)

Cronbach's coefficient alpha method is most frequently used to measure the internal consistency of the data when questions are requested on Likert scale. A value of the coefficient greater than 0.7 specifies that the data is consistent, if it is larger than 0.9 it designates that data is highly consistent for further analysis. For the data gathered through this survey, Cronbach's coefficient of 0.947 is obtained using SPSS which specifies that the data is reliable for analysis. Table 4-5 shows the results of the reliability test performed on the data.

Table 4-5: Reliability Statistics (Cronbach's Coefficient Alpha)

<table>
<tr><th colspan="4">Case Processing Summary</th><td rowspan="2">Cronbach's Alpha</td><td rowspan="2">0.947</td></tr>
<tr><td colspan="2"></td><td>N</td><td>%</td></tr>
<tr><td rowspan="3">Cases</td><td>Valid</td><td>103</td><td>100.0</td><td rowspan="3">Number of Items</td><td rowspan="3">30</td></tr>
<tr><td>Excluded[a]</td><td>0</td><td>0</td></tr>
<tr><td>Total</td><td>103</td><td>100.0</td></tr>
<tr><td colspan="4">a. List wise deletion based on all variables in the procedure.</td></tr>
</table>

4.4.2 Normality of the data (Shapiro-Wilk Test)

Shapiro-Wilk test was done to check whether the data was normally distributed or not. This test was performed to confirm the normality as the sample size was less than 2000. Significance values of 0.000 were obtained which are below the significance of 0.05, therefore the data was not normally distributed and non-parametric test were required to be performed to further analyze the data. Table 4-6 shows the results of Shapiro-Wilk test.

Table 4-6: Test of Normality- Shapiro-Wilk Test

Sr. No.	ID	Parameter	Statistic	df	Sig.
1	SM01	Identifying Stakeholders	.762	103	.000
2	SM02	Effective Communication	.627	103	.000
3	SM03	Enhancing a Good Relationship	.765	103	.000
4	SM04	Resolving Conflicts	.727	103	.000
5	SM05	Predicting stakeholder's influence	.865	103	.000
6	SM06	Trust	.828	103	.000
7	SM07	Reducing Uncertainty	.848	103	.000
8	SM08	Access to Knowledge and Resources	.797	103	.000
9	SCM01	Project Scope Definition	.717	103	.000
10	SCM02	Effective Communication	.749	103	.000
11	SCM03	Effective Decision Making	.657	103	.000
12	SCM04	Project Leadership	.710	103	.000
13	SCM05	Resolving Conflicts	.791	103	.000
14	SCM06	Completeness of Project Scope	.756	103	.000
15	SCM07	Identifying Project Drivers	.804	103	.000
16	SCM08	Requirements Identification	.818	103	.000
17	SCM09	Scope Documentation	.824	103	.000
18	CM01	Trust	.773	103	.000
19	CM02	Team Effectiveness	.750	103	.000
20	CM03	Timing of Information	.762	103	.000
21	CM04	Communication Capabilities of Project Team	.725	103	.000

22	CM05	Mutual Understanding	.761	103	.000
23	CM06	Clear Objectives	.680	103	.000
24	CM07	Overcoming Communication Barriers	.761	103	.000
25	CM08	Effective Decision Making	.725	103	.000
26	CM09	Monitoring Communication	.815	103	.000
27	CM10	Coordination	.752	103	.000
28	CM11	Resolving Conflicts	.810	103	.000
29	CM12	Transparency	.789	103	.000
30	CM13	Project Documentation	.791	103	.000

4.4.3 Kruskal Wallis Test for Non-Parametric Data

Since the results of Shapiro-Wilk test suggested that the data was non-parametric, so Kruskal Wallis test was done to check whether all the respondents had similar concerning the factors affecting project success.

Table 4-7: Kruskal Wallis Test for Academia, Clients/Owners, Consultants and Contractors

Sr. No.	ID	Parameter	Sig.
1	SM01	Identifying Stakeholders	.518
2	SM02	Effective Communication	.825
3	SM03	Enhancing a Good Relationship	.717
4	SM04	Resolving Conflicts	.259
5	SM05	Predicting Stakeholder's Influence	.508

6	SM06	Trust	.521
7	SM07	Reducing Uncertainty	.887
8	SM08	Access to Knowledge and Resources	.941
9	SCM01	Project Scope Definition	**.038**
10	SCM02	Effective Communication	.083
11	SCM03	Effective Decision Making	.826
12	SCM04	Project Leadership	.163
13	SCM05	Resolving Conflicts	.445
14	SCM06	Completeness of Project Scope	.315
15	SCM07	Identifying Project Drivers	.139
16	SCM08	Requirements Identification	.864
17	SCM09	Scope Documentation	.910
18	CM01	Trust	.749
19	CM02	Team Effectiveness	.173
20	CM03	Timing of Information	.425
21	CM04	Communication Capabilities of Project Team	.336
22	CM05	Mutual Understanding	**.039**
23	CM06	Clear Objectives	.917
24	CM07	Overcoming Communication barriers	.338
25	CM08	Effective Decision Making	.387
26	CM09	Monitoring Communication	.786
27	CM10	Coordination	.678
28	CM11	Resolving Conflicts	.904

29	CM12	Transparency	.778
30	CM13	Project Documentation	.586

Results of the test suggest that the respondents had similar perception regarding most of the factors but for the following factors a variation in perception was observed

a) Project Scope Definition

b) Mutual Understanding

4.5 RANKING OF FACTORS BY RII

The questionnaire contained 30 factors and the respondents were requested to mark the effect of each factor on project success. Relative importance index of each factor was calculated, and factors are ranked based on RII. Table 4-8 shows the ranking of factors from top to bottom

Table 4-8: Relative Importance Index of Factors

Sr. No.	ID	Factors	RII
1	SCM03	Effective Decision Making	0.891
2	CM06	Clear Objectives	0.885
3	SM02	Effective Communication	0.878
4	CM10	Coordination	0.864
5	SCM04	Project Leadership	0.862
6	CM08	Effective decision making	0.854
7	SM04	Resolving Conflicts	0.854

8	SCM06	Completeness of Project Scope	0.852
9	SCM02	Effective Communication	0.850
10	CM01	Trust	0.850
11	CM12	Transparency	0.849
12	SCM01	Project Scope Definition	0.847
13	CM13	Project Documentation	0.847
14	SM01	Identifying Stakeholders	0.841
15	CM03	Timing of Information	0.839
16	CM04	Communication Capabilities of Project Team	0.839
17	SCM08	Requirements Identification	0.827
18	SM08	Access to Knowledge and Resources	0.821
19	CM02	Team Effectiveness	0.821
20	CM11	Resolving Conflicts	0.821
21	CM05	Mutual Understanding	0.819
22	CM07	Overcoming Communication barriers	0.817
23	SCM05	Resolving Conflicts	0.802
24	CM09	Monitoring Communication	0.802
25	SCM07	Identifying Project Drivers	0.798
26	SCM09	Scope Documentation	0.798
27	SM03	Enhancing a Good Relationship	0.796
28	SM06	Trust	0.794
29	SM07	Reducing Uncertainty	0.775
30	SM05	Predicting Stakeholder's Influence	0.746

As it is evident from Table 4-8 respondents ranked Effective Decision Making as top factor for project success. Second factor affecting project success is Clear Objectives followed by Effective Communication, Coordination and Project Leadership respectively. Predicting Stakeholder's Influence is given least weightage.

4.6 DISCUSSION

Decision making for project success in complex project atmosphere is increasingly challenging and prone to unexpected circumstances. It is absolutely important for project management as multitude of decisions are made every day on projects about resources, activities, timelines, etc. Project results can be traced back to decisions that were taken at an earlier stage (El-Sabaa, 2001). Poor decisions have negative consequences not only on project end results but also on organization's bottom line. There are many reasons why projects fail; previous research shows that 47% of the projects are unsuccessful due to poor decision making (Williams and Samset, 2010).

Good decisions based on right information, strategic vision and adequate risk management lead to more successful projects that add value to the organizations. When decision makers have the right information, are familiar with the organizational strategy and pay adequate attention to managing risks, chances of project success can significantly improve. A total of 79% of projects meet intended goals when effective decision making is used with discipline. Numerous decisions are made during the lifetime of the project. Decisions improve when right people, culture and processes are used (Virine and Trumper, 2007).

Some of the decisions on project are small and barely noticeable where as others are prominent and under intense check but together they make up the work that leads to project success or failure.

Most productive project organizations make good decision quickly and implement them proficiently thus increasing the probability of project success (Eweje et al., 2012).

Analyzing the survey results, it is strongly implied that effective decision making is crucial for project success. This argument can be defended by our results, where this factor managed to score the highest RII of 0.891.

Projects will only succeed if they have clear goals and objectives. Meeting project goals equals success but to reach them one must clearly define and support them with an action plan. Projects suffer when they are implemented without clarity and forethought (Duy Nguyen et al., 2004). Complex projects involve numerous goals and disciplines, but it is critical to choose the leading objective. Without a clear documentation of the position of objectives, there could be no base to measure the success which includes an assessment of the level to which the goals are achieved. In this situation the objectives will become the standard to measure success (Ogunlana, 2008).

Unclear objectives can cause a lot of confusion among project stakeholders thus increasing the chances of project failure. Clear project objectives are necessary to keep the project team on the same page. To achieve objectives project team members should have a clear idea of what they are working towards and should have sufficient tools and resources (Ogunlana, 2010).

Project objectives should be finite in duration and scope and should be measurable. Project team should have a clear consideration of their responsibilities and objectives at the specific stage during the project lifecycle. Chances of project success greatly improve when project team puts time and effort into defining its objectives clearly (Chan et al., 2004). As the results of the survey indicate, respondents found defining clear objectives quite relevant to project success as this factor's relative impact index is 0.885.

Researchers have listed communication as one of the areas that needs much improvement in projects. To ensure project success much information needs to be communicated regularly. Effective project managers spend 90% of their time communicating across stakeholders. Communication is often taken for granted in projects which leads to confusion among stakeholders (Kliem, 2007).

Communication improvements in early stages of the project would positively influence the quality of the project as it leads to better decision making on the projects. Importance of effective communication in projects especially construction projects cannot be under estimated. Poor communication causes waste of time and other resources in construction projects thus leading to project failure (Grunig and Dozier, 2003). Best project performance is attained when there is high level of communication and collaboration between project stakeholders. It can help build trust in the project thus avoiding conflicts between project parties (Bilczynska Wojcik, 2014).

Chances of project success greatly improve when effective and timely communication is ensured among team members. This argument can be supported by the survey results where this factor secured an RII of 0.878.

Coordination on projects is a key issue for successful completion of projects. It can be viewed as the process of managing resources on projects in an organized manner so that improved operational efficiency can be achieved on projects. Interdependencies between project team members in complex projects requires them to coordinate extensively during project execution for successful and timely completion of projects (Hossain, 2009).

Improved coordination can reduce delays on projects significantly thus ensuring project success. Respondents have ranked coordination as one of the top factors effecting project success with an RII of 0.864.

Project manager's leadership role towards project team influences performance on projects. The role of project leadership is to motivate and guide people to realize their potential to achieve complex project goals. Project managers must manage teams consisting of various disciplines and most of the times they have no direct control over them and the conditions for team selection are not ideal which increases uncertainty on projects. Leadership must have its energies focused towards convincing individuals about the requirement to change, directing them to a new path, and encouraging people to work together to attain project goals under difficult and challenging environments. Many researchers have discussed the importance of project leadership for project performance (Madter et al., 2012). Leadership is considered a determining factor for success as it provides ability and vision to deal with change on projects (Sauer et al., 2001).

Project leadership is fairly significant for project success as indicated by the survey results where it has managed to score an RII of 0.862.

In addition to rank the factors the survey results are used to graphically represent the framework for project success in Figure 4-1. It can be seen that when stakeholders, scope and communications are combinedly managed, resolving conflicts becomes a very important factor for project success as it is common in the three mentioned areas. Other common factors are effective decision making, effective communication and trust.

Conflicts are destructive to project success and should be resolved as soon as possible. They are inevitable to complex projects especially construction projects. Conflicts on projects arise due to

varying interests and incompatibilities. It becomes very difficult to resolve these conflicts due to the lack of established procedure to mitigate them (Ng et al., 2007). The importance of conflicts can never be understated as resolution of differences between stakeholders can take large amount of time and energy of project management team. If a conflict is timely resolved it can improve satisfaction among project stakeholders thus improving the chances of project success (Leung et al., 2002).

Negative attitude of project stakeholders can give rise to conflicts and disputes that can divert the focus of project team from the main objectives of the project thus causing cost and time overruns. In construction industry due to quantum of work and resulting disruptions, conflicts can spread like an epidemic. Project managers are expected to mitigate the issues that arise during execution of a project. The probability of conflicts is magnified when multiple number of stakeholders are associated with a project. Project managers should address the concerns of various stakeholders so that disputes can be avoided, and the goal of successful project can be achieved (Li et al., 2012).

Another important factor for project success is trust and cooperation among various parties involved in a project. Trust can help to reinforce stakeholders' confidence, expectations, behavior and overcome uncertainty (Kadefors, 2004). This helps in maintaining a friendly relationship where project team can involve in constructive interaction which leads to successful project completion. Trust can reduce destructive conflicts and improves response to crisis. It is also vital for problem solving as it assures the exchange of related information and measures the willingness of project team to let others effect their actions and decisions. Development of a trusting environment can be affected by the history of previous relationships and prior ties between parties involved. Deterioration of stakeholder relationships can increase the chances of project failure. Trust can act as a facilitator for building constructive relationship among stakeholders. Trust and

cooperation between project stakeholders can significantly improve performance on projects especially construction projects. (Terje Karlsen et al., 2008).

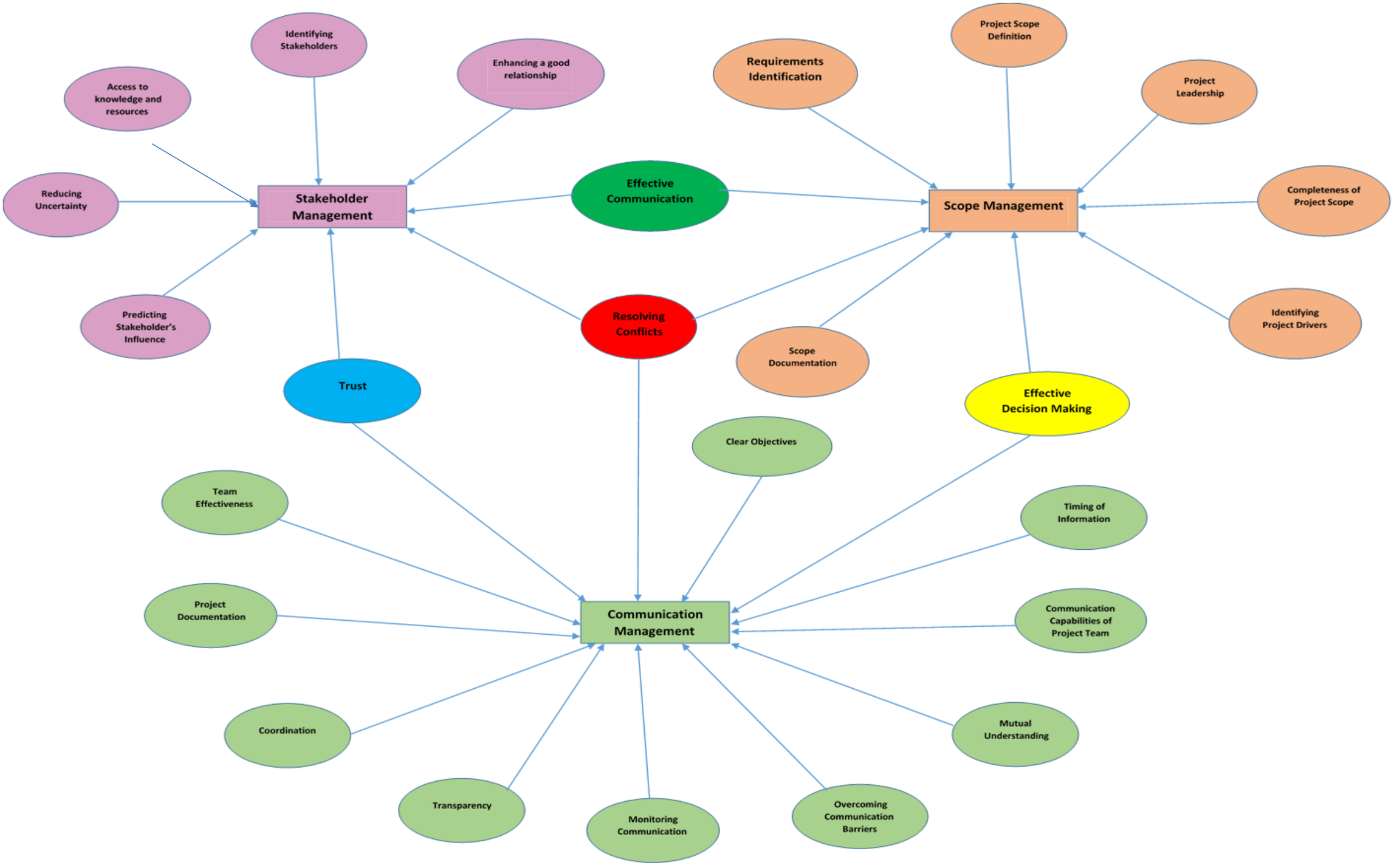

Figure 4-1: Project Success Framework

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

5.1 INTRODUCTION

In this chapter conclusions and recommendations resulting from the research are discussed. The research was focused on finding the factors from three areas of project management namely stakeholder, communication and scope management and determining their effect on project success. The first objective of the research was to find the critical success factors from above mentioned areas of project management. This objective was achieved through extensive literature review through which the factors were identified, and a preliminary survey was carried out to shortlist the factors so that only important factors were left for further research. The second objective was to estimate the effect of shortlisted factors on project success. This objective was achieved by carrying out detailed questionnaire survey. The third objective was to discuss the top factors affecting project success. This objective was achieved by ranking the factors based on their relative importance index and by discussing them in detail according to the available literature.

5.2 CONCLUSIONS

After carrying out detailed statistical analysis on the results of the questionnaire survey major findings of the research are as discussed below.

Top five factors affecting project success are Effective Decision Making (0.891), Clear Objectives, Effective Communication (0.885), Coordination (0.878), and Project Leadership (0.864). In addition to finding the top factors affecting project success research findings also show that when

stakeholders, scope and communications are managed together Resolving Conflicts become very important factor as it is common factor in all the three areas. Other common factors are Effective Decision Making, Effective Communication and Trust.

5.3 RECOMMENDATIONS

Based on the findings of the research some recommendations are listed below

- This research focused on three areas of project management for project success namely stakeholders, scope and communication management. Other management areas can be selected, and their CSFs can be identified to expand the research.
- Modeling techniques can be utilized to improve the results and case studies can be performed to validate the findings.

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